

**DRAFT ENVIRONMENTAL IMPACT REPORT
STATE CLEARINGHOUSE NO. 2006091093**

**ARANTINE HILLS SPECIFIC PLAN
CITY OF CORONA
RIVERSIDE COUNTY, CALIFORNIA**

LSA

May 9, 2012

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**ARANTINE HILLS SPECIFIC PLAN
CITY OF CORONA
RIVERSIDE COUNTY, CALIFORNIA**

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Draft Environmental Impact Report (Draft EIR) (State Clearinghouse No. 2006091093) for the Arantine Hills Specific Plan (proposed project, project, or Specific Plan) has been prepared by LSA Associates, Inc. on behalf of the City of Corona (City or Lead Agency) to: 1) identify the proposed project's impacts on the environment; 2) discuss alternatives to the proposed project; and 3) propose mitigation measures that will offset, minimize or otherwise avoid significant environmental impacts associated with the proposed project. The EIR has been prepared in accordance with the *California Environmental Quality Act*¹ (CEQA) and *Guidelines for California Environmental Quality Act*,² both of which regulate the preparation of EIRs. This Executive Summary has been prepared in accordance with CEQA Guidelines Section 15123.

This Draft EIR has been prepared to evaluate comprehensively the potential impacts that would result from implementation of the proposed project. The Draft EIR addresses the short-term and long-term effects of the project on the environment, and evaluates the potential for the project to cause direct and indirect growth-inducing impacts as well as cumulative impacts. As appropriate, mitigation has been identified for those impacts determined to be significant. The Draft EIR also analyzes alternatives to the proposed project that would substantially reduce or avoid potentially significant impacts associated with the proposed project.

The environmental review process for the proposed project is normally a three-step process governed by CEQA. The first step is for the Lead Agency, the City of Corona, to determine whether a project is exempt from CEQA review. The City has determined that this project is not exempt. As permitted under CEQA Guidelines (§15060(d)), if an EIR is clearly required for a project, the City may skip initial review of the project and begin work directly on the EIR. As the City has determined the preparation of an EIR is clearly required for the project, it elected to prepare the DEIR without preparation of an Initial Study. To assess the environmental effects associated with implementation of the proposed project, the following issues have been addressed in this Draft EIR:

- Aesthetics;
- Agricultural and Forest Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Noise;
- Population and Housing;
- Public Services;
- Recreation;
- Traffic; and
- Utility Systems.

¹ *California Environmental Quality Act*, as amended January 1, 2011, §§21000–21189.3, Public Resources Code, State of California.

² *Guidelines for California Environmental Quality Act*, as amended January 1, 2011, §§15000–15387, California Code of Regulations, Title 14, Chapter 3, State of California.

1.2 PROJECT SUMMARY

The proposed project is located in the Bedford Canyon area of the Santa Ana Mountain foothills in the southeastern portion of Corona (Figure 1.1). The City of Corona is generally situated southwest of the City of Riverside, south of the City of Norco, and north of the City of Lake Elsinore in Riverside County, California. The proposed project would result in the creation of a 276-acre master-planned community that includes residential, commercial, and mixed-use development as well as open space/recreational uses (Figure 1.2). The Specific Plan would establish land use types, locations, and densities; a circulation concept; infrastructure and public facility improvements; development standards and design guidelines; and an implementation program that would guide development for the Arantine Hills. Project approvals include the approval of a General Plan Amendment (the modification of the existing General Plan land use designations on site from Agriculture-Possible Future Urban Use to Low Density Residential, Medium Density Residential, High Density Residential, General Commercial, Mixed Use, Park, and Open Space General), the approval of the Specific Plan, approval of a development agreement, approval of a tentative map, and approvals of subsequent parcel maps and tentative tract maps. The project will also include certification of an EIR by the City Council.

1.3 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

In addition to a summary of the significant effects that would result from implementation of the proposed project, this EIR includes proposed mitigation measures that have been identified to reduce or avoid such effects. CEQA Guidelines §15123(b)(2) requires that areas of controversy known to the City be stated in the EIR summary. The following discussion identifies issues raised by other agencies and the public during the 30-day public comment period of the Notice of Preparation (NOP), as well as comments received during the public scoping meeting that was held for the proposed project at the Woodrow Wilson Elementary School in the City of Corona.

1.3.1 Notice of Preparation

An NOP for the Draft EIR was distributed to State, regional, and local agencies, and other interested parties considered likely to be interested in the project and its potential impacts. The objective of distributing an NOP is to solicit public comment in order to identify and determine the full range and scope of issues of concern so that these issues might be fully examined in the EIR. The City circulated an NOP two separate times for the proposed project. The first NOP was circulated to State, regional, and local agencies and other interested parties on September 18, 2006, for a 30-day review period.¹ The City circulated a second NOP for the proposed project on January 20, 2010, for a 30-day review period.² Comments received regarding the NOP were used to help identify impacts that could result from implementation of the proposed project. The NOP, distribution list, and response letters are included in Appendix A of the Draft EIR.

1.3.2 Scoping Meeting

Two public scoping meetings were held for the proposed project. The first public scoping meeting was held at the City of Corona Multi-Purpose Room in Corona on July 27, 2006. Of the 27 members of the general public who attended, 16 provided written comments about the proposed project. The second public scoping meeting was held at the Woodrow Wilson Elementary School in Corona on February 11, 2010 with seven members of the general public providing written comments about the proposed project.

¹ The Notice of Preparation 30-day public review period was from September 18 to October 17, 2006.

² The Notice of Preparation 30-day public review period was from January 20 to February 18, 2010.

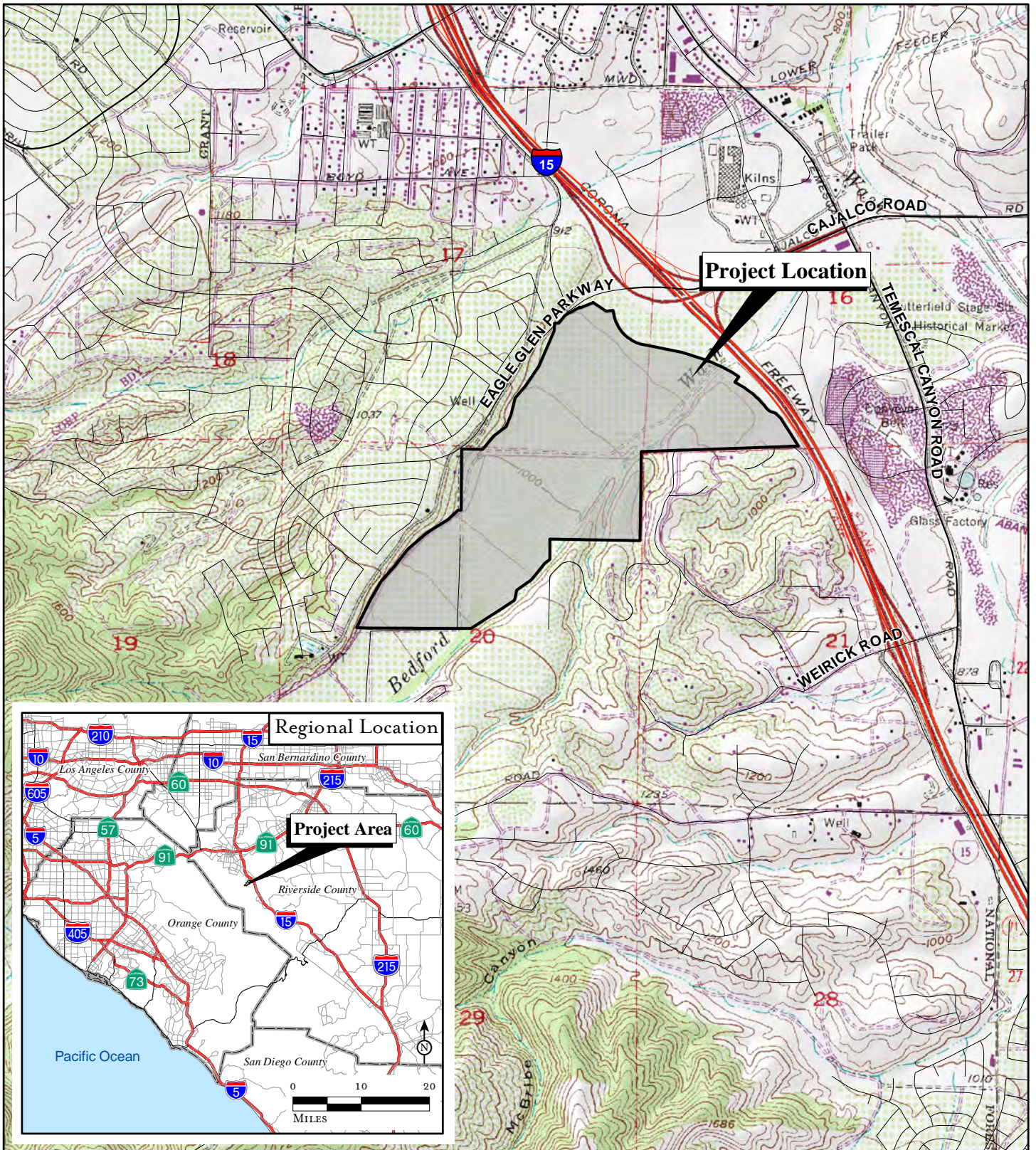
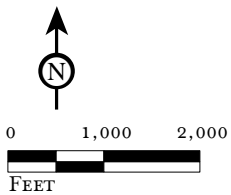


FIGURE I.1

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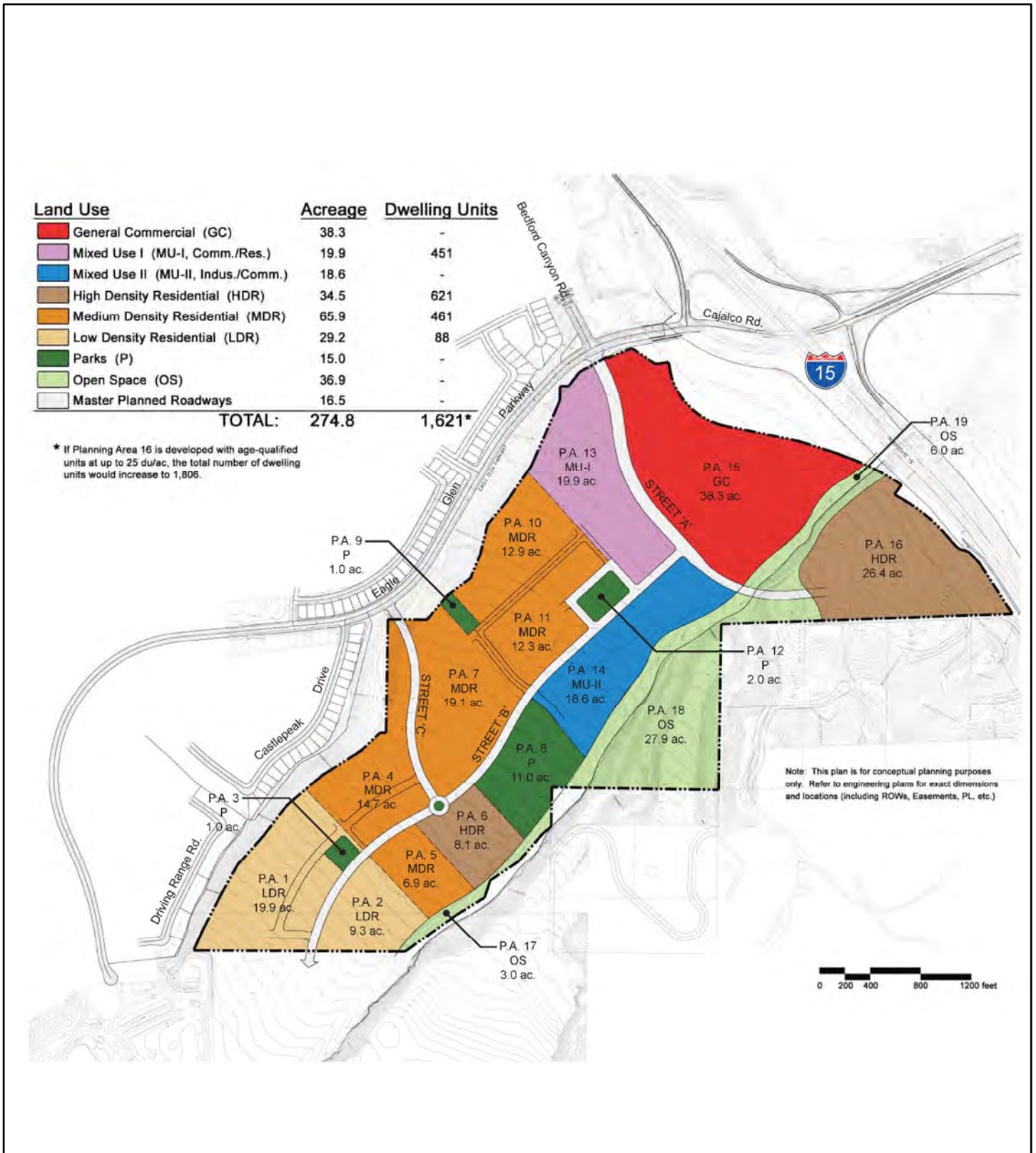
SOURCE: USGS 7.5' Quad: Corona South (1988), CA; Thomas Bros., 2009

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Regional and Project Location

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FIGURE 1.2

Arantine Hills Specific Plan
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Specific Plan Designations

SOURCE: Arantine Hills Specific Plan, 2010.

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1.4 ALTERNATIVES TO THE PROPOSED PROJECT

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a Proposed Project. *CEQA Guidelines* (§15126[d]) emphasizes the selection of a reasonable range of technically feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis and consideration by decision-makers. *CEQA Guidelines* state that the discussion of alternatives shall focus on alternatives capable of eliminating or reducing significant adverse environmental effects of a proposed project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives required in an EIR is governed by a “rule of reason,” which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Pursuant to CEQA, “feasible” has been defined as “...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.”¹

1.4.1 Alternatives Summary

Five alternatives were identified for further analysis in this EIR. Summaries of each alternative have been provided below. More detailed descriptions of each project alternative are provided in Section 6.0 of this EIR. The five alternatives analyzed in this EIR are:

- Alternative 1: No Project Alternative;
- Alternative 2: Reduced Density Alternative;
- Alternative 3: High Density/Compact Development Alternative;
- Alternative 4: Residential Focus Alternative; and
- Alternative 5: Minimum Density Clustered Development Alternative.

The land use attributes by acre for each alternative are summarized in Table 1.A.

Table 1.A: Alternatives Summary

Alternative	Residential (du)	Commercial/Light Industrial (sf)	Parks (ac)	Preserved Open Space (ac)
Proposed Project	1,806	745,300	15.2	36.6
Alternative 1: No Project Alternative	—	—	—	—
Alternative 2: Reduced Density Alternative	1,353	558,975	15.2	36.6
Alternative 3: High Density/Compact Development Alternative	1,808	745,300	15.2	65.9
Alternative 4: Residential Focus Alternative	2,094	627,300	15.2	36.6

¹ Guidelines for California Environmental Quality Act, §15364.

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Table 1.A: Alternatives Summary

Alternative	Residential (du)	Commercial/Light Industrial (sf)	Parks (ac)	Preserved Open Space (ac)
Alternative 5: Minimum Density Clustered Development Alternative	1,324	745,300	15.2	36.6

du = dwelling unit ac = acre sf = square feet
Sources: Arantine Hills Specific Plan, October 2011; LSA Associates, October 2011.

1.4.2 Alternative 1: No Project Alternative

Pursuant to CEQA (§15126.6[e][2]), the No Project Alternative should discuss what would reasonably be expected to occur, based on current plans and consistent with available infrastructure and community services, in the foreseeable future. The No Project Alternative would result in a continuation of existing conditions on the project site. For this reason, this alternative represents a baseline against which the impacts of the proposed project would be measured. Because no development would be assumed in this alternative, the development of a master-planned community with adequate infrastructure to serve it would not occur. As a result, the provision of none of the residential, commercial, office, business park, light industrial, and park uses would be developed, existing roadways or infrastructure facilities would not be expanded, and establishment of an open space preservation area with a multi-purpose trail would not occur.

1.4.3 Alternative 2: Reduced Density Alternative

The Reduced Density Alternative would consist of a specific plan that is designed to enable development within the Specific Plan area at residential and commercial, office, and light industrial densities considerably lower than anticipated under the proposed project. This alternative would consist of reducing the project dwelling units, commercial uses, industrial uses, and office uses by 25 percent, resulting in a total of 1,353 dwelling units and approximately 558,975 square feet of commercial, office, and light industrial uses within the 276 acre Specific Plan area.

1.4.4 Alternative 3: High Density/Compact Development Alternative

Implementation of the High Density/Compact Development Alternative assumes a specific plan that would consist of a similar number of residential units and urban development as the proposed project (1,621 dwelling units and 745,300 square feet of commercial, office, and light industrial use) within a more compact development footprint. This alternative assumes that Planning Areas 1 and 2 (both currently designated as Low Density Residential) would be re-designated as open space and that Planning Areas 10 and 11 would have a target density of 11 du/acre and 10 du/acre respectively. The 88 dwelling units that would be constructed in Planning Areas 1 and 2 would be added to the units constructed in Planning Areas 10 and 11.

With a target density of 11 du/acre, Planning Area 10 would have 142 dwelling units (from 90 dwelling units). For Planning Area 11, a target density of 10 du/acre would result in approximately 126 dwelling units (from 88 dwelling units). All other aspects of the Specific Plan would remain the same under this alternative as identified in the proposed project. In summary, this Alternative would result in a total of 1,808 dwelling units and approximately 745,300 square feet of commercial, office, and light industrial uses within the Specific Plan area. This alternative would also result in approximately 29.2 additional acres of open space.

1.4.5 Alternative 4: Residential Focus Alternative

The Residential Focus Alternative would consist of a specific plan that is designed to maximize residential development within the Specific Plan area by providing for residential densities somewhat higher than anticipated under the proposed project while reducing the intensity of commercial uses permitted. The Residential Focus Alternative would result in the re-designation of Planning Area 13 from mixed to residential uses. Implementation of this alternative would result in the removal of 118,000 square feet of planned commercial and office uses and construction of 739 dwelling units within Planning Area 13.

The 739 dwelling units identified for this alternative utilize the targeted density proposed for Planning Area 13 (35 du/acre). All other aspects of the Specific Plan would remain the same under this alternative as identified in the proposed project. In summary, this Alternative would result in a total of 2,094 dwelling units and approximately 627,300 square feet of commercial, office, and light industrial uses within the Specific Plan area.

1.4.6 Alternative 5: Minimum Density Clustered Development Alternative

The Minimum Density Clustered Development Alternative would reduce the total number of units on the proposed project site to 1,324 total units, which utilizes the lowest density range proposed for each of the Planning Areas. However, the residences would be clustered into denser groupings, creating additional open space and greenbelt areas. All other components of the proposed Specific Plan would remain the same, resulting in 745,300 square feet of commercial, office, and light industrial uses 15.2 acres of parks, and 36.6 acres of open space.

1.5 IMPACTS, MITIGATION, AND LEVEL OF IMPACT SUMMARY TABLE

Table 1.B, Arantine Hills Specific Plan Environmental Impact Summary, delineates the environmental impacts for various issues of the proposed project as discussed in this Draft EIR. This table serves as a tool designed to track both standard requirements and mitigation measures identified in the Draft EIR and will be used to prepare the project's Mitigation Monitoring Reporting Program (MMRP).

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Table 1.B: Arantine Hills Specific Plan Environmental Impact Summary

Issues/Impacts	Mitigation Measures	Level of Significance
4.1 AESTHETICS		
LESS THAN SIGNIFICANT IMPACTS		
Scenic Vistas		
<p>Implementation of the proposed project would not result in the obstruction of the City-designated scenic vistas. Due to the higher elevation of the surrounding uses and I-15, the development of the proposed project within Bedford Canyon would be far below the elevation of the adjacent viewers and would not obstruct views beyond the canyon and views from the elevated Eagle Glen area would not be substantially affected. Because the proposed project is consistent with development envisioned in the General Plan, and because implementation of the proposed project would not affect City-designated scenic vistas, potential impacts to scenic vistas would be less than significant.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Scenic Resources and Scenic Highways		
<p>City-designated scenic highways are not in the vicinity of the proposed project. The segment of I-15 in the vicinity of the proposed project is not an officially designated State scenic highway. While significant visual resources are visible from the proposed project site and surrounding roadways, none of these resources is visible from a designated scenic highway. In the absence of scenic resources visible from designated scenic highways, no impacts would occur related to this issue.</p> <p>As described in the City's General Plan EIR, open space and agricultural areas provide visual relief from urbanized areas and provide views for motorists, pedestrians, and residents. The General Plan EIR states that large open space and agricultural areas located in the southern portion of the City would remain with implementation of the proposed General Plan. At the same time, the General Plan designates the proposed project site as Agriculture – Future Urban Use, clearly acknowledging that the proposed project site is slated for development at some point in the future and is therefore not considered to be an aesthetic resource in its current undeveloped state. The General Plan EIR goes on to note that development of other undeveloped areas within the City would change the visual</p>	<p>No mitigation is required.</p>	<p>No impact and Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>quality of the area, but also notes that vacant lands are considered to contain little aesthetic value. Future development of these areas would comply with General Plan policies regulating the design of new buildings and protecting the visual quality of the City. For these same reasons as cited from the General Plan EIR, although development of the proposed project would convert vacant lands to urban uses, the visual quality of the area would not be degraded, resulting in a less than significant impact.</p>		
Existing Visual Character and Surroundings		
<p>Although implementation of the proposed project would result in development that would alter the existing visual character of the site, the City acknowledges future development will occur on the site and the site is not considered to be an aesthetic resource in its current undeveloped state. Adherence to established and proposed City requirements for architectural elements, design features, landscape requirements (as specified in the Specific Plan) would ensure a high-quality, consistent, and compatible development that would not substantially degrade the visual character or quality of the site. Furthermore, implementation of the proposed project would not conflict with applicable policies of the City's General Plan as they relate to aesthetics. Therefore, impacts are considered less than significant.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Light and Glare		
<p>The proposed project is located at a lower elevation than the existing adjacent land uses and lighting would not shine up on adjacent properties. All lighting fixtures associated with implementation of the proposed project would be required to adhere to the City's lighting standards and would be required to direct light downward with minimal spillover onto adjacent residences, sensitive land uses, and open space, resulting in a less than significant impact. Due to the low intensity of traffic signal lights that will be installed as part of the project, shielding that is used on the traffic signals to prevent the light from spreading, and the presence of higher power lighting currently in the area of the proposed intersections, lighting impacts from the placement of new traffic control devices would be less than significant. Adherence to the City's Zoning Code would ensure that any building or parking lighting would not significantly impact</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
adjacent uses. Therefore, impacts associated with this issue are less than significant.		
Aesthetics Cumulative Impacts		
<p>The cumulative effect on scenic vistas from the proposed project would be less than significant as scenic vistas would not be affected from viewpoints within certain project locations and adjacent roads. Although the development of the properties that may occur subsequent to adoption of the proposed land use actions would alter views of the surrounding area, vistas would not be completely obstructed from viewpoints afforded from the circulation network, openings between rows of buildings or trees, or at the end of vehicular rights-of-way. Compliance with the City's Municipal Code and General Plan standards would ensure that the proposed project in combination with other projects in the area would not result in significant impacts upon scenic vistas. As a result, the projects would create a less than significant cumulative impact on local scenic vistas. Cumulatively, more lighting would be introduced into the area by proposed, existing, and future development. As with past and currently proposed development, cumulative lighting-related impacts would be reduced through the adherence to applicable City lighting standards. No cumulatively significant lighting impact would result from implementation of the proposed project.</p> <p>Development of lands within the City would result in the cumulative conversion from open space to a more urbanized land use. However, this is a continuing development trend currently occurring within the southern portion of the City that has been anticipated in the City's General Plan. The proposed project, in conjunction with other cumulative projects would be developed in a manner consistent with existing development trends in the City. Cumulatively, more lighting would be introduced into the area by proposed, existing, and future development. As with past and currently proposed development, cumulative lighting-related impacts would be reduced through the adherence to applicable City lighting standards. No cumulatively significant lighting impact would result from implementation of the proposed project.</p>	No mitigation is required.	Less Than Significant.

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Issues/Impacts	Mitigation Measures	Level of Significance
SIGNIFICANT IMPACTS		
All potential aesthetic impacts of the proposed project have been determined to be less than significant.	Not applicable.	Not Applicable.
4.2 AGRICULTURAL RESOURCES		
LESS THAN SIGNIFICANT IMPACTS		
Conflict with an Existing Agricultural Zone		
The Specific Plan area is currently zoned as “Agricultural.” Adoption of the proposed Specific Plan will establish new zoning for the project site upon the Specific Plan becoming effective. The current zoning for the Specific Plan Area will be changed from “Agricultural” to “Low Density Residential,” “Medium Density Residential,” “High Density Residential,” “General Commercial,” “Mixed-Use I,” “Mixed-Use II,” “Park,” and “Open Space.” The proposed zone change will facilitate development that is consistent with the City’s General Plan. Because the proposed zone change and subsequent development of on-site uses would be consistent with the General Plan, no significant impact associated with the changing of the zoning of the Specific Plan area would occur.	No mitigation is required.	Less Than Significant.
Conversion of Agricultural Lands to Non-Agricultural Uses		
Because the Land Evaluation and Site Assessment (LESA) Land Evaluation (LE) subscore for the proposed project does not exceed the 20 point threshold, potential impacts associated with the conversion of the project site to developed uses represents a less than significant impact on agricultural resources.	No mitigation is required.	Less Than Significant.
Conflict with an Existing Forest Zone or Loss/Conversion of Forest Lands to Non-Forest Uses		
The project site is currently designated as “Agriculture – Possible Future Urban Use” and zoned as “Agricultural.” Since the project site does not have any designated forest land use and is currently zoned for agricultural uses, the rezoning of this site would not conflict with existing forest zoning, cause rezoning of forest land, or result in the loss or conversion of forest lands to non-forest uses. Therefore, no impacts associated with these issues would occur.	No mitigation is required.	No Impact.

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Issues/Impacts	Mitigation Measures	Level of Significance
Termination of Williamson Act Contracts		
<p>For the proposed Specific Plan to occur on the project site, the applicant must submit an application to cancel the Williamson Act contract and the City must take action thereon at a public hearing. The applicant has submitted to the City an application to cancel the Williamson Act contract as it applies to the Arantine Hills Specific Plan. The application included a Notice of Non-Renewal for the contract only as it applies to the Williamson Act contracted land (totaling approximately 217.38 acres). The City filed a petition with the State Department of Conservation (DOC) for the cancelation of the Land Conservation Contracts (per the Williamson Act) on the applicable 217.38 acres. The DOC reviewed the petition, and on January 13, 2012, issued a letter to the City acknowledging its concurrence with the City's stated cancellation findings required for City Council action on the cancellation request. Development inconsistent with the Williamson Act contract cannot occur prior to final cancellation of the contract. Tentative cancellation of the Land Conservation Contracts will be considered by the City Council as part of the project's entitlement and subsequent to certification of this EIR. Certification of final cancelation occurs after the payment of any penalties assessed by the County Assessor. The process to cancel the existing Williamson Act contract has already commenced. For this reason, the project would not produce termination of a Williamson Act Contract, resulting in a less than significant impact.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
SIGNIFICANT IMPACTS		
Impact 4.2.6.1: Conversion of Prime, Unique, or Statewide Important Farmland		
<p>Approximately 54.15 acres of the Specific Plan area are designated as Prime Farmland and 118.34 acres are designated as Unique Farmland. The conversion of the 54.15 acres of on-site Prime Farmland would be equivalent to 0.82 percent of the total loss of Prime Farmland in the County during this period. Similarly, the conversion of the 118.34 acres of on-site Unique Farmland would be equivalent to 14.5 percent of the total loss of Unique Farmland in the County during this period. Because Prime Farmland and Unique Farmland are considered to be a finite resource, its conversion to a non-agricultural use is a significant impact. However, there are no agricultural programs or mechanisms similar to those discussed above within the City or County of Riverside currently in place. At this</p>	<p>There is no feasible mitigation available.</p>	<p>Significant and unavoidable.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>point, there is no mechanism in place to collect fees associated with a mitigation bank or require agricultural easements as part of the environmental review of individual projects. For this reason, and as stated in the City’s General Plan EIR, there “is no feasible mitigation to reduce the proposed project’s impacts associated with the conversion of agricultural uses to nonagricultural uses to a less-than-significant level.”</p>		
Agricultural and Forest Resources Cumulative Impacts		
<p>The City maintains an interim General Plan designation for agricultural uses until such time agricultural land is converted to uses consistent with the General Plan. The cumulative effect of development in the region will continue to result in the conversion of agricultural lands to non-agricultural uses. Because agricultural land, including Prime Farmland, Williamson Act land, and land zoned for agricultural operations, is a finite resource, the conversion of 276 acres to urban uses, combined with planned and future development in the City and region, represents a significant cumulative impact to agricultural operations and resources that cannot mitigated. Therefore, cumulative impacts associated with agricultural resources remain significant and unavoidable.</p>	<p>There is no feasible mitigation available.</p>	<p>Significant and unavoidable.</p>
<p>4.3 AIR QUALITY</p>		
<p>LESS THAN SIGNIFICANT IMPACTS</p>		
<p>Implementation of the proposed project would require a General Plan Amendment and Zone Change that would change the General Plan and zoning designations of the project site from Agriculture – Future Urban Uses to Low-, Medium-, and High-Density Residential, General Commercial, Mixed Use I and II, Parks, and Open Space. However, the growth forecasts contained in SCAG’s Regional Transportation Plan are based on the future land use assumptions for the proposed project site as provided to the SCAG during its coordination with the City. These same data are used by the SCAQMD in its development of the regional AQMP. For this reason, the proposed project is consistent with the AQMP; therefore, a less than significant impact would occur.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
Fugitive Dust Emissions		
<p>The proposed project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires implementation of dust-suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques will reduce the fugitive dust generation (and thus the PM₁₀ component) from the proposed project to below SCAQMD daily construction thresholds, resulting in a less than significant impact.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Odors		
<p>SCAQMD Rule 402 dictates that air discharged from any source shall not cause injury, nuisance, or annoyance to the health, safety, or comfort of the public. With the exception of short-term construction-related odors (e.g., equipment exhaust and asphalt odors), the proposed uses that would be developed on the proposed site do not include uses that are generally considered to generate offensive odors (e.g., agricultural uses, wastewater treatment plants, or landfills). While the application of architectural coatings and installation of asphalt may generate odors, these odors are temporary and not likely to be noticeable beyond the project boundaries. SCAQMD Rules 1108 and 1113 identify standards regarding the application of asphalt and architectural coatings, respectively. Adherence to applicable provisions of these rules is standard for all development within the Basin, resulting in a less than significant impact.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
Long-Term Microscale (CO Hot Spot) Emissions		
<p>Under future conditions with the project, the intersections analyzed for the daily peak hour would experience 1-hour and 8-hour CO concentrations below federal and state standards. Because exceedance of the state or federal 1-hour and 8-hour concentrations would not occur, no CO hot spots would result from the proposed project resulting in no impact.</p>	<p>No mitigation is required.</p>	<p>No Impact.</p>
SIGNIFICANT IMPACTS		
Impact 4.3.6.1: Construction Equipment Exhaust Emissions		
<p>Construction equipment exhaust emissions during the anticipated peak construction day for the proposed project would exceed SCAQMD daily construction thresholds for NO_x. This is a significant impact requiring mitigation. This is a significant impact.</p>	<p>4.3.6.1A: Prior to the issuance of a grading permit, the project developer shall require by contract specifications that contractors shall place construction equipment staging areas at least 200 feet away from sensitive receptors. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.</p> <p>4.3.6.1B: Prior to the issuance of a grading permit, the project developer shall require by contract specifications that contractors shall utilize power sources (e.g., power poles) or clean-fuel generators. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.</p> <p>4.3.6.1C: Prior to the issuance of a grading permit, the project developer shall require by contract specifications that contractors shall utilize California Air Resources Board (CARB) Tier II Certified equipment or better during the rough/mass grading phase for the following pieces of equipment: rubber-tired dozers and scrapers. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.</p>	<p>Significant and Unavoidable.</p>
Impact 4.3.6.2: Localized Construction Equipment Emissions		
<p>Emissions from construction activities would exceed the SCAQMD localized thresholds for PM₁₀. This is a significant impact.</p>	<p>Previously identified Mitigation Measures 4.3.6.1A through 4.3.6.1C.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
Impact 4.3.6.3: Architectural Coatings		
VOC emissions were determined to be less than the SCAQMD significance threshold. However, the City has no assurance that Rule 1113 measures, such as use of HVLP sprayers, will be utilized during the application of architectural coatings. This is a significant impact.	4.3.6.3A: Prior to the issuance of each building permit, the project applicant shall require by contract specifications that architectural coatings require the use of either HVLP spraying equipment or manual application techniques to apply architectural coatings. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.	Less Than Significant.
Impact 4.3.6.4: Long-Term Operational Emissions		
Long-term operational emissions for the proposed project would exceed SCAQMD daily operational thresholds for CO, VOC, NO _x , and PM ₁₀ , resulting in a significant impact.	<p>4.3.6.4A: Prior to issuance of each building permit associated with the Specific Plan, building and site plan designs shall ensure that the project's energy efficiencies surpass applicable 2008 California Title 24, Part 6 Energy Efficiency Standards by a minimum of 20 percent. Verification of increased energy efficiencies shall be documented in Title 24 Compliance Reports provided by the Applicant, and reviewed and approved by the City. Any combination of the following design features may be used to fulfill this requirement provided that the total increase in energy efficiency meets or exceeds 20 percent:</p> <ul style="list-style-type: none"> • Exceed 2008 California Title 24 Energy Efficiency performance standards for water heating and space heating and cooling. • Increase in insulation such that heat transfer and thermal bridging is minimized. • Limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption. • Incorporate dual-paned or other energy efficient windows. • Incorporate energy efficient space heating and cooling equipment. • Install interior and exterior energy efficient lighting which exceeds the 2008 California Title 24 Energy Efficiency performance standards including but not limited to 	Significant and Unavoidable.

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Issues/Impacts	Mitigation Measures	Level of Significance
	<p>automatic devices to turn off lights when they are not needed.</p> <ul style="list-style-type: none"> • To the extent that they are compatible with landscaping guidelines established by the City, include shade-producing trees, particularly those that shade paved surfaces such as streets and parking lots and buildings, within the project site. • Use light and off-white colors in the paint and surface color palette for project buildings to reflect heat away. • All buildings shall be designed to accommodate renewable energy sources, such as photovoltaic solar electricity systems, appropriate to their architectural design. <p>4.3.6.4B: Prior to issuance of each building permit associated with the Specific Plan, the following design features shall be implemented to reduce energy demand associated with potable water conveyance:</p> <ul style="list-style-type: none"> • Landscaping palette emphasizing drought-tolerant plants; • Use of water-efficient irrigation techniques; and, • U.S. EPA Certified WaterSense labeled for equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads. 	
Air Quality Cumulative Impacts		
<p>Short-Term Air Quality Impacts. The cumulative area for air quality impacts is the Basin. The implementation of the project would contribute criteria pollutants to the area during project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction would result in substantial short-term increases in air pollutants. However, each project would be required to comply with</p>	<p>No mitigation is required.</p>	<p>Less than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>the SCAQMD's standard construction measures. Therefore, cumulative impacts associated with this issue would be less than significant.</p> <p>CO Hot Spot Impacts. With implementation of the project,, no significant CO hot spot impacts would occur. It is anticipated that CO emissions in the future will decrease with advances in technology, resulting in a decrease in background CO concentrations in future years as the concerted effort to improve regional air quality progresses. Therefore, CO concentrations in the future years would generally be lower than existing conditions. For these reasons, it is reasonable to assume that a less than significant cumulative CO impact would occur.</p> <p>Long-Term Regional Air Quality Impacts. Long-term operation of the project would contribute to long-term regional air pollutants despite implementation of mitigation measures. The Basin is in nonattainment for NO_x, PM₁₀, PM_{2.5}, and ozone at the present time; therefore, the operation of the proposed project would exacerbate nonattainment of air quality standards within the Basin and contribute to adverse cumulative air quality impacts. Implementation of the proposed project would unavoidably contribute to significant long-term cumulative air quality impacts.</p>	<p>No mitigation is required.</p> <p>Previously identified Mitigation Measures 4.3.6.1A through 4.3.6.1C, and Mitigation Measures 4.3.6.4A through 4.3.6.4B.</p>	<p>Less than Significant.</p> <p>Significant and Unavoidable.</p>

4.4 BIOLOGICAL RESOURCES

LESS THAN SIGNIFICANT IMPACTS

Sensitive Natural Communities		
<p>The proposed project has been designed to reduce impacts to native habitat, and 25.17 acres of native habitat within the project site are proposed for inclusion in a conservation area. Because the project is consistent with the measures to reduce impacts to habitat contained in the MSHCP, impacts to Disturbed Riversidean Sage Scrub, Riversidean Sage Scrub, and Riversidean Sage Scrub/Chaparral habitats will not be significant.</p> <p>The Willow Trees vegetation community located on the project site is associated with a small man-made pond in the eastern portion of the study area. This community is considered artificially created;</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>therefore, impacts to this vegetation community will not be significant.</p> <p>Pursuant to the terms of the MSHCP and Implementing Agreement with the USFWS and the CDFG, compliance with provisions of the MSHCP provides full mitigation under CEQA, FESA, and CESA for impacts to the species and habitats covered by the MSHCP. Therefore, impacts to sensitive communities would be reduced to a less than significant level.</p>		
Habitat Fragmentation/Wildlife Movement		
<p>The proposed development site and surrounding areas have been previously disturbed and diminished in quality either through past agricultural uses or the development of residential and commercial uses. The site is isolated from nearby open space by surrounding development. Bedford Wash provides for wildlife movement from the Santa Ana Mountains west of the biological survey area to Temescal Creek east of the BSA. This wildlife movement corridor will be widened and maintained in a semi-natural condition as an earthen bottomed channel as part of project design. Bedford Wash will also be modified at the culvert adjacent to I-15 as part of a future Caltrans transportation improvement project. Due to the disturbed condition of the development sites and adjacent areas, development of the proposed project will not result in significant habitat fragmentation or substantially affect established wildlife corridors or wildlife movement.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Adopted Habitat Conservation Plans		
<p>Although the project site is not within any conservation area delineated in the MSHCP, the project is still subject to provisions of the MSHCP. The project proponent will be required to provide payment of mitigation fees and adhere to the requirements established in the MSHCP. The City has adopted a Local Development Mitigation Fee to assist in the acquisition and maintenance of natural ecosystems. Pursuant to the terms of the MSHCP and Implementing Agreement with the USFWS and the CDFG, compliance with provisions of the MSHCP provides full mitigation under CEQA, FESA, and CESA for impacts to the species and habitats covered by the MSHCP. Therefore, impacts associated</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
with compatibility of the project to the adopted provisions of the MSHCP would be reduced to a less than significant level.		
SIGNIFICANT IMPACTS		
Impact 4.4.5.1: Endangered and Threatened Species		
Of the 70 special-status plant species and sixty-two special-status animal species known to occur in the project vicinity sixteen plant and seventeen animal species have been designated as endangered or threatened by state and/or federal agencies. However, it was determined that these species are absent from the project site due to the lack of suitable habitat in the Biological Study Area (BSA) or the results of focused biological resource surveys. Coastal California gnatcatcher is the only endangered or threatened species with a potential to occur in the BSA. This species was not detected during site visits, however suitable habitat occurs in the Riversidean sage scrub communities. The coastal California gnatcatcher is designated as a Covered Species Adequately Conserved under the MSHCP with no additional conservation requirements. However, vegetation clearing of occupied habitat within Public/Quasi Public lands and Criteria Area between March 1 and August 15 is prohibited. This is a significant impact requiring mitigation.	4.4.5.1A: If habitat suitable to support the coastal California gnatcatcher is to be removed between March 1 and August 15, focused surveys shall first be conducted to determine if the habitat is occupied by gnatcatcher. If gnatcatchers are present and are determined to be nesting, the occupied areas will be avoided until after August 15.	Less Than Significant.
Impact 4.4.5.2: Non-listed Special Status Species		
Wildlife. Nineteen of the special-status wildlife species identified within the project vicinity have the potential to occur within the proposed project site. Seven of these species were observed during site surveys [(Bobcat (<i>Lynx rufus</i>); California horned lark (<i>Eremophila alpestris actia</i>); Coastal western whiptail (<i>Aspidoscelis tigris multiscutatus</i>); Cooper's hawk (<i>Accipiter cooperi</i>); Northern harrier (<i>Circus cyaneus</i>); San Diego desert woodrat (<i>Neotoma lepida intermedia</i>); and Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)]. All of the special-status species observed during site surveys are covered under the take and incidental take provisions of the MSHCP and potential impacts to these are mitigated for by participation in the MSHCP.	No mitigation is required.	Less Than Significant.
Twelve (12) of the special-status wildlife species identified within the project vicinity have a low or moderate potential to occur within the Riversidean alluvial fan sage scrub habitat but were not observed	No mitigation is required.	Less Than Significant.

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<p>during surveys. Ten of these species are Covered Species under the MSHCP and potential impacts to these are mitigated for by participation in the MSHCP. The remaining two species are the rosy boa (<i>Charina trivirgata</i>) and western mastiff bat (<i>Eumops perotis californicus</i>). However, suitable habitat for these two species will not be impacted by the proposed project.</p> <p>The project site is located within the MSHCP Burrowing Owl Survey Area. Due to the presence of suitable burrowing owl habitat throughout the proposed project site, focused surveys for burrowing owl were conducted within the proposed project site and a 150-meter buffer area in 2009 and 2010. The focused burrowing owl survey determined that no burrowing owls, potential burrowing owl burrows, or diagnostic signs (i.e., whitewash, pellets, bones, or feathers) of burrowing owl were observed within the proposed project site or the 150-meter buffer area. While no burrowing owls were identified within the project's proposed area of disturbance, because suitable habitat is present within the study area for the burrowing owl and because the species is highly mobile, a potential for impacts to this species to occupy the site prior to development exists resulting in a potentially significant impact requiring mitigation.</p> <p>The proposed project will remove vegetation suitable for nesting migratory birds, including raptors. Impacts to nesting migratory birds are prohibited under the MBTA and California Fish and Game Code. Because suitable habitat to support nesting migratory birds is</p>	<p>4.4.5.2A: Pre-construction presence/absence surveys for burrowing owl within the survey area where suitable habitat is present shall be conducted by a qualified biologist (as determined per the City of Corona) within 30 days prior to the commencement of ground disturbing activities.</p> <p>If active burrowing owl burrows are detected during the breeding season, all work within 300 feet of any active burrow will be halted until that nesting effort is finished. The on-site biologist will review and verify compliance with these boundaries and will verify the nesting effort has finished. Work can resume when no other active burrowing owl burrows nests are found.</p> <p>If active burrowing owl burrows are detected outside the breeding season, then passive and/or active relocation may be approved following consultation with CDFG and/or USFWS. The installation of one-way doors may be installed as part of a passive relocation program. Burrowing owl burrows shall be excavated with hand tools by a qualified biologist when determined to be unoccupied, and back filled to ensure that animals do not re-enter the holes/dens.</p> <p>Upon completion of the survey and any follow-up construction avoidance management, a report shall be prepared and submitted to the City for mitigation monitoring compliance record keeping.</p> <p>4.4.5.2B: The removal of potential nesting bird habitat will be conducted outside of the nesting season (February 1 to August 31) to the extent feasible. If grading or site disturbance is to occur between February 1 and August 31, a nesting bird survey shall be conducted by a qualified biologist (per the City</p>	<p>Less Than Significant.</p> <p>Less Than Significant.</p>

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<p>present within the study area, a potential this species to occupy the site prior to development exists resulting in a potentially significant impact requiring mitigation.</p> <p>Special-Status Plants. Sixteen special-status plant species are reported to have the potential to appear within the project area. One special status species, Coulter’s matilija poppy, was observed within the site boundaries during biological surveys. Coulter’s matilija poppy is described by the CNPS as “limited in distribution or infrequent throughout a broad area in California, and their vulnerability or susceptibility to threat appears relatively low at this time.” CNPS also described Coulter’s matilija poppy as fairly threatened in California with a moderate degree/immediacy of threat.</p> <p>Coulter’s matilija poppy is designated as an MSHCP Riparian/Riverine species listed in Section 6.1.2: Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools as well as a Group 1 species is accomplished through specific conservation objectives under the MSHCP.</p> <p>There are no MSHCP species specific survey requirements for Coulter’s matilija poppy; however, Coulter’s matilija poppy receives protection under Section 6.1.2 of the MSHCP. Coulter’s matilija poppy is not a fully covered species under the MSHCP and the MSHCP will not afford complete coverage for take of the Coulter’s</p>	<p>of Corona) within no more than 72 hours of scheduled vegetation removal, to determine the presence of nests or nesting birds. If active nests are identified, the biologist will establish buffers around the vegetation (500 feet for raptors, 200 feet for non raptors). All work within these buffers will be halted until the nesting effort is finished (i.e. the juveniles are surviving independent from the nest). The on-site biologist will review and verify compliance with these nesting boundaries and will verify the nesting effort has finished. Work can resume when no other active nests are found. Upon completion of the survey and any follow-up construction avoidance management, a report shall be prepared and submitted to the City for mitigation monitoring compliance record keeping. If vegetation clearing is not completed within 72 hours of a negative survey, the nesting survey must be repeated to confirm the absence of nesting birds.</p> <p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>matilija poppy until the specific conservation objectives in the MSHPC are met.</p> <p>As the proposed project site is not located on Forest Service and/or Public/Quasi Public Lands Objective 1 does not apply and, since there are not species-specific survey requirements, the specific conservation objectives are expected to be accrued within designated MSHCP Criteria Areas. In addition Coulter's matilija poppy or the land it inhabits on site does not represent more than one quarter section. As such, in combination with the proposed project site being located outside of any MSHCP criteria areas, the MSHCP would not be interested in conservation of the proposed project site to fulfill the specific conservation objectives under the MSHCP for the species. Impacts to the species are considered less than significant. .</p>		
4.4.5.3: Jurisdictional Waters, Wetlands, and/or Riparian Areas		
<p>USACE Jurisdiction Subject to Section 401 of the Clean Water Act. Development of the proposed project would necessitate the removal of some of the existing on-site USACE jurisdictional areas. The proposed project would permanently impact approximately 0.33 acre and temporarily impact approximately 1.46 acres of USACE jurisdictional non-wetland waters. No USACE jurisdictional wetlands would be impacted. Impacts to USACE jurisdictional areas would result in a potentially significant.</p> <p>California Department of Fish and Game Jurisdiction, Sec. 1600. Development of the proposed project would necessitate the removal of existing on-site CDFG jurisdictional areas. The proposed project would permanently impact approximately 0.34 acre and temporarily impact approximately 1.46 acres of CDFG jurisdictional areas. Less than 0.01 acre of temporarily impacted areas would be to vegetated riparian habitat. All remaining impacts to CDFG jurisdictional areas would be to unvegetated streambeds. Impacts to CDFG jurisdictional areas would result in a potentially significant impact. Loss of CDFG</p>	<p>4.4.5.3A: Prior to the issuance of grading permits for the affected areas, the project applicant shall provide evidence to the City that a Section 404 Permit from the USACE, a Section 401 Permit from the RWQCB, and a Section 1602 Streambed Alteration Agreement from the CDFG have been obtained for impacts to jurisdictional waters in the project site.</p> <p>Compensation to mitigate for the permanent loss of 0.33 acre of USACE and 0.34 acre of CDFG jurisdictional areas would be mitigated at a minimum 1:1 ratio through participation in a USACE and/or CDFG-approved mitigation bank and/or in lieu fee program, as discussed in Mitigation Measure 4.4.5.3C, or other manner approved by the USACE and CDFG through the permitting process.</p> <p>4.4.5.3B: Prior to the issuance of grading permits for the affected areas, a Determination of Biological Superior or Equivalent Preservation (DBESP) shall be submitted to the Riverside Conservation Authority (RCA) identifying potential impacts to riparian/riverine areas, discussing why avoidance of</p>	<p>Less Than Significant.</p>

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<p>jurisdictional streambed and riparian habitat would be a potentially significant impact.</p> <p>MSHCP Riparian/Riverine Areas. The proposed project will result in permanent impacts to 0.34 acre of unvegetated streambed and temporary impacts to 1.46 acres of unvegetated streambed and less than 0.01 acre of vegetated riparian habitat associated with a streambed. Unvegetated streambed and vegetated riparian habitat meet the definition of MSHCP riparian/riverine areas. The riparian/riverine areas within the proposed project site do not provide suitable habitat for any riparian/riverine or vernal pool species identified in Section 6.1.2 of the MSHCP. Impacts to MSHCP Riparian/Riverine areas would result in a potentially significant impact.</p>	<p>impacts to riparian/riverine areas was not feasible, and identifying compensation for the loss of riparian/riverine areas. Due to the programmatic nature of this study, it is anticipated that project-specific measures will be identified in a DBESP that will be prepared for each applicable project within the Arantine Hills Specific Plan area at the time it is submitted to the City for approval.</p> <p>4.4.5.3C: Compensation to mitigate for the permanent loss of 0.33 acre of USACE and 0.34 acre of CDFG jurisdictional and MSHCP riparian/riverine resources on site the following shall be implemented:</p> <p>The applicant shall pay a one-time in-lieu fee to a USACE and/or CDFG approved mitigation bank and/or in lieu fee program, such as the Santa Ana Watershed Association (SAWA) In-Lieu Fee Wetland Creation Program or the Riverside County Regional Park and Open Space District Santa Ana River Mitigation Bank (SARMB), for the purchase of no less than 0.68 acre (2:1 ratio) of vegetated riparian and/or wetland habitat creation. Participation in the mitigation bank or in-lieu fee program shall ensure that conservation is in perpetuity.</p> <p>Prior to issuance of a grading permit, the applicant must provide the City with written documentation indicating that this mitigation requirement has been fulfilled to the City's satisfaction.</p> <p>4.4.5.3D: Following the completion of grading, 1.46 acres of USACE and CDFG jurisdictional areas that will be temporarily impacted shall be restored using native vegetation and soils to pre-project conditions following completion of grading.</p>	
Cumulative Biological Resources Impacts		
<p>The cumulative area for biological resources is the MSHCP area. The MSHCP establishes a comprehensive, multi-jurisdictional program focused on the conservation of 146 species and their habitats in western Riverside County. The City reviews all public and private development and construction projects and other land use plans/activities within the MSHCP area to ensure compliance with</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>the conservation criteria procedures and mitigation requirements set forth in the MSHCP. As a signatory to the MSHCP Implementing Agreement, the City has been issued "Take Authorization," which allows the implementation of land use decisions consistent with the MSHCP without individual authorization by state or federal authorities. As required by the MSHCP, focused biological resource studies have been conducted to assess potential impacts associated with development of the proposed uses. Where impacts to special status bird, plant species, and jurisdictional areas have been identified, mitigation has been identified to reduce the project-specific impacts to a less than significant level. Additionally, the MSHCP and its Implementation Agreement contain a fee mitigation program pursuant to which local agencies collect development impact fees and remit such fees to the Riverside Conservation Agency. These fees are in turn are used to acquire lands which are suitable for habitat preservation for species covered by the MSHCP. Habitat lands created by the MSHCP also have biological benefits for species technically not covered by the MSHCP, such as the burrowing owl. Habitat acquired by the MSHCP is suitable for owl habitat. The latest adjustment of the MSHCP fee mitigation (July 1, 2008) allows the collection of fees ranging from of \$1,008 per acre of high density residential development to \$6,597 per acre of commercial or industrial development. The payment of the required MSHCP fee is a standard requirement for all development occurring within the MSHCP area.</p> <p>Because the MSHCP provides a regional and comprehensive approach to conservation planning, and through the implementation of the stated mitigation for project-specific impacts and the payment of required MSHCP mitigation fees, no significant cumulative effect on biological resources would result from the development of the proposed project.</p>		

4.5 CULTURAL RESOURCES

LESS THAN SIGNIFICANT IMPACTS

Historic Resources		
There are no historic resources, historic features, or historic	No mitigation is required.	No Impact.

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structures located within the project limits. No evidence of past structures or unique features was identified, nor was evidence of such structures identified during the on-site cultural resource survey. As no evidence has been identified to suggest the presence of past or current structures on site, potential impacts related to historic structures or features will not occur.		
Human Remains		
The project site is currently undeveloped. No evidence suggesting the project site has been utilized in the past for human burials has been identified. In the unlikely event human remains are discovered during grading or construction activities within the project site, compliance with State law (Health and Safety Code § 7050.5) (HSC § 7050.5) would be required. These requirements are imposed on any construction activity in which human remains are detected. Compliance with existing State law would ensure that impacts related to the discovery of buried human remains would be less than significant.	No mitigation is required.	Less Than Significant.
Cultural Resources Cumulative Impacts		
The cumulative area for cultural resources is the City of Corona. Implementation of the proposed project would require measures to identify, recover, and/or record any cultural and/or paleontological resource that may occur within the limits of the project site. Potential impacts associated with human remains would be reduced to a less than significant level through adherence to existing State law. There are no projects that would, in combination with the proposed project, result in any significant cumulative impacts on historical, archaeological, or paleontological resources, or in impacts to human remains. Other projects within the City would be required to adhere to similar mitigation measures that would reduce the potential for any individual or cumulative impacts. The proposed project would have a less than significant cumulative impacts associated with cultural resources.	No mitigation is required.	Less Than Significant.
SIGNIFICANT IMPACTS		
Impact 4.5.6.1: Archaeological Resources		
Archaeological surveys conducted within the project limits revealed	4.5.6.1A: The applicant shall retain a qualified archaeological	Less Than Significant.

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<p>no archaeological or cultural resources. However, during separate SB18 consultations with the Pechanga and Soboba Tribes, the Tribes requested that Native American monitors be present on-site during all clearing, rough grading, and excavation activities due to the potential for such activities to unearth ancient remains and related artifacts from sacred burial sites. In order to ensure that cultural resources are identified during earthmoving activities, a qualified archaeologist shall be retained. While the possibility of finding archaeological resources is remote for the project site, grading on the site would be required. On-site excavation may uncover previously undetected subsurface archaeological resources resulting in a significant impact.</p>	<p>monitor who shall prepare an Archaeological Resources Mitigation Monitoring Plan. The qualified archaeological monitor shall attend all pre-grading meetings to inform the grading and excavation contractors of the archaeological resources mitigation program and shall consult with them with respect to its implementation. The qualified archaeological monitor shall be on site at all times during the initial phases of clearing and rough grading to inspect cuts for archaeological resources. If such resources are discovered, the qualified archaeological monitor shall recover them. In instances where recovery requires an extended salvage time, the qualified archaeological monitor shall be allowed to temporarily direct, divert or halt grading to allow recovery of resource remains in a timely manner. Recovered archaeological resources, along with copies of pertinent field notes, photographs, and maps, shall be deposited in a scientific institution with archaeological collections and the resources shall be recorded in the California Archaeological Inventory Database. A final monitoring report shall be submitted to the City within 30 days of the end of monitoring activities.</p> <p>4.5.6.1B: All grading, excavation, and ground-breaking activities shall be monitored by a tribal monitor. The project applicant shall pay all fees associated with such tribal monitors. The tribal monitors will have the authority to temporarily stop and redirect grading activities, in conjunction with the archaeological monitor and the City.</p>	
Impact 4.5.6.2: Paleontological Resources		
<p>Portions of the project site along the south side of Bedford Wash in Planning Areas 17, 18, and 19 (in the Northeast quarter of Section 20, and Southwest quarter of Section 16) are located on sediments of middle to late Pleistocene age. In addition, Riverside County shows these portions of the project area as a High paleontological sensitivity indicating that fossils are likely to be encountered at or below four feet below ground surface. These fossils may be impacted during excavation and construction activities. Therefore, a PRIMP, including excavation monitoring by a qualified paleontologist,</p>	<p>4.5.6.2A: Prior to the issuance of grading permits, the project proponent shall submit to and receive approval from the City, a Paleontological Resource Impact Mitigation Program (PRIMP). The PRIMP shall include the provision of a trained paleontological monitor during on-site soil disturbance activities on the south side of Bedford Wash in Planning Areas 17, 18, and 19. The monitoring for paleontological resources shall be conducted on a full-time basis during the rough-grading phases of the project, but limited to the rough-grading within the south</p>	<p>Less Than Significant.</p>

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<p>is recommended for earthmoving activities in Pleistocene sediments on the project site with potential to contain significant, nonrenewable paleontological resources to reduce the potential significant effect of construction activities on paleontological resources.</p> <p>In addition, City of Corona General Plan Policy 4.3.6 and 4.3.7 requires monitoring by a qualified paleontologist when earth-disturbing activities take place in soils or rock units having reasonable paleontological potential.</p>	<p>side of Bedford Wash in Planning Areas 17, 18, and 19. In the event that paleontological resources are unearthed or discovered during excavation, Mitigation Measure 4.5.6.2C shall apply. Conversely, if no paleontological resources are unearthed or discovered on site during excavation, no additional mitigation is required.</p> <p>4.5.6.2B: The paleontological monitor shall be equipped to rapidly remove any large fossil specimens encountered during excavation. During monitoring, samples of soil shall be collected and processed to recover micro-vertebrate fossils. Processing shall include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains.</p> <p>4.5.6.2C: If paleontological resources are unearthed or discovered during excavation of the project site within the south side of Bedford Wash in Planning Areas 17, 18, and 19, the following recovery processes shall apply.</p> <ul style="list-style-type: none"> • <u>Upon encountering a large deposit of bone, salvage of all bone in the area shall be conducted with additional field staff and in accordance with modern paleontological techniques.</u> • All fossils collected during the project shall be prepared to a reasonable point of identification. Excess sediment or matrix shall be removed from the specimens to reduce the bulk and cost of storage. Itemized catalogs of all material collected and identified shall be provided to the museum repository along with the specimens. • A report documenting the results of the monitoring and salvage activities and the significance of the fossils shall be prepared. • All fossils collected during this work, along with the itemized inventory of these specimens, shall be deposited in a museum repository (such as the Western 	

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	Center for Archaeology & Paleontology, the Riverside Metropolitan Museum, or the San Bernardino County Museum) for permanent curation and storage.	

4.6 GEOLOGY AND SOILS

LESS THAN SIGNIFICANT IMPACTS

Fault Rupture		
<p>Although the project is located within a seismically active region, implementation of the proposed project would not result in the development of structures within an A-P Earthquake Fault Zone. The nearest known active earthquake fault is the Elsinore fault zone located approximately 0.5 mile southwest of the proposed project site. In the absence of an active fault located on site, no fault rupture hazard would occur.</p>	No mitigation is required.	No impact.
Ground Shaking		
<p>Ground shaking resulting from activity on local faults would be felt within the proposed site during a seismic event. All future construction and development within the proposed site would be required to comply with applicable provisions of the most recent adopted version of the California Building Code (CBC) and the City's Municipal Code. These codes and regulations detail specific measures regarding structural, mechanical, electrical, and plumbing construction practices including seismic design parameters to minimize the risk of loss, injury, or death resulting from strong ground shaking.</p> <p>Additionally, State law prohibits the placement of habitable structures within 50 feet of an active fault. Adherence to the CBC and the Corona Municipal Code, which is required of all construction within the City, will reduce potential impacts associated with this issue to a less than significant level.</p>	No mitigation is required.	Less Than Significant.
Soil Erosion or Loss of Topsoil		
<p>All new development within the City that disturbs an area greater than an acre is required to obtain coverage under the National Pollution Discharge Elimination System (NPDES) General</p>	No mitigation is required.	Less Than Significant.

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<p>Construction Permit. One of the requirements of the NPDES General Construction permit is to implement Best Management Practices (BMPs) that would control erosion and runoff generated from construction activities. Examples of such BMP control measures include, but are not limited to, detention basins for containment and use of silt fencing, sandbags, or straw bales to control runoff.</p> <p>Because development of the proposed project would involve ground disturbances greater than one acre, construction activities would be regulated under the NPDES General Construction Permit. Since the NPDES General Construction Permit requires erosion control measures during construction activities, potential erosion impacts would be less than significant.</p>		
Septic Tanks		
<p>The proposed project will include the construction of habitable structures and will be connected to existing wastewater facilities owned and operated by the City of Corona Department of Water and Power. Therefore, septic tanks would not be necessary for the proposed project. Because the proposed project would not include the installation of septic tanks or alternative wastewater disposal systems, no impacts would occur.</p>	<p>No mitigation is required.</p>	<p>No Impact.</p>
Cumulative Impacts		
<p>The cumulative area for geologic issues is the City of Corona and western Riverside County, within the larger context of Southern California due to regional seismicity. The project area has potential geotechnical and soils constraints, as the entire Southern California area contains a number of major regional and local faults, including the San Andreas, San Jacinto, and Elsinore Faults.</p> <p>The presence of regional faults creates the potential for damage to structures or injury to persons during seismic events. However, City, County, and State regulations provide guidelines for development in areas with geologic constraints and ensure that the design of buildings is in accordance with applicable CBC standards and other applicable standards, which reduces potential property damage and human safety risks to less than significant levels. Anticipated development in the City and surrounding area in general will not have a cumulatively considerable impact on earth resources, nor will regional geotechnical</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>constraints have a cumulatively considerable impact on the proposed project or cumulative projects, as long as proper design and engineering are implemented based on available seismic and other geotechnical data. The proposed project represents an incremental portion of this potential impact, so the project will not have cumulatively significant impacts in this regard.</p> <p>Because it is reasonable to conclude that all development within seismically active areas will be required to adhere to applicable State regulations, CBC standards, and the design and siting standards required by local agencies, a less than significant cumulative impact would occur with implementation of the proposed project.</p>		
SIGNIFICANT IMPACTS		
Impact 4.6.6.1: Seismic-Related Ground Failure		
<p>Landslides/Slope Stability. There is a potential for earthquake-induced landsliding in hillside terrain in the City. Generally these types of failures consist of rock falls, disrupted soil slides, rock slides, soil lateral spreads, soil slumps, soil block slides, and soil avalanches. In general, areas such as the steep slopes of the Santa Ana Mountains and the steep slopes within the Elsinore Fault Zone are considered to be relatively susceptible to earthquake-induced landsliding.</p> <p>The majority of the project site lies on a relatively flat surface and no areas of landsliding or mass movement were observed in the flatter portions of the site. Along both the north and southern portions of the lower lying wash region, very deep near vertical cliffs are present. A relatively small landslide was noted along the southern wall of the northern bluff. Larger landslides were observed within the southeastern and southwestern portions of the site. The presence of these landslides indicates the potential for future landsliding within the project area and the potential for significant impacts to occur within the project site. This is a potentially significant impact.</p>	<p>4.6.6.1A: Prior to the initiation of any on-site construction, the project contractor shall remove all loose, compressible alluvial and fill materials from areas to receive engineered compact fill. Actual depths of removal shall be verified during future site-specific preliminary soils investigations and ultimately during the grading operation by observation and in-place density testing.</p> <p>4.6.6.1B: All on-site soils shall provide adequate quality fill material provided they are free from organic matter and other deleterious materials. Unless approved by the project geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than six inches shall not be buried or placed in fills. Oversized material may be stockpiled for landscaping purposes or placed in a rock disposal area as approved by the project owner, developer, geotechnical engineer, and City. Import fill shall be inorganic, non-expansive granular soils free from rocks or lumps greater than six inches in maximum dimension. Sources for import fill shall be approved by the project geotechnical engineer prior to their use. Fill shall be spread in maximum eight-inch uniform loose lifts; each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.</p>	Less Than Significant.

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<p>Subsidence and Seismic Settlement. Land subsidence has been identified in the Chino region and the most northerly part of the Corona North, California USGS 7.5-minute quadrangle, which includes the northern portion of the City. These subsidence events have resulted from pumping drawdown of the regional groundwater table. There are no indications showing City locations south of the Prado Flood Control Basin as having experienced significant regional subsidence.</p> <p>The project site is south of the Prado Flood Control Basin area and</p>	<p>4.6.6.1C: Cut and fill slopes shall be planned at gradients no steeper than two horizontal to one vertical. Additional information regarding any proposed cut slopes and the existing natural slope stability should be addressed within the site specific preliminary soils investigations when grading/development plans are made available for the specific tracts/development areas.</p> <p>4.6.6.1D: Where fills are to be placed against existing slopes steeper than five horizontal to one vertical, the fill shall be properly keyed and benched into competent native materials. The key, constructed across the toe of the slope, shall be a minimum of 12 to 15 feet wide, a minimum of two feet deep at the toe, and sloped back at 2 percent. Benches shall be constructed at approximately two to four feet vertical intervals.</p> <p>4.6.6.1E: Slopes at the project site shall be planted with a deep-rooted groundcover as soon as possible after completion. The use of succulent ground covers such as iceplant or sedum is not recommended. If watering is necessary to sustain plant growth on slopes, then the watering operation shall be monitored to ensure proper operation of the irrigation system and to prevent overwatering.</p> <p>4.6.6.1F: Prior to the initiation of any on-site construction, evidence shall be submitted to the City for review and approval that on-site development has incorporated the design and siting recommendations detailed in the site-specific geotechnical investigation.</p> <p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>has not exhibited any indication of subsidence. For this reason, impacts associated with this issue are considered to be less than significant and no mitigation is required. The proposed project does not include any activity known to cause damage by subsidence (e.g., oil, gas, or groundwater extraction). Settlement generally occurs within areas of loose, granular soils with relatively low density. The proposed project site is underlain by relatively dense alluvial and dense sedimentary bedrock materials and the potential for settlement is considered low. Because the proposed project site does not exhibit characteristics of a high potential for subsidence or settlement, impacts are considered less than significant.</p> <p>Liquefaction. Generally, areas with a high potential for liquefaction include the Prado Basin and adjacent areas in the northwestern portion of the City. Areas in the City with a low potential for liquefaction occur as generally north-south running bands in the western, central, and southeastern portions of the City, with an east-west running band across the northern portion of the City. The proposed project site is located in an area with low liquefaction potential.</p> <p>The potential for liquefaction generally occurs during strong ground shaking within relatively cohesionless loose sediments where the groundwater is typically less than 50 feet below the surface. Borings collected from the project site indicate that the groundwater depth is greater than 50 feet below the surface, consistent with the information provided in the City's General Plan. The elevated portions of the proposed project site are underlain by dense materials of older alluvium, which generally preclude liquefaction. Because the proposed project site does not exhibit characteristics of a high potential for liquefaction, impacts are considered less than significant.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Impact 4.6.6.2: Expansive Soils		
<p>One area on the project site contains soils classified as clayey fines, which are considered to have a medium expansion potential. Because the potential does exist for expansive soils to be present on site, impacts from expansive soils are considered potentially significant.</p>	<p>4.6.6.2A: On-site soils and any imported soils for individual tracts/development areas shall be evaluated for their expansion potential prior to grading and ultimately following completion of the grading operation. The evaluation shall determine and identify specialized construction procedures to specifically resist expansive soil activity in accordance with the</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
	CBC and/or applicable local ordinances.	

4.7 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

LESS THAN SIGNIFICANT IMPACTS

Greenhouse Gas Plan, Policy, Regulation Consistency		
<p>Development that would occur on the proposed project site is governed by the Arantine Hills Specific Plan. The Arantine Hills Specific Plan includes a variety of physical attributes and operational programs that would generally contribute to a reduction in operational-source pollutant emissions including GHG emissions. For example, the Specific Plan considers a variety of alternative transportation options including walking and biking. In addition, the Specific Plan includes a Sustainable Design Strategies chapter that identifies various strategies where sustainable design practices can be implemented. The Sustainable Design Strategies chapter identifies strategies related to the following topics: site planning, energy efficiency, materials efficiency, water efficiency, occupant health and safety, and landscape design.</p> <p>Future development that would occur under the proposed project would be consistent with GHG emission reduction strategies and policies produced by the California Air Resources Board, the Integrated Waste Management Board, the Department of Forestry, the Department of Water Resources, the California Energy Commission), the California Building Standards Commission, and the California Public Utilities Commission. The project would implement appropriate GHG reduction strategies and would ensure that it does not conflict with or impede implementation of reduction goals identified in AB 32, Governor’s Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, the proposed project would not conflict with any applicable plan, program, policy, or regulation related to the reduction of GHG emissions. Impacts are considered less than significant.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
SIGNIFICANT IMPACTS		
Impact 4.7.6.1: Greenhouse Gas Emissions		
<p>Future development that could occur within the proposed project site would generate GHG emissions during construction and operation activities. It is anticipated that the majority of energy consumption (and associated generation of GHG emissions) would occur during the project's operation as opposed to its construction. Typically, more than 80 percent of the total energy consumption takes place during the use of buildings and less than 20 percent is consumed during construction.</p> <p>The proposed project was analyzed for the potential construction and operation of its proposed land uses, water, sewer, and drainage infrastructure, and roadways. GHG emissions that could be generated on the proposed project site would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. There would also be long-term regional emissions associated with project-related vehicular trips and stationary source emissions, such as natural gas used for heating. The project's GHG estimates include construction emissions in terms of CO₂ and annual carbon dioxide equivalent (CO₂e) GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated emissions from vehicular traffic.</p> <p>Implementation of the proposed project could produce approximately 46,500 metric tons per year of CO₂, which is approximately 0.0465 teragrams per year (Tg/year) of CO₂. As a comparison, the existing emissions from the entire SCAG region are estimated to be approximately 176.79 million metric tonnes of CO₂ per year and approximately 496.95 million metric tonnes of CO₂ per year for the entire state.</p> <p>There is a federal ban on CFCs; therefore, it is assumed development that could occur under the proposed project would not generate emissions of CFCs. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment; however, the details regarding refrigerants to be used in the project site are unknown at this time. PFCs and sulfur hexafluoride are typically used in industrial applications, none of</p>	<p>Previously referenced Mitigation Measures 4.3.6.4A and 4.3.6.4B shall be implemented. It should be noted that Mitigation Measures 4.3.6.4A and 4.3.6.4B and the following mitigation measures will implement many of the Specific Plan's programs and strategies.</p> <p>4.7.6.1A: Prior to the issuance of each grading permit associated with the Specific Plan, the project developer shall develop and implement a construction waste management plan that would require the recycling and/or salvaging of non-hazardous construction and demolition waste.</p> <p>4.7.6.1B: Prior to the issuance of each building permit associated with the Specific Plan, the project developer shall facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills by providing easily accessible areas that serve each building and are dedicated to the collection and storage of paper, cardboard, glass, plastics, and metals.</p>	<p>Less Than Significant.</p>

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<p>which would be used on the project site. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.</p> <p>The proposed project is estimated to accommodate a service population of 6,807. GHG emissions that could be generated by development on the proposed project site would exceed the threshold of 6.6 MTCO₂e per service population per year prior to mitigation. The project is estimated to emit 6.83 MTCO₂e per service population per year. This is a significant cumulative impact.</p>		
Greenhouse Gas Cumulative Impacts		
<p>Given the findings of AB 32, of SB 97, and the requirements of CEQA, the Lead Agency must determine whether a project will or will not have a cumulatively considerable contribution. Due to the lack of guidance for determining the significance of cumulative impacts to climate change from projects, and out of an overabundance of caution, the project has been evaluated to determine whether emissions of greenhouse gases have been minimized to the extent feasible with current technology and measures. With implementation of mitigation and the strategies and programs described previously, the project is consistent with the strategies to reduce California's emissions to the levels proposed in Executive Order S-3-05. For this reason, cumulative impacts associated with the proposed project are considered to be less than significant.</p>	No mitigation is required.	Less Than Significant.
4.8 HAZARDS AND HAZARDOUS MATERIALS		
LESS THAN SIGNIFICANT IMPACTS		
Routine Transport, Use, or Disposal of Hazardous Materials and Reasonably Foreseeable Upset and Accident Conditions		
<p>Exposure to hazardous materials during the operation of the proposed on-site uses may result from (1) the improper handling or use of hazardous substances; (2) transportation accident; or (3) an unforeseen event (e.g., fire, flood, or earthquake). Subsequent development that could occur as a result of development of the project site would introduce potentially hazardous materials (e.g., petroleum products, pesticides, fertilizer, and other household hazardous products such as paint products, solvents, and cleaning products) on site. Hazardous materials would be present on the</p>	No mitigation is required.	Less Than Significant.

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<p>project site during construction of these uses. Hazardous materials associated with equipment and vehicles would consist of fluids used to operate/drive equipment and vehicles.</p> <p>Due to the potentially hazardous materials that may be stored and sold in conjunction with retail sales in the commercial areas of the Specific Plan, as well as the presence of household hazardous materials in the residential areas of the Specific Plan, the potential for an accidental release of hazardous materials into the environment is present at the proposed project site. Any hazardous material spill associated with the household hazardous products sold in commercial developments or in residential areas within the Specific Plan is likely to be small and easily contained.</p> <p>Appropriate documentation for all hazardous waste that is transported in connection with project-site activities would be provided as required for compliance with existing hazardous materials regulations. The United States Department of Transportation Office of Hazardous Materials Safety has established strict regulations for the safe transportation of hazardous materials. Transportation of all hazardous materials would comply with all applicable regulations.</p> <p>Additionally, the California Hazardous Materials Management Act requires that businesses handling or storing certain amounts of hazardous materials prepare a Hazardous Materials Business Emergency Plan (HMBEP), which includes an inventory of hazardous materials stored on site, an emergency response plan, and an employee training program. The handling of hazardous materials in accordance with the HMBEP as required by applicable local, state, and federal standards, ordinances, and regulations would ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials on the project site are less than significant.</p>		
Existing or Proposed School		
<p>There are no existing schools that are within 0.25 mile of the project site. In addition, the Specific Plan identifies that students residing in the Arantine Hills community would attend existing schools within the Corona-Norco Unified School District. Therefore, no new school</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>facilities are proposed to be built within 0.25 mile of a project that would emit hazardous emissions. For these reasons, there would be no existing or proposed schools within 0.25 mile that would be exposed to hazardous emissions, materials, and substances resulting from development of the project. In addition, the handling of hazardous materials or emission of hazardous substances in accordance with the HMBEP as required by applicable local, state, and federal standards, ordinances, and regulations would ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials or emissions of hazardous substance near existing or proposed schools are less than significant.</p>		
Within An Airport Land Use Plan, Within Two Miles of a Public Airport or Within Two Miles of a Private Airport		
<p>There are no public use or private airports within two miles of the project site. The nearest local airport to the project site is the Corona Municipal Airport (CMA), approximately 6.5 miles northwest of the project site. The project site is not located within an airport land use plan.¹ Due to the distance of the project site from the CMA, the potential development of the site with residential, commercial, and industrial uses would not result in a safety hazard for people residing or working within the Specific Plan area. Therefore, no impacts associated with this issue would occur.</p>	No mitigation is required.	No Impact.
Conflict with Emergency Response Plans		
<p>Implementation of the proposed project would increase the amount of commercial, industrial, and residential uses within the City of Corona beyond what currently exist. Development within the project area has been accounted for in the City's General Plan as evidenced by the site's designation of "possible future urban use." The proposed project will be designed, constructed, and maintained in accordance with applicable standards associated with vehicular access, ensuring that vehicular access will provide for adequate emergency access and evacuation. Construction activities that may temporarily restrict vehicular traffic would be required to implement a Traffic Management Plan as part of the building permit that</p>	No mitigation is required.	Less Than Significant.

¹ *Map CO-1 Compatibility Map for Corona Municipal Airport*, Riverside County Airport Land Use Compatibility Plan Policy Document, Riverside County Airport Land Use Commission, adopted October 2004.

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<p>will require adequate and appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Compliance with existing regulations for emergency access and evacuation would ensure that impacts related to this issue are less than significant.</p>		
Hazardous Materials Cumulative Impacts		
<p>Significant cumulative impacts associated with the routine transport, use, and disposal of hazardous materials would occur as the proposed project would increase the number of residents, employees, and patrons in the area as well as the number of trucks transporting hazardous materials. The proposed project in combination with other projects of a similar nature has the potential to create a significant cumulative impact related to this issue. Often, these risks are site-specific and localized and therefore limited to the project site. However, since the number of trucks containing hazardous materials on the road in a given area at any given time is impossible to estimate and since accidental spills and leaks are unplanned occurrences, it is impossible to predict the occurrence of such events. It is reasonable to assume that with an increase in vehicles transporting hazardous materials, the potential for accidents would increase.</p> <p>While the project-specific hazardous material impacts of individual development projects will be addressed separately in future CEQA documents, anticipated future development will contribute, through increases in population and the number of outlets that transport or dispose of hazardous materials, to a cumulative increase in risk for hazardous material incidents. Although each project has unique hazardous materials considerations, it is anticipated that future cumulative projects would comply with the local, state, and federal regulations and requirements as these are required for all development projects. As a result, cumulative impacts associated with hazardous materials would be less than significant.</p> <p>Cumulative aircraft hazard impacts consist of future development within the boundaries of the ALUP accident potential zones. The risk to each future project is based on the specific accident potential zone. The risks associated with development in these accident potential zones can only be reduced through conformance with land</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>use guidelines and policies identified by the ALUP. However, because the surrounding cities as well as the County of Riverside have implemented comprehensive land use plans that incorporate ALUP recommendations, it is anticipated that cumulative development within the accident potential zones would not create a significant and cumulative impact associated with aircraft accident hazards.</p>		
SIGNIFICANT IMPACTS		
Impact 4.8.6.1: Located on a List of Hazardous Materials Sites		
<p>The project site is not listed in any regulatory database for hazardous materials. Based on the information provided by the public, regulatory, and governmental agencies and information obtained during the record search and literature review, there do not appear to be any sites within a mile that would have an adverse environmental impact upon the subject site.</p> <p>There are existing structures/infrastructure scattered throughout the project site. All of these structures and infrastructure features were utilized for agricultural purposes. None of the existing structures/features exhibit a hazardous condition.</p> <p>Due to the past agricultural use of the project site, an assessment was conducted to address residual organochlorine pesticides, (OCPs), smudge pot storage area, 10,000-gallon aboveground smudge oil storage tank, and a 10-foot by 10-foot storage shed. The assessment concluded that there were no residual hydrocarbons at the smudge pot storage area, the roofing shingles and retention basin asphaltic materials did not contain asbestos, the former 10,000-gallon aboveground storage tank did not have any significant hydrocarbon contamination. The approximately 10-foot by 10-foot shed had a very high level of pesticides, DDT, Endrin, and Chordane in the soil beneath the wood floor and contained about 5 pounds of Chordane.¹ Since the original assessment conducted in 2002, the 10-foot by 10-foot shed had been removed. However, residual OCPs were present in the soils where the shed had been previously located. Some of the sampled soils contained DDT levels above 1</p>	<p>No mitigation is required.</p> <p>4.8.6.1A: For any soil disturbance in the area where the 10-foot by 10-foot shed located at the west edge of Planning Area 4 was previously located, soil in this area shall be tested for residual organochlorine pesticides (OCPs). If OCP levels are detected at levels of 1 part per million (ppm) or greater, the soils shall be removed to an adequate depth and exported to an approved landfill facility by a certified contractor.</p> <p>4.8.6.1B: If soil from any location on the project site is to be removed or transported off site, the soil export must have a DDT level of less than 1 part per million (ppm). Soil to be exported off site shall be tested, and verification of the soil results shall be submitted to the City for review prior to the issuance of soil export operations.</p>	<p>Less Than Significant.</p> <p>Less Than Significant.</p> <p>Less Than Significant.</p>

¹ Phase I Environmental Site Assessment Update, Arantine Hills, Corona California, LOR Geotechnical Group, Inc., September 16, 2009.

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<p>part per million (ppm), resulting in a significant impact.</p> <p>As previously stated, the project site was not listed as having any hazardous materials releases and was not included on the Cortese List. In addition, no violations were noted in this regulatory database for the project site. Since the project site is not included on any list of hazardous materials sites as defined by Government Code Section 65962.5, it is highly unlikely that hazardous materials would be uncovered during soil-disturbing activities on site. However, there is a chance that unknown wastes or suspect materials may be encountered during soil-disturbing activities on the project site, resulting in a significant impact.</p>	<p>4.8.6.1C: If unknown wastes or suspected hazardous materials are discovered during any construction activities on the project site, the following shall occur:</p> <ul style="list-style-type: none"> • Immediately stop work in the vicinity of the suspected contaminant, removing workers and the public from the area; • Notify the City of Corona Fire Department; • Notify the project engineer of the implementing agency (the City of Corona) and secure the area containing the unknown wastes or suspect materials as directed by the project engineer; and • Notify the implementing agency's Hazardous Waste/Materials Coordinator. <p>4.8.6.1D: Testing and remediation of unknown wastes or suspect materials shall be conducted under the purview of the applicable agency (i.e., DTSC, Santa Ana RWQCB, and/or City). Remediation shall be conducted to the standards established by the Lead Agency (i.e., DTSC, Santa Ana RWQCB, and/or City). All contaminated soil locations identified shall be remediated below hazardous levels established by Title 22 of the California Code of Regulations and to the satisfaction of the applicable Lead Agency.</p> <p>4.8.6.1E: Prior to the issuance of demolition permits for any planning areas containing structures, any remaining structures on site shall be visually inspected by the project engineer of the implementing agency (City of Corona) prior to demolition activities. If hazardous materials are encountered, the materials shall be tested and properly disposed of in accordance with state and federal regulatory requirements. Any stained soils or surfaces underneath the removed</p>	

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	<p>materials shall be sampled. Results of the sampling would indicate the appropriate level of remediation efforts that may be required. Testing and remediation of unknown wastes or suspect materials shall be conducted under the purview of the applicable agency (i.e., DTSC, Santa Ana RWQCB, and/or City). Remediation shall be conducted to the standards established by the Lead Agency (i.e., DTSC, Santa Ana RWQCB, and/or City). All contaminated soil locations identified shall be remediated below hazardous levels established by Title 22 of the California Code of Regulations and to the satisfaction of the applicable Lead Agency.</p> <p>4.8.6.1F: Prior to the issuance of grading permits for each planning area, all miscellaneous debris (e.g., wood, concrete, 55-gallon drums, miscellaneous household debris, scrap metal, and plastic piping) shall be removed and disposed of at an approved landfill facility prior to construction activities under the purview of the appropriate agency (i.e., DTSC, Santa Ana RWQCB, and/or City). Once removed, a visual inspection of the areas beneath the removed materials shall be performed by the construction contractor as specified by the City of Corona. Any stained soils observed underneath the removed materials shall be sampled. Results of the sampling, if necessary, would indicate the level of remediation efforts that may be required. Remediation shall be conducted to the standards established by the Lead Agency (i.e., DTSC, Santa Ana RWQCB, and/or City). All contaminated soil locations identified shall be remediated below hazardous levels established by Title 22 of the California Code of Regulations and to the satisfaction of the applicable Lead Agency.</p>	
Impact 4.8.6.2: Wildland Fires		
<p>The California Department of Forestry and Fire Protection (CDFFP) identifies five fire hazard severity zones within the City: urbanized/developed areas outside of fire hazard zones; non-wildland fuels; moderate fire areas; high fire areas; and very high fire areas. The majority of the project site is identified as “Non-wildland/non urban” by the CDFFP. The southeastern portion of the site is identified as a “Very High Fire Hazard” Severity Zone. Adjacent land to the east and south of the project site are also identified as a “Very High Fire Hazard” Severity</p>	<p>4.8.6.2A: Prior to the issuance of building permits for each planning area, the project proponent shall prepare, submit, and receive approval from the City and Riverside County Fire Department, a project-specific Wildland Fire Plan/Fuel Modification Plan. The Wildland Fire Plan/Fuel Modification Plan shall include but shall not be limited to the following:</p> <ul style="list-style-type: none"> • Goals, policies, and actions related to fire funding and 	Less Than Significant.

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<p>Zone and State Responsibility Area (SRA) “Very High Fire Hazard Severity Zone” by the CDFFP. Although portions of the project site are located within a “Very High Fire Hazard” Severity Zone, any development that would occur on the project site would be required to comply with all applicable fire code requirements associated fire prevention measures to reduce the risk of wildland fires. In addition, these areas are subject to the requirements of the City of Corona Fire Department construction design guidelines and fuel modification standards.</p> <p>In compliance with the County of Riverside Fire Authority Design Guidelines and fuel modification standards, the project will be also be required to implement a 200-foot fuel modification zone along the easterly edge of the Specific Plan area. The 200-foot defensible space zone serves to reduce the amount of fuel surrounding buildings and structures within the Specific Plan.</p> <p>To ensure that impacts associated with this issue would be less than significant, Mitigation Measure 4.8.6.2A has been identified.</p>	<p>fire rehabilitation;</p> <ul style="list-style-type: none"> • Fire protection and evacuation plan; • Vegetative fuels management plan; • Public education program; and • Defensible space requirements which meet and/or exceed the Riverside County Fire Department Fuel Modification Requirements. 	

4.9 HYDROLOGY AND WATER QUALITY

LESS THAN SIGNIFICANT IMPACTS

Dam or Levee Failure Flooding Impacts

<p>The primary inundation threat to the City of Corona is from Lake Mathews located approximately seven miles southeast of Corona. Failure of either one of its two dams would cause flooding along the Temescal Wash in the eastern and northeastern portions of the City. With a dam failure, water would flow generally along the Temescal Channel from southeast to northwest of the intersection of I-15 and SR-91.</p> <p>Prado Dam does not pose as severe of a threat of inundation as do the Lake Mathews Dams. In addition, the US Army Corps of Engineers has begun construction to increase the capacity of the reservoir behind Prado Dam.</p> <p>As identified by the City, the Specific Plan area is outside of any identified dam inundation zones. Since the Specific Plan area is not</p>	<p>No mitigation is required.</p>	<p>No Impact.</p>
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within an area susceptible to dam inundation, no impacts associated with this issue would occur.		
100-Year Flooding Hazard Impacts		
The 100-year floodplain has not been mapped for the Specific Plan area. In order to define the 100-year flood plain, to ensure all structures will not affect the 100-year flood flows, and to ensure all housing will not be constructed within a 100-year floodplain, a Conditional Letter of Map Revision (CLOMR) shall be completed through FEMA prior to any grading permit and a Letter of Map Revision (LOMR) shall be completed prior to the issuance of any building permit. With issuance of the required LOMR by FEMA, impacts associated with placement of structures or housing within a 100-year flood hazard area would be reduced to a less than significant level.	No mitigation is required.	Less Than Significant.
Seismic-Related Impacts		
Inundation of the Specific Plan area by a tsunami will not occur because the site is located approximately 70 miles from the Pacific Ocean and protected by the Santa Ana Mountains. The site is located approximately 3.5 miles west from Lake Mathews. Since Lake Mathews is an enclosed body of water, Lake Mathews could be subject to a seiche during a seismic event. However, the probability that a seiche event would affect the Specific Plan area site is nil given the distance from Lake Mathews. Due to the lack of any natural extreme variations in topography, the City has not identified the Specific Plan Planning Area as being susceptible to landslide/slope stability hazards. Despite the lack of an identified slope stability hazard, drainage running through the site over time has created areas with significant topographic relief and bluffs within the project site. Slope instability, caving, and landsliding could be promoted or exacerbated by the proposed project; however, the Specific Plan defines the general guidelines for the development of on-site slopes and identifies slope setbacks for the entire Specific Plan area. Subsequent development of structures and facilities within the Specific Plan area will require adherence to the siting, design, and construction standards identified by the City of Corona, the California	No mitigation is required.	Less Than Significant.

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<p>Building Code, and/or applicable geotechnical investigations. Because potential landslide and slope stability impacts are addressed through adherence to established guidelines and regulations, a less than significant impact related to this issue will occur.</p>		
SIGNIFICANT IMPACTS		
Impact 4.9.6.1: Construction-Related Water Quality Impacts		
<p>Short-term stormwater pollutant discharges from each individual site within the Specific Plan area would be mitigated through compliance with the applicable NPDES permitting process, resulting in a less than significant impact. The implementation of NPDES permits including the new General Construction permit ensures that a state’s mandatory standards for clean water and the federal minimums are met. Coverage with applicable permits would prevent sedimentation and soil erosion through implementation of an SWPPP and periodic inspections by RWQCB staff.</p> <p>During the construction period, the project would utilize a series of BMPs to reduce erosion and sedimentation. These measures may include the use of gravel bags, silt fences, hay bales, check dams, hydroseed, and soil binders. To ensure that future development within the Specific Plan area obtains coverage under the NPDES General Construction permit, Mitigation Measures 4.9.6.1A through 4.9.6.1C have has been identified.</p>	<p>4.9.6.1A: Prior to the first issuance of a grading permit by the City for any development within the Arantine Hills Specific Plan, the project proponent shall file a Notice of Intent (NOI) with the Santa Ana Regional Water Quality Control Board to be covered under the State National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharge of stormwater associated with construction activities. The project proponent shall submit to the City the Waste Discharge Identification Number as proof that the project’s NOI to be covered by the General Construction Permit has been filed with the appropriate RWQCB.</p> <p>4.9.6.1B: Prior to the first issuance of a grading permit by the City for any development within the Arantine Hills Specific Plan, the project proponent shall submit to the City of Corona and receive approval for a project-specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural best management practices (BMPs) to control sediment and non-visible discharges from the site. Some of the BMPs to be implemented may include (but shall not be limited to) the following:</p> <ul style="list-style-type: none"> • Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary debris basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs would be periodically inspected during construction, and repairs would be made when 	<p>Less Than Significant.</p>

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	<p>necessary as required by the SWPPP.</p> <ul style="list-style-type: none"> • Materials that have the potential to contribute non-visible pollutants to stormwater must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas. • All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate discharge from the site. Stockpiles would be surrounded by silt fences and covered with plastic tarps. • The SWPPP would include inspection forms for routine monitoring of the site during the construction phase to ensure NPDES compliance. • Additional BMPs and erosion control measures would be documented in the SWPPP and utilized if necessary. • The SWPPP would be kept on site for the entire duration of project construction and will also be available to the local Regional Water Quality Control Board for inspection at any time. • In the event that it is not feasible to implement the above BMPs, the City of Corona can make a determination that other BMPs would provide equivalent or superior treatment either on site or off site. • 4.9.6.1C: The Construction Contractor shall be responsible for performing and documenting the application of BMPs identified in the project-specific SWPPP. Weekly inspections shall be performed on sediment control measures called for in the SWPPP. Monthly reports shall be maintained by the Contractor and available for City inspection. A more frequent inspection schedule may be required based on the condition of the site and as required in the NPDES General Construction Permit. In addition, the Contractor would also be required to maintain an inspection log and have the log on site available for review by the City of 	

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Issues/Impacts	Mitigation Measures	Level of Significance
	Corona and the representatives of the Regional Water Quality Control Board.	
Impact 4.9.6.2: Operational-Related Water Quality Impacts		
<p>Pollutants associated with the operations of the Specific Plan land uses include sediment/turbidity, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, pesticides, and metals. There are no pollutants associated with both the proposed project and the impairment of proximate receiving waters. Based on the Master WQMP, all downstream receiving waters to which a project directly or indirectly discharges have been identified.</p> <p>The proximate receiving water for the Specific Plan area is the Bedford Canyon Wash. However, the project is tributary to the Santa Ana River Reach 3, which is impaired for pathogen indicators. Therefore, these indicators are pollutants of concern (POC) for the proposed project. To ensure that land uses within the Specific Plan area would not impair Bedford Canyon Wash, or address the POC, the proposed project would incorporate BMPs during operation of these uses. Specifically, the proposed project would provide a regional water quality basin that would function for both detention and infiltration of stormwater runoff. As specific developments within the Specific Plan area are developed, updates to the Master WQMP for the Arantine Hills Specific Plan would be required to ensure that water quality treatment is being satisfied per City requirements.</p> <p>The WQMP prepared for the Specific Plan area identifies BMPs required to be in place and operational after construction. The WQMP will address management of urban runoff in terms of the amount and quality of water leaving the project site, and will include site design criteria and techniques that will be implemented after construction to minimize and/or treat runoff from the site. This comprehensive water quality approach will be implemented throughout the project and will address a three-tier program for achieving water quality goals. The program approach focuses on pollution prevention, source control, and treatment control measures.</p> <p>No site-specific WQMP has been prepared at this time as no site-specific development project has been submitted to the City for approval. However, when land uses within the Specific Plan area are</p>	<p>4.9.6.2A: Prior to the first issuance of a permit by the City for any project within the Specific Plan area (which includes the issuance of grading permits and building permits), the project proponent shall receive approval from the City of Corona, a project site -specific Water Quality Management Plan (WQMP). The WQMP shall specifically identify pollution prevention, source control, treatment control measures, and other BMPs that shall be used on site to control predictable pollutant runoff in order to reduce impacts to water quality to the maximum extent practicable.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>developed, typical BMPs and/or site-specific WQMPs will be implemented consistent with the goals contained in the Master WQMP. It is anticipated that any commercial or residential development within Phase 1 would be required to incorporate on-site water quality features that would meet or exceed the approved WQMP's water quality requirements. To ensure future development within the Specific Plan area does not affect water quality during long-term operations, Mitigation Measure 4.9.6.2A has been identified to reduce such impact to less than significant.</p>		
Impact 4.9.6.3: Groundwater		
<p>As identified in the Water Supply Assessment (WSA) prepared for the proposed project, the City obtains its water from two sources. The primary source is groundwater from the Temescal, Bedford, and Coldwater Sub-basins. The secondary source is water imported by the MWDSC from the Colorado River and the SWP. The MWDSC wholesales its water to WMWD and then to the City.</p> <p>The City's Groundwater Management Plan (GWMP) developed strategies for more sustainable management and use of groundwater resources to meet increasing future demands with decreasing groundwater levels in the regional groundwater basins. The GWMP proposes that these management strategies be implemented through 2020 to assist in reducing demands for imported water and meeting projected demands. The City shares one or more of the three groundwater sub-basins with the City of Norco, Home Gardens County Water District, LLWD, and EVMWD. LLWD participated in the GWMP and has proposed a groundwater recharge project with recycled water in the Bedford Sub-basin.</p> <p>Based on the WSA prepared for the proposed project, water demand for the proposed Specific Plan uses would total 709 AFY. Although the WSA indicates that there is sufficient water supply to service the Specific Plan area, the WSA anticipated that additional groundwater supplies above existing conditions would be utilized. The region and the City depend on imported water to replenish and supplement groundwater supplies. In the event that imported water is not available, the City would rely solely on groundwater supplies to meet existing and future water demands. Further, the City's 2010 Urban</p>	<p>4.9.6.3A: Prior to the issuance of grading permits of any development within the Arantine Hills Specific Plan, the project proponent shall submit to the City for review and approval, a water conservation plan. The water conservation plan shall include but shall not be limited to the following:</p> <ul style="list-style-type: none"> • Drought-tolerant landscaping plan; • Indoor project design features such as low-flush toilets and low-flow faucets; • Outdoor project design features such as subsurface irrigation systems, rain sensors, drip irrigation, or high-efficiency sprinkler heads; • Use of alternative water sources (e.g., reclaimed water); and • Educational materials to be utilized by the project tenants. <p>4.9.6.3B: Prior to the issuance of occupancy permits for any development within the Arantine Hills Specific Plan, the project proponent shall submit proof to the City that an educational program regarding water usage has been developed for use within the proposed project.</p>	<p>Significant and unavoidable.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>Water Management Plan (UWMP) identifies the need for Corona to comply with the California Water Conservation Act of 2009 to reduce potable water demands by 10 percent in 2015 and 20 percent in 2020.</p> <p>The proposed project would utilize water conservation project design features such as low-flush toilets, low-flow faucets, and drought-tolerant landscaping. In addition, the proposed project would use recycled water for landscaping and other outdoor uses. The use of recycled water (approximately 72 AFY) would reduce the total amount of potable water that would be required for the project. Utilizing a worst-case scenario in which imported water is not available to the City, the proposed project's potable water demand of 637 AFY of water may result in the further depletion of existing groundwater supplies, a potential lowering of the groundwater table levels, and a significant impact to groundwater levels.</p>		
Impact 4.9.6.4: Drainage Pattern and Capacity-Related Impacts		
<p>Because the development of the Specific Plan area would introduce a greater percentage of impervious surfaces, the post-development flow volumes that would be generated on site would be substantially higher than the pre-development flows without an adequate drainage system. Post-project conditions resulting from this change would include increased runoff volumes and velocity; reduced infiltration; increased flow frequency, duration, and peak; shorter time to reach peak flow; and degradation in water quality. The Specific Plan area currently has a low runoff coefficient, meaning that runoff during storms represents a relatively small portion of the total rainfall. Development of the Specific Plan area with impervious surfaces (such as roadways, parking lots, and buildings) would result in a condition in which nearly all rainfall becomes runoff.</p> <p>The Arantine Hills Specific Plan conceptual drainage includes a system of drainage facilities and detention basins. The Bedford Canyon Wash will be designed as a soft-bottom channel with slope protection on the north sides slopes to protect against scour. Bedford Canyon Wash from Street 'A' to the upstream boundary of the project will be widened in order to reduce the drainage flow velocity within the channel. Below Street 'A,' the wash will be transitioned to match the existing channel width. A multiple-arch culvert bridge or</p>	<p>Previously referenced Mitigation Measures 4.9.6.1A through 4.9.6.1C will reduce construction-related water quality impacts. Previously referenced Mitigation Measure 4.9.6.2A will reduce project operations water quality impacts.</p> <p>4.9.6.4A: Prior to the issuance of grading permits of any development within the Arantine Hills Specific Plan, the project proponent shall prepare a flood plain and sediment transport study for Bedford Canyon Wash. The study will verify that the proposed development will be protected from the 100-year flood. This study will be submitted to the Riverside County Flood and Water Conservation District for review and approval. The project proponent shall provide evidence to the City that the study has been reviewed and approved by the Riverside County Flood and Water Conservation District prior to commencement of grading activities.</p>	Less Than Significant.

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>reinforced concrete boxes will be designed for the proposed Street 'E' crossing. A floodplain and sediment transport study was prepared for Bedford Canyon Wash. This study, along with other pertinent studies that may be required, will be submitted to the Riverside County Flood Control and Water Conservation District for review, approval, and consideration of acceptance of the Bedford Canyon Wash improvements associated with the proposed project. Drainage improvements are required to ensure that the proposed project will be protected from the 100-year flood.</p> <p>The WQMP prepared for the proposed project indicates that the Specific Plan area would ultimately drain to a regional basin located in Planning Area 15 and a local basin located in Planning Area 16. The volumes and duration for the post-development conditions exceed the pre-development conditions on site. The proposed project would require the use of a detention/infiltration basin to function for both detention and water quality purposes. As identified in the WQMP prepared for the proposed project, the flows coming from both the regional and local basin into Bedford Canyon Wash would be at a rate such that the post-development conditions do not exceed the pre-development conditions for the rainfall event year per City requirements. In addition, the post development velocities would not exceed the pre developed velocities and would minimize downstream erosion.</p> <p>There are no other existing drainage facilities near or within the Specific Plan area. The master drainage plan prepared for the proposed project proposes a system of drainage channels and underground storm drains and basins to intercept and convey the storm flows generated by the project site and the off-site flows coming from the south. The majority of the proposed underground drainage facilities would be placed under the streets. Open channels are proposed along the south, west, and north sides of the project site. As previously identified, detention basins are proposed at two locations in order to mitigate increases in stormwater runoff resulting from the development of the various planning areas.</p> <p>While the implementation of the Specific Plan would contribute to a greater volume and higher velocities of stormwater flow, the master drainage system would accept and accommodate runoff that would result from project construction at or better than historic, or pre-</p>		

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>development, conditions. Therefore, the post-development flows generated within the Specific Plan area would not exceed the capacity of the planned stormwater drainage systems. Mitigation Measure 4.9.6.4 has been created to ensure the potential drainage impacts would be reduced to a less than significant level.</p>		
Hydrology and Water Quality Cumulative Impacts		
<p>Cumulatively, development within the watershed would result in an increase in impervious surfaces in addition to changes in land use and associated pollutant runoff characteristics. Increased impervious surfaces are likely to alter existing hydrology and increase potential pollutant loads. However, all development and future development in the City and throughout the Santa Ana RWQCB must obtain coverage under the NPDES permit program. Although continued growth is anticipated to occur in the City and surrounding areas, new development and significant redevelopment would have to minimize their individual impacts to water quality and pollutant transport through implementation of BMPs. Because these requirements would be imposed on all other developments, it is anticipated that each development would be required to mitigate its own specific impact on water quality and drainage. Therefore, if all other developments are required to mitigate for impacts to water quality, a less than significant cumulative impact to water quality would occur.</p> <p>While cumulative development in the City and region would reduce the amount of permeable surfaces, groundwater recharge policies and practices implemented by the City and other local agencies would ensure groundwater supplies are maintained at appropriate levels. Other regulatory mechanisms such as the water management plan conservation policies (such as education and outreach to residents and business owners) further ensure that cumulative impacts to groundwater levels are maintained at the appropriate levels. However, the region and the City depend to a certain extent on imported water supplies to replenish and supplement groundwater supplies. In the event that supplemental water supplies are not available, the region and the City would rely solely on groundwater supplies.</p> <p>Cumulatively, water demands in the region and the City are expected to increase due to the development of future projects. Without a</p>	<p>Previous Mitigation Measures 4.9.6.1A through 4.9.6.1C, 4.9.6.2A, 4.9.6.3A and 4.9.6.3B, and 4.9.6.4A.</p>	<p>Significant and unavoidable.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
confirmed source of supplemental water, the use of groundwater supplies would increase cumulatively. The increased use of groundwater supplies would potentially lead to a degradation of water quality due to a reduced amount of water in the groundwater basins. Therefore, the proposed project, in conjunction with other reasonable and foreseeable projects, would have a significant and unavoidable cumulative impact on water quality and use due to the possible overdrafting of the underlying groundwater basin.		

4.10 LAND USE AND PLANNING

LESS THAN SIGNIFICANT IMPACTS

Physically Divide an Established Community		
<p>The nearest residential land uses within the City are located to the west and northwest of the proposed project site. To the west and northwest, the nearest existing residential use is located adjacent to the project site that are part of the Eagle Glen Specific Plan development, a golf-course residential development. However, the Eagle Glen community is located on elevations higher than the proposed project site and is separated by a vegetated bluff. The land uses surrounding the proposed project to the south is unincorporated rural residential, to the east is I-15, to the west lies open space and some agricultural parcels. Since the project is an infill project with development surrounding most of it, it will not divide an established community on site.</p> <p>Because the existing residential uses surrounding the proposed project site are separated from the site by elevation and undeveloped natural areas (a bluff), implementation of the proposed project would not physically divide an established community. While the physical construction of barriers would occur (e.g., roadways, natural areas, open space), the division of an established community would not occur because the residential uses in the project vicinity are already separated by existing natural features. No impact would occur.</p>	No mitigation is required.	No Impact.
Conflict with Any Applicable Habitat or Natural Community Conservation Plan		
The project site is located within the MSHCP area, Temescal Canyon Area Plan. Although not located within an MSHCP	No mitigation is required.	Less Than Significant.

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<p>conservation or criteria area, the project will comply with the requirements of the MSHCP. The MSHCP is a comprehensive, multi-jurisdictional effort that includes Riverside County and fourteen cities to provide a regional approach to conservation planning. The proposed project will be consistent with the MSHCP. The MSHCP and its Implementation Agreement contain a fee mitigation program pursuant to which local agencies collect development impact fees and remit such fees to the Riverside Conservation Authority (RCA). These fees are in turn used to acquire lands which are suitable for habitat preservation for species covered by the MSHCP. A complete discussion and evaluation of MSHCP is contained in Section 4.4. Because the project will comply with the requirements of the MSHCP and result in a less than significant impact.</p>		
Conflict with Applicable Land Use Plans, Policies, or Regulations		
<p>The current land use designation for the project site is "Agriculture-Possible Future Urban Use" as per the City of Corona General Plan Land Use Map (Exhibit 3.3, Existing General Plan Land Use Designation). Since the project proposes land uses that range from low density residential to high density residential, general commercial, mixed uses (commercial-industrial and commercial-residential), parks, and open spaces as illustrated in the Arantine Hills Specific Plan, Exhibit 3.2, Proposed General Plan Land Use Designations, a General Plan Amendment will be required. On adoption of the General Plan Amendment, the land use designations as per Arantine Hills Specific Plan will apply.</p> <p>The project site is currently zoned as "Agricultural" as illustrated in Exhibit 3.4, Existing Zoning Designations in the City of Corona General Plan.</p> <p>Adoption of the Arantine Hills Specific Plan will change the zoning designation for the site to the various zoning designations as indicated on Figure 3.4, Proposed Zoning Designations making the proposed project consistent with zoning. The change in zoning is not considered a significant land use impact; therefore, no mitigation is required.</p> <p>Agricultural lands constitute less than one percent of the lands in the City of Corona. As stated in the General Plan, the agricultural lands are being used for other purposes and the ones that are in use are</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
being downgraded. As of 2002, approximately 30 percent of the City was developed with housing, four percent for commercial and office uses, 12 percent for industrial uses, 37 percent for public, parks, and open spaces, and 17 percent was undeveloped or not committed as permanent open space. Less than one percent of the lands continue to be used for agricultural purposes. For further discussion of agricultural impacts, refer to Chapter 4.2 Agricultural Resources.		
Land Use Cumulative Impacts		
As discussed in the land use consistency analysis, with the exception of the issues described here, the proposed project would not conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Because each development project will be required to mitigate any inconsistencies among the various land use plans, it can be anticipated that, on a cumulative level, these projects would have a less than significant impact. Thus, no significant cumulative impacts would be expected by dividing an established community, conflicting with applicable land use plans, policies, or regulations, or conflicting with an approved habitat conservation plan.	No mitigation is required.	Less Than Significant.
4.11 MINERAL RESOURCES		
LESS THAN SIGNIFICANT IMPACTS		
Loss of Statewide, Regional, or Locally Important Mineral Resources		
The project site is classified as MRZ-3, which is identified as a mineral zone that contains deposits whose significance cannot be evaluated from available data. In addition, no mineral extraction activity is currently occurring or planned on or within the vicinity of the project site. The development of project site with residential uses, commercial uses, institutional uses, and open space would not result in the loss of identified regional or local mineral resources, conversion of an identified mineral resource use, or conflict with existing mineral resource extraction activities. Therefore, the development of project site would not result in a loss of statewide, regional, or locally important mineral resources. No impacts	No mitigation is required.	No Impact.

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Issues/Impacts	Mitigation Measures	Level of Significance
associated with this issue would occur.		
Cumulative Impacts		
<p>The cumulative area for mineral resources is the Orange County-Temescal Valley Area P-C Region. As population levels increase in the region, greater demand for aggregate and other mineral materials will be placed on mineral resources, especially sand and gravel. Similarly, development pressures in areas where these materials are known or expected to occur would result in the loss of availability of these mineral resources. However, because the project site is not identified as a significant source of sand/gravel deposits and development subsequent to the adoption of the proposed land use actions on any of the sites would not decrease the local or regional availability of mineral resources, potential future development of any of the sites would have no significant cumulative mineral resources impact.</p>	No mitigation is required.	Less Than Significant.
SIGNIFICANT IMPACTS		
No site-specific significant mineral resources impacts were identified.	Not Applicable	Not Applicable
4.12 NOISE		
LESS THAN SIGNIFICANT IMPACTS		
Groundborne Vibration		
<p>The development of the proposed Specific Plan would result in the construction and operation of residential, commercial, and light industrial uses. Depending on the equipment and methods used, soil type, and the distance to affected structures, construction activity can result in varying degrees of ground vibration within the project site. The nearest existing sensitive receptors in the vicinity of the Specific Plan area are residences to the northwest of the proposed site, across Eagle Glen Parkway, at distances ranging from 150 feet to 420 feet. Groundborne vibration from grading equipment such as earthmovers and haul trucks at distances of more than 10 feet does not create vibration amplitudes that cause structural damages. Construction activities that would occur adjacent to these existing residences are not anticipated to generate significant groundborne vibration impacts since the existing adjacent residential uses are</p>	No mitigation is required.	Less Than Significant.

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Issues/Impacts	Mitigation Measures	Level of Significance
located more than 50 feet from the project site. Impacts associated with this issue are anticipated to be less than significant.		
Airport Noise Impacts		
There are no public use or private airports within two miles of the project site. The nearest local airport to the project site is the Corona Municipal Airport (CMA), approximately 6.5 miles northwest of the project site. The project site is not located within an airport land use plan. Due to the distance of the project site from the CMA, the potential development of the site with residential, commercial, and light industrial uses would not result in the exposure of people residing or working in the project area to airport-related noise. Therefore, no impacts associated with this issue would occur.	No mitigation is required.	No Impact.
Off-Site Traffic Related Noise		
Under existing year 2011 without projects conditions, no roadway segments identified exceed the 65 dBA CNEL level. Under the existing year 2011 plus project scenario, one roadway segment (Cajalco Road between Bedford Canyon Road and I-15) would exceed the 65 dBA CNEL level and result in an increase of 3.5 dBA CNEL from existing conditions. These levels are calculated to show the potential transportation related noise increase with the addition of the proposed project and are not meant to provide specific noise level impacts at any noise-sensitive private living area. There are no current or planned noise-sensitive uses along Cajalco Road from Bedford Canyon Road to I-15. Project-related noise levels at this location would be below the 5 dBA “readily perceptible” threshold. For all other roadway segments under this scenario, the project’s incremental vehicular-source noise contributions are considered to be “barely perceptible” (less than 3.0). Impacts are less than significant.	No mitigation is required.	Less Than Significant.
Under future year 2014 conditions, the increase in noise on roadway segments are anticipated to range from 0.0 dBA CNEL to 1.9 dBA CNEL. These noise increases are small and would not be discernable to the human ear in an outdoor environment over a long period of time. No roadway segments identified would have a significant impact as no roadways result in an increase of 5.0 dBA CNEL or greater and result a level above 65 dBA CNEL. Therefore,	No mitigation is required.	Less Than Significant.

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>impacts associated with traffic noise for the future year 2014 scenario are less than significant.</p> <p>Under future year 2019 conditions, one roadway segment (Cajalco Road between Bedford Canyon Road and I-15) would exceed the 65 dBA CNEL level and result in an increase of 3.1 dBA CNEL from existing conditions. There are no current or planned noise sensitive uses along Cajalco Road from Bedford Canyon Road to I-15. Project-related future (2019) noise levels at this location would be below the 5 dBA “readily perceptible” threshold. For all other roadway segments under this scenario, the project’s incremental vehicular-source noise contributions are considered to be “barely perceptible” (less than 3.0). Impacts are less than significant.</p> <p>Under future year 2035 conditions, one roadway segment (Cajalco Road between Bedford Canyon Road and I-15) would exceed the 65 dBA CNEL level and result in an increase of 3.0 dBA CNEL from existing conditions. There are no current or planned noise-sensitive uses along Cajalco Road from Bedford Canyon Road to I-15. Project-related future (2035) noise levels at this location would be below the 5 dBA “readily perceptible” threshold. For all other roadway segments under this scenario, the project’s incremental vehicular-source noise contributions are considered to be “barely perceptible” (less than 3.0). Impacts are less than significant.</p>	<p>No mitigation is required.</p> <p>No mitigation is required.</p>	<p>Less Than Significant.</p> <p>Less Than Significant.</p>
Noise Cumulative Impacts		
<p>The cumulative area for noise impacts is the area analyzed in the traffic section. The noise analysis contained in this section provides an assessment of short-term construction-related impacts. Although it is not possible to predict if contiguous properties may be constructed at the same time and create cumulative noise impacts that would be greater than if developed at separate times, it is unlikely that adjacent properties will be developed at the same time as the proposed project. However, in the unlikely event that adjacent properties are developed at the same time as the proposed project, implementation of the stated mitigation measures would reduce the cumulative impacts of the proposed project to less than significant levels. The noise analysis contained in this section also provides a general assessment of on-site operational noise levels on adjacent</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>sensitive uses, both existing and future. On-site operational noises are individual noise occurrences and are not additive in nature.</p> <p>Cumulative traffic volumes were developed from the addition of traffic generated by approved and pending projects to opening year with project traffic volumes. Cumulative noise impacts associated with roadway noise have been addressed based on the cumulative traffic volumes. The increases over existing traffic volume are attributable to cumulative development projects in the project vicinity and region. As stated earlier, the baseline condition represents a noise environment that, in light of approved and continuing development in the project area, is not likely to be replicated. Comparing cumulative noise levels that would occur both with and without the project, the proposed project would not expose sensitive uses located adjacent to area roadways to excessive noise levels. Therefore, the proposed project's contribution to cumulative noise impacts at sensitive uses would not be significant.</p>		
SIGNIFICANT IMPACTS		
Impact 4.12.6.1: Construction Noise		
<p>Short-term noise impacts on the Specific Plan site would be associated with excavation, grading, and erecting of buildings on site during construction of the future development. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area today but would no longer occur once construction of the project is completed.</p> <p>The nearest existing sensitive receptors in the vicinity of the Specific Plan area are residences to the west of the proposed site, across Eagle Glen Parkway, at distances ranging from 150 feet to 420 feet. For the purpose of this analysis, an overall grading noise level of 89 dBA L_{max} at 50 feet will be used as the worst-case maximum exterior noise level that is typical with the use of standard grading equipment. Using a drop off rate of 6 dBA L_{max} per doubling of distance, noise levels at 100 feet are estimated at 83 dBA L_{max}, at 200 feet 77 dBA L_{max}, and at 400 feet 71 dBA L_{max}. This is a worst-case scenario when grading equipment is located nearest to these homes.</p> <p>The City of Corona Development Code Section 17.84.040 limits construction activity to the hours of 7:00 a.m. to 8:00 p.m. from</p>	<p>4.12.6.1A: Prior to the approval of a tentative tract map for each residential area or approval of commercial or industrial uses within the Specific Plan area, the project proponent shall prepare, submit, and receive approval from the City, a final noise analysis. This final noise analysis shall be completed at the tract map level for each residential area or commercial/industrial area when the precise grading and the architectural plans are available to ensure that all noise sensitive areas will meet the City of Corona noise standards. The final noise analysis shall include but shall not be limited to the following:</p> <ul style="list-style-type: none"> • Construction Noise Mitigation Program. The program shall include noise monitoring at selected noise sensitive locations, monitoring complaints procedures, identification of haul routes (if applicable), and identification and mitigation of the major sources of noise. • Construction Contractor Requirements. These requirements shall include contract provisions regarding 	Less Than Significant.

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<p>Monday to Saturday and from 10:00 a.m. to 6:00 p.m. on Sundays and Federal holidays. Therefore, construction activities that would occur within the Specific Plan area would be required to adhere to these Development Code requirements.</p> <p>However, due to the nature of the project, it is not possible to calculate the specific noise impacts at the specific plan level without grading plans and the location of the potential noise sources. Mitigation Measure 4.12.6.1A would ensure that the evaluation of specific noise impacts associated with construction noise is identified and mitigation measures recommended.</p>	<p>construction equipment noise features and equipment staging procedures.</p>	
Impact 4.12.6.2: On-site Traffic Related Noise Impacts		
<p>Portions of the project site are exposed to significant traffic noise levels from Eagle Glen Parkway and I-15. The future traffic related noise impacts to the noise sensitive portions of the project site are anticipated to be generated by traffic on the internal roads such as Street "A", Street "B", and Street "C" as well as traffic on Eagle Glen Parkway and I-15. As identified in the Noise Study conducted for the proposed project, the future unmitigated 65 dBA CNEL contours are within the right-of-way for Street "B" and Street "C" and do not reach the Planning Area 7 and 10 boundary lines along Eagle Glen Parkway from Bennett Avenue to Masters Drive. For Eagle Glen Parkway from Masters Drive to Bedford Canyon Road and Street "A", the 65 dBA CNEL contours extend slightly into the adjacent planning areas. Since the location of the nearest homes in PA 13 and 14 are not yet known, any potential mitigation measures would be made once a final site plan is provided. Should any noise sensitive exterior living areas be located within the 65 dBA CNEL contour, exterior mitigation such as noise barriers may be required. Based on the location of the traffic noise contours produced by I-15, portions of PA 16 will be located within both the 65 dBA CNEL and 70 dBA CNEL traffic noise contours. For all noise-sensitive residential units that are located between the 65 dBA CNEL traffic noise contour and I-15, exterior mitigation at private exterior living areas including private patios and balconies may be necessary depending on the site layout, grading information, and location of intervening buildings. This is a potentially significant impact.</p>	<p>4.12.6.2A: Prior to the approval of a tentative tract map for each residential area or approval of commercial or industrial uses within the Specific Plan area within the 65 dBA CNEL and 70 dBA CNEL noise contours for Eagle Glen Parkway from Masters Drive to Bedford Canyon Road, "A" Street, and I-15, the project proponent shall prepare, submit, and receive approval from the City, a final noise analysis. This final noise analysis shall be completed at the tract map level for each residential area or commercial/industrial area when the precise grading and the architectural plans are available to ensure that all noise sensitive areas will meet the City of Corona noise standards.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
Impact 4.12.6.3: On-site Stationary Noise Impact		
The operation of the commercial center areas may create noise impacts to the adjacent residential areas. Typical noise impacts associated with the operation of the commercial center include truck maneuvering and unloading, air conditioning units, trash compactors and speakerphones. It is not possible to calculate the specific noise impacts at the specific plan level without grading plans and the location of the potential noise sources. Because on-site stationary noise impacts cannot be calculated at this time, impacts are considered potentially significant.	4.12.6.3A: Prior to the approval of a tentative tract map for each residential area adjacent to commercial or industrial uses within the Specific Plan area, the project proponent shall prepare, submit, and receive approval from the City, a final noise analysis. This final noise analysis shall be completed at the tract map level for each residential area or commercial/industrial area when the precise grading and the architectural plans are available to ensure that all noise sensitive areas will meet the City of Corona noise standards..	Less Than Significant.

4.13 POPULATION AND HOUSING

LESS THAN SIGNIFICANT IMPACTS

Induce Substantial Population Growth		
<p>Implementation of the proposed project would include a General Plan Amendment to change the land use designation of Agriculture – Possible Future Urban Use to a variety of land uses including Low-, Medium-, and High-Density Residential, General Commercial, Mixed-Use I and II, Parks, and Open Space General as depicted in Exhibit 3-2 in the Arantine Hills Specific Plan. Implementation of the proposed project could result in the development of up to 1,806 dwelling units. Utilizing the DOF factor of 3.23 people per household and, assuming every resident was a new citizen of the City, these residential uses would result in a population increase of up to 5,236 people. The increase in dwelling units and jobs associated with development of the proposed project would not significantly affect the jobs-to-housing balance in the City.</p> <p>Implementation of the proposed project would potentially result in a population growth of 5,236 persons within the City. This potential population growth anticipated with project implementation would not induce growth beyond the level of growth the City is anticipating with respect to utilities and infrastructure. However, as described in the Utilities and Service Systems section (Section 4.17), the projected population growth associated with the proposed project would exceed the existing capacity at the City’s WRF3. The expansion of WRF3 is currently programmed as a project within the City’s Capital Improvement Program (CIP) for 2010/2011. As identified in the CIP,</p>	No mitigation is required.	Less Than Significant.

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<p>improvements slated for WRF3 include the addition of 2.0 million gallons per day (mgd) of capacity. Upon its expansion, WRF3 would have a total daily treatment capacity of 3.0 mgd. The CIP also states that WRF3 expansion is part of the Sewer Master Plan and is identified as Project T-16A. It is anticipated that the expansion of WRF3 would be completed by the time Phase 3 of the proposed project is in operation.</p> <p>Although the project site is vacant and agricultural land, surrounding roadway facilities (Eagle Glen Parkway and Temescal Canyon Road) contain the necessary public utilities (water, recycled water, sewer, storm drainage, electrical, natural gas, and transportation services) to support the project. As the proposed project site would extend utilities from the existing developed areas to the west and south, the improvements necessary for development of the site would not facilitate growth that has not been anticipated in the project area, no significant growth-inducing effect would occur. In the absence of a significant impact.</p>		
Displace Substantial Existing Housing or People		
<p>The project site is currently undeveloped and zoned by the City as "Agriculture." The project site is also designated in the City's General Plan as "Agriculture – Possible Future Urban Use." The project site has not been historically utilized for residential uses, and no residential structures are currently located within the project limits with the exception of a mobile trailer used by an on-site property caretaker associated with the project site's past history of agricultural use. The construction and operation of the proposed on-site uses would neither displace existing housing or residents nor require the construction of replacement housing elsewhere in the City. In the absence of any residential displacement or a substantial change in the availability of residential units, no significant impact related to this issue would occur.</p>	Less Than Significant.	Less Than Significant.
Population and Housing Cumulative Impacts		
<p>The project includes development of a variety of uses including residential, commercial, industrial, and office uses. Commercial, industrial, and office uses are typically developed to provide a sound and diversified economic base and ample employment opportunities for the citizens of Corona. The proposed project together with other</p>	No mitigation is required.	Less Than Significant.

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commercial and residential developments within Corona will serve an existing demand for employment, while also meeting the cumulative demand of employment that will result from the City's projected future population. The General Plan Amendment and Zone Change would result in consistency with the City's vision of its development as the existing General Plan designation for the proposed site is "Agriculture – Possible Future Urban Use." Implementation of the proposed project would not result in a cumulatively significant population or housing impact, nor would the proposed uses significantly induce growth in areas where growth was not previously anticipated.		
SIGNIFICANT IMPACTS		
No site-specific significant population and housing impacts were identified.	Not Applicable	Less Than Significant.
4.14 PUBLIC SERVICES		
LESS THAN SIGNIFICANT IMPACTS		
Fire Protection		
All future development within the Specific Plan area would be designed, constructed, and operated per applicable fire prevention/protection standards established by CFD and/or the City, or State. Such requirements may include (but shall not be limited to) provisions for smoke alarms; sprinklers; building and emergency access; adequate emergency notification; and hydrant sizing, pressure, and siting. The development of the proposed commercial uses would not cause fire staffing, facilities, or equipment to operate at a deficient level of service. Additionally, because the proposed project would be required to pay development impact fees to fund future fire facilities and services, impacts associated with fire protection services and facilities are less than significant.	No mitigation is required.	Less Than Significant.
Police Protection		
Development that could occur with the implementation of the Specific Plan would be designed and operated per applicable standards required by the City for new development in regard to public safety. In addition, the project would be required to pay development fees	No mitigation is required.	Less Than Significant.

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<p>used to fund capital costs associated with constructing new public safety structures and purchasing equipment for new public safety structures. Accordingly, impacts associated with police services with the proposed project would be less than significant.</p>		
School Facilities		
<p>Since school fees are uniformly applied to all development in the City and are required to be paid prior to project development, the payment of such fees would ensure that no significant impact on existing school facilities would occur. Because the payment of required school fees provides “full and complete” mitigation for school-related impacts.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Park and Recreational Facilities		
<p>Park and recreational facilities as they pertain to the proposed Specific Plan are analyzed in Chapter 4.15 (Recreation and Parks) of this EIR.</p>		
Public Facilities Cumulative Impacts		
<p>The cumulative areas for police and fire protection services are the service areas for the CFD and CPD. The need for the public services and associated facilities is measured by service area population, or the number of residents and workers within the City’s service area. Service population, as well as the type and density of development, determines the need for new or expanded police and services. Utilizing statistical information, local planning policies, and by interacting with other agencies, fire and police service providers can delineate past patterns, emerging trends, and future issues of concern. Once identified, service providers can redeploy resources to meet future needs.</p> <p>As additional development occurs in the City of Corona and region, there may be an overall increase in the demand for law enforcement and fire protection services, including personnel, equipment, and/or facilities. Increases in demand are routinely assessed by these agencies as part of the annual monitoring and budgeting process. New development within the service areas of the CFD and CPD would be required to adhere to conditions established by fire and police service providers, and pay the applicable fees to ensure</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>adequate staffing and equipment levels. Therefore, the cumulative impact on police and fire services in the City would be less than significant.</p> <p>The cumulative area for school-related issues encompasses the area of the school district (CNUSD) that would provide school services/facilities in the project area. The proposed project in addition to future cumulative development (especially residential development) forecast in the City's General Plan would increase the demand for school facilities and services. However, new school facilities would be constructed as needed to accommodate the growth in the local student population. Additionally, school districts are engaged in planning new facilities in anticipation of future local and regional growth. Each district requires the payment of development fees to provide for new school services and/or facilities. As every new development is mandated to provide the fees applicable to the school district affected, the cumulative impact on school services in the City and region would be less than significant.</p>		
SIGNIFICANT IMPACTS		
No site-specific significant public facility impacts were identified.	Not Applicable	Not Applicable
4.15 RECREATION		
LESS THAN SIGNIFICANT IMPACT		
Increased Use of Existing Recreational Facilities		
<p>The implementation of the proposed Specific Plan would result in the development of up to 1,621 residential units (or 1,806 units if PA 16 is developed with multi-family residential), 38.0 acres of general commercial land uses, 39.7 acres of mixed land uses (which includes up to 451 mixed-use residential units), 36.6 acres of open space land uses, 15.2 acres of park land, and a system of pedestrian/bike trails through the Specific Plan area. Based on Department of Finance data, the proposed project would result in an increase in population within the City of up to 5,502 people. This increase in population would result in an increased demand for parks and recreational facilities. The City currently has a surplus of approximately 1,815 acres of parkland. With the increase in people</p>	No mitigation is required.	Less Than Significant.

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<p>that would result from the development of the Specific Plan, the City would still have a surplus of parkland and adequate recreation facilities for existing and anticipated residents. Since there would be no deficiency in parkland with the implementation of the Specific Plan, it is anticipated that the increase in population associated with the proposed project would not result in the physical deterioration of existing recreational facilities. Therefore, impacts associated with this issue would be less than significant.</p>		
New or Physically Altered Recreation and Park Facilities		
<p>The proposed project would include the construction and provision of four parks totaling 15.2 acres. These parks would include one 11.0-acre active neighborhood park, one 2.1-acre special use park, and two mini parks totaling 2.1 acres (Figure 4.15.1). These four parks would be constructed by the project master developer. The 11.0-acre and 2.1-acre parks would be dedicated to the City of Corona and the two 1.0-acre parks would be owned and maintained by the Master Homeowners Association. All four parks would be available for use by the general public. As illustrated in Figure 4.15.2, it is anticipated that the 11.0-acre active neighborhood park in Planning Area 8 would include but would not be limited to lighted soccer fields, covered picnic and shade structures, barbeque areas, basketball courts, a community swimming pool, restrooms, and off-street parking. The 2.1-acre special use park in Planning Area 12 is designed as a central gathering place and may include but would not be limited to a picnic/gazebo shade structure, outdoor artwork, benches, sitting areas, gardens/landscaping, and sidewalks (Figure 4.15.3). The 1.1-acre park in Planning Area 3 may include but not be limited to benches, sitting areas, landscaping, tot lot, and sidewalks. Similarly, the 1.0-acre park in Planning Area 9 may include benches, sitting areas, and landscaping (Figure 4.15.4). The proposed park design development and layout plans for Planning Areas 3, 8, 9, and 12 shall be designed and approved by the Parks and Community Services Director and Parks and Recreation Commission. In addition to these park facilities, the proposed project would also preserve approximately 36.6 acres of open space land along Bedford Canyon. A continuous pedestrian/bicycle trail will be constructed along the north side of the Bedford Canyon Wash.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>The 11.0 -acre neighborhood park is planned to be located in the central portion of the Specific Plan area, on the south side of Street "B" and adjacent to Bedford Wash. This central location will be highly visible to the project residents, consistent with Policy is 8.7.1. The proposed project includes 36.6 acres of open space that encompasses the primary wash area as well as the steep cliff areas on its south side. The open space area will provide a permanent buffer between the project and the wash and adjacent cliff area, consistent with Policy is 8.10.2.</p> <p>The construction of amenities associated with parks and open space within the Specific Plan area are included as part of project site's development. Therefore, as the environmental effects for the Specific Plan site are included as part of the entire analysis of environmental effects in the EIR the construction or expansion of such areas would not result in an adverse physical effect on the environment beyond those analyzed for the overall development of the project. For these reasons, impacts associated with this issue are considered to be less than significant.</p>		
Recreation and Parks Cumulative Impacts		
<p>Implementation of the proposed project in combination with cumulative projects in the area would increase use of existing parks and recreation facilities. However, as future residential development is proposed, the City will require developers to provide the appropriate amount of parkland or pay the in-lieu fees, which will contribute to future recreational facilities. Payment of these fees and/or implementation of facilities on a project-by-project basis would offset cumulative parkland impacts by providing funding for new and/or renovated parks equipment and facilities. As such, the cumulative impact of build out associated with the implementation of the proposed project when considered with cumulative projects in the area would be less than significant and no mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
SIGNIFICANT IMPACTS		
<p>No site-specific significant recreational and park facility impacts were</p>	<p>Not Applicable</p>	<p>Not Applicable</p>

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identified.		
4.16 TRANSPORTATION AND TRAFFIC		
LESS THAN SIGNIFICANT IMPACT		
Air Traffic Patterns		
<p>The project is located approximately 6.5 miles southeast of the Corona Municipal Airport. The project is not located within any airport influence area for the Corona Municipal Airport or any other airport in the vicinity. Additionally, the proposed project does not include any structure or feature that would alter air traffic pattern or the level of air traffic at the Corona Municipal Airport. No significant air safety impact would occur.</p>	<p>No mitigation is required.</p>	<p>No Impact.</p>
Design Hazard Features		
<p>Temporary impacts associated with the construction of infrastructure improvements included as a part this project may temporarily restrict vehicular traffic or cause temporary hazards. The construction of infrastructure would coincide with roadway improvements, which would include road or lane closures as well as the presence of construction workers and equipment on public roads. Construction operations would be required to implement adequate measures to facilitate the passage of people and vehicles through/around any required road or lane closures. Site-specific activities, such as temporary construction activities, are finalized on a project-by-project basis by the City and are required to ensure adequate traffic flow as part of a construction traffic management plan. At the time of approval of any site-specific plans required for the construction of infrastructure as a part of typical conditions of approval, the project would be required to implement measures in the construction traffic management plan that would maintain traffic flow and access. In the absence of any design hazard through adherence with the City standards and procedures stated above, a less than significant , no impact would occur.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
Emergency Access		
<p>The roadway improvements that will take place as a part of this project will improve the traffic circulation in the area. This will improve the ability of emergency vehicles to access the project as</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
<p>well as the surrounding properties. During the operational phase of the proposed project, on-site access would be required to comply with standards established by the City Public Works Department. The size and location of fire suppression facilities (e.g., hydrants) and fire access routes would be required to conform to Fire Department standards. As required of all development in the City, the operation of the proposed project would conform to applicable Uniform Fire Code standards. The submittal of such plans would be considered a condition of approval, which would be part of the permitting process initiated by the applicant and approved by the City in accordance with City standards. As with any development, access to and through the project would be required to comply with the required street widths, as determined in the California Building Code (CBC), Master Plan of Streets, and the Uniform Fire Code. Therefore, implementation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.</p>		
Alternative Transportation Policies, Plans and Programs		
<p>The proposed project would result in the development of new residential and employment opportunities. The project will be conditioned to provide sidewalks and landscaping treatments to allow for pedestrian access throughout the site. In addition, the project includes Class 2 bike lanes that will allow bicycle traffic movement through the project. The Class 2 bike lanes are provided along the Modified Secondary Arterial and Collector Streets.</p> <p>The design of the proposed project would be required to adhere to applicable City of Corona standards that support and/or facilitate alternative modes of transportation. Through the City's project review process, policies, plans, and/or programs supporting alternative transportation would be reviewed and incorporated as applicable. Consequently, a less than significant impact would occur as a result of the proposed project.</p>	No mitigation is required.	Less Than Significant.
SIGNIFICANT IMPACTS		
Impact 4.16.6.1: Existing Baseline Intersection LOS		
Under existing baseline, up to five study area intersections will not meet the relevant jurisdiction's minimum LOS standard under	4.16.6.1A: The following modifications to intersection configurations for existing baseline plus project are	Less Than Significant.

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<p>existing roadway geometrics. This is a significant impact.</p>	<p>recommended to improve levels of service in accordance with City requirements:</p> <ul style="list-style-type: none"> • Masters Drive/California Drive: Install a traffic signal. • Masters Drive/ Eagle Glen Parkway: Install a traffic signal. • Bedford Canyon Road/Eagle Glen Parkway: Add a northbound left-turn lane, a northbound through lane, two northbound right turn lanes with northbound right-turn overlap phasing, a second southbound left-turn lane, a southbound through lane, an eastbound through lane, and two westbound left-turn lanes. • I-15 Southbound Ramps/Cajalco Road: Add a second southbound left-turn lane, a second southbound right-turn lane, a second eastbound left-turn lane, a second eastbound through lane, and a westbound right-turn lane. • I-15 Northbound Ramps/Cajalco Road: Add a second eastbound left-turn lane. 	
Impact 4.16.6.2: Opening Year (2014) Intersection LOS		
<p>Under opening year 2014, up to three study area intersections and three project intersections will not meet the relevant jurisdiction's minimum LOS standard under existing roadway geometrics. This is a significant impact.</p>	<p>4.16.6.2A: Prior to issuance of a Certificate of Occupancy for the first dwelling unit and/or commercial, office or industrial building within the Specific Plan area, the project proponent shall construct or guarantee the construction of those improvements identified above as mitigation measures for year 2014 plus project conditions. In addition, the project proponent shall participate in the City of Corona Development Impact Fee Program and the Western Riverside Council of Governments Transportation Uniform Mitigation Fee Program. Additionally, the Cajalco Road/I-15 Interchange project (which includes a new 6-lane bridge over Interstate 15) must be in place to serve the existing plus project daily volumes.</p> <p>4.16.6.2B: Prior to the issuance of a Certificate of Occupancy for a project developed within the Specific Plan area, each developer shall consult with the City to determine if a project-</p>	<p>Less Than Significant.</p>

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Issues/Impacts	Mitigation Measures	Level of Significance
	<p>specific traffic analysis is required for the proposed project. The City shall determine if the proposed project meets the requirements for a preparation of a traffic analysis based on guidelines established by the City of Corona. If the City determines that a project-specific traffic analysis is required, the project proponent shall submit a project-specific traffic analysis for review and approval by the City. The traffic analysis shall identify trips that would be generated by the project and any fair-share contributions required to maintain the levels of service on these study area intersections. The payment of a fair-share contribution shall be made through an established City of Corona impact fee and participation in the WRCOG's TUMF Program, as appropriate, or construction of off-site facilities under appropriate fee credit agreements for improvements deemed appropriate by the City.</p>	
Impact 4.16.6.3: Future Year (2019) Intersection LOS		
<p>Under future year 2019, up to five study area intersections will not meet the relevant jurisdiction's minimum LOS standard under existing roadway geometrics. This is a significant impact.</p>	<p>4.16.6.3A: Prior to the issuance of a Certificate of Occupancy for a project developed in Phases 3 and 4 within the Specific Plan area, the project proponent shall construct or guarantee the construction of those improvements identified above as mitigation measures for year 2019 plus project conditions. In addition, the project proponent shall participate in the City of Corona Development Impact Fee Program and the Western Riverside Council of Governments Transportation Uniform Mitigation Fee Program. Additionally, the Cajalco Road/I-15 Interchange project (which includes a new 6-lane bridge over Interstate 15) must be in place prior to issuance of any Certificates of Occupancy for a project developed in Phase 2 in order to serve the existing plus project daily volumes.</p>	<p>Less Than Significant.</p>
Impact 4.16.6.4: Build Out Year (2035) Intersection Traffic and Level of Service (LOS) Standard		
<p>Under build out year 2035, up to eight study area intersections will not meet the relevant jurisdiction's minimum LOS standard under existing roadway geometrics. This is a significant impact.</p>	<p>4.16.6.4A: The project proponent shall construct or guarantee the construction of those improvements identified above as mitigation measures for year 2035 plus project conditions. In addition, the project proponent shall construct a new I-15 southbound slip on-ramp for the Cajalco Road/I-15</p>	<p>Less Than Significant.</p>

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	Interchange.	
Transportation Cumulative Impacts		
<p>Cumulative impacts refer to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Cumulative impacts associated with traffic volumes are determined based on a sum of project traffic and traffic volumes from approved and pending projects in the area. Cumulative analysis forecasts that, with the development of the proposed project and the cumulative projects, seven intersections will require improvements in order to maintain the City's LOS standard. Although the suggested improvements are consistent with the City's General Plan, the project will be responsible for contributing its fair share toward the funding of the future improvements via payment of the City's DIF fair-share contribution to non-programmed improvements that will be used to fund roadway and roadway-related improvements.</p> <p>In addition, State highway funding is an extraordinarily complex State-wide and regional problem the cities have grappled with for decades. By definition, State highways are impacted by interstate, State-wide and regional traffic. To this end, in 2007, State Senator Alan Lowenthal (D, Long Beach) chair of the Senate Transportation Committee, held hearings on alternative funding mechanisms for State highway improvements, including legislation that would allow private companies to build and operate State highways. Several such proposals have been considered in connection with the SR-91 and I-15 in Riverside. The State Legislature, Caltrans, the Executive Branch and public-private partnerships are all engaged in multi-jurisdictional and creative solutions to feasibly alleviate congestion on the State's highways. Thus, for these reasons, there are no available and feasible mitigation measures available to mitigate the projects de minimis cumulative contribution to traffic on the I-15 Freeway under long-range (2035) conditions and the project's cumulative impact is considered to be significant and unavoidable.</p>	<p>Refer to Mitigation Measures 4.16.6.1A, Mitigation Measures 4.16.6.2A and 4.16.6.2B, Mitigation Measure 4.16.6.3A and 4.16.6.4A.</p>	<p>Significant and Unavoidable.</p>

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4.17 UTILITY AND SERVICE SYSTEMS		
LESS THAN SIGNIFICANT IMPACT		
Wastewater Treatment Requirements		
<p>A sewer analysis was prepared for the proposed project. The sewer analysis provides detail as to the amount of sewage being generated for average and peak flows, existing and future flow routing through proposed projects and downstream sewers, recommendations for project sewer design parameters (pipe size, slope and area served by lift station) paralleling existing sewers where required, and an estimate of cumulative flows at Water Reclamation Facility No. 3. As concluded in the sewer analysis, the City's wastewater treatment system has adequate capacity to accommodate the increase in wastewater demand from the proposed project as discussed further in Section 4.17.6.1.</p> <p>As previously stated, wastewater generated within the Specific Plan area would be treated by WRF3. Because WRF3 is considered to be a POTW, operational discharge flows treated at WRF3 must comply with permits issued by the Santa Ana RWQCB for WRF3. Compliance with condition or permit requirements established by the Santa Ana RWQCB would ensure that wastewater discharges coming from the Specific Plan area and treated by the wastewater treatment facility system would not exceed applicable Santa Ana RWQCB wastewater treatment discharge requirements. Therefore, a less than significant impact associated with this issue would occur.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
New or Expanded Water Treatment Facilities		
<p>The Water Supply Assessment (WSA) prepared for the proposed project found that the City would be able to supply the Specific Plan area with potable water using a combination of imported and local groundwater; reporting that Corona's supply exceeded demand by 82.1 percent and 86.6 percent for Normal Years in 2020 and 2030. Supply exceeded demand by 16.4 percent and 20.4 percent for Multi-Year Drought conditions in those same years. The city took a more aggressive approach to conservation for its Corona's 2010 Urban Water Management Plan Update but a more conservative approach to developing additional local groundwater. While imported water supply and its treatment are not proposed to expand</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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<p>significantly, use of local groundwater will continue and likely require implementation of various management strategies to meet continued and future. These management strategies are the subject of Corona's Draft Groundwater Management Plan and its EIR which is expected to be adopted in early 2012. Because adequate water supplies and water treatment facilities exist and adequate future supply and treatment capacity exists and are forecast to exist for all phases of the proposed project, no additional expansion of these water supplies or treatment plants would be required. Therefore, a less than significant impact associated with this issue would occur.</p>		
Adequate Water Supply		
<p>Based on information reported from the WSA and Corona's 2010 UWMP, sufficient water supplies are available to meet future needs for the City's water service area through its anticipated build-out, projected to occur in year 2030 under normal, single-dry and multiple-dry water years.</p> <p>Based on the analysis contained in this EIR, the City of Corona has sufficient water supplies to support the proposed Specific Plan. Since there is existing surplus water supply for the entire project, impacts associated with this issue are less than significant.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>
New or Expanded Stormwater Drainage Facilities		
<p>The proposed on-site master drainage system has been designed such that it can convey off-site and on-site flows in a safe and nondestructive manner while protecting the primary access points from the 100-year storm event. City design criteria specify that the 10-year event be contained from curb-to-curb while the 100-year event is contained within the right-of-way. Street capacity calculations show that all four proposed on-site streets can convey the 100-year event from curb-to-curb; therefore, the smaller 10-year event can be easily conveyed from curb-to-curb. Similar to what was identified for water and sewer infrastructure improvements, the implementation of the master drainage improvements would not have a significant impact as the installation of these infrastructure features would occur concurrently with the associated roadway improvements in the Specific Plan area. Impacts associated with this issue would be considered less than significant.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant.</p>

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Solid Waste Facilities		
The potential development that could occur with implementation of the Specific Plan could generate up to 39,976 pounds (19.94 tons) of solid waste daily. It is anticipated that any future development within the Specific Plan area would have waste hauled away by WMI and transported to the El Sobrante Landfill, located south of the City. The volume of solid waste that could be generated by the potential future development within the Specific Plan area could represent up to 0.17 percent of the current permitted throughput and up to 0.37 percent of the current surplus capacity at the El Sobrante Landfill. As adequate daily surplus capacity exists at the receiving landfill, future development that could occur within the Specific Plan area would not significantly affect current operations or the expected lifetime of the landfill serving the project area. Therefore, no significant solid waste disposal impacts would occur.	No mitigation is required.	Less Than Significant.
Solid Waste Reduction		
All uses within the City that generate waste (which include the Specific Plan area) are required to coordinate with a waste hauler to develop collection of recyclable materials for the project on a common schedule as set forth in applicable local, regional, and state programs. Additionally, all development within the City is required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991) and other applicable local, State, and federal solid waste disposal standards, thereby ensuring that the solid waste stream to the El Sobrante Sanitary Landfill is reduced and no hazardous waste is received in accordance with existing regulations. Therefore, impacts associated with this issue are less than significant for the proposed project and no mitigation is required.	No mitigation is required.	Less Than Significant.
Utility and Service Systems Cumulative Impacts		
Water Supply. The cumulative area for water supply-related issues is the CDWP service area. Existing and future development within the CDWP's service area would demand additional quantities of water. Increases in population, square footage, and intensity of uses would contribute to increases in the overall regional water demand. The anticipated conversion of water-intensive uses (i.e., agriculture) and the implementation of existing water conservation measures and	No mitigation is required.	Less Than Significant.

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<p>recycling programs would reduce the need for increased water supply. With implementation of these water conservation measures, the City's supply of water is expected to meet future water demands.</p> <p>Cumulatively, water demands in the region and the City are expected to increase due to the development of future projects. Without a confirmed source of supplemental water, the use of groundwater supplies in the region would increase cumulatively. The regional increased use of groundwater supplies would potentially lead to a degradation of regional water quality due to a reduced amount of water in the regional groundwater basins. Therefore, the proposed project, in conjunction with other reasonable and foreseeable projects, would have a potentially significant and unavoidable cumulative impact on groundwater supplies due to the possible overdrafting of the underlying groundwater basin.</p> <p>However, future water use in Corona is controlled by the potable water, reclaimed water, and groundwater management strategies contained in the approved UWMP, RWMP, and GWMP. The GWMP identifies management strategies to increase the redundancy and potential expansion of local groundwater production through recharge with reclaimed water, stormwater and possibly imported water to ensure adequate groundwater supply. For this reason, implementation of the water efficiencies inherent within the UWMP, RWMP, and GWMP are expected to reduce impact to local groundwater basins to a less than significant level and no mitigation is required.</p> <p>Wastewater. According to the Corona Sewer Master Plan, the City's treatment plants had a combined treatment capacity of 15.5 mgd in 2005 and processed an average flow of 13.45 mgd in 2010, leaving 2.05 mgd of available capacity. As described in the Corona Sewer Master Plan, with improvements, the future reliable treatment capacity for all three treatment plants is expected to be approximately 21 mgd. The City's General Plan EIR determined that the City's wastewater distribution and treatment system, with implementation of City policies requiring the provision of a wastewater collection and treatment system that supports existing and planned development within Corona, will be adequate to serve the City of Corona. Furthermore, the proponent of the proposed project is required to obtain verification from the City that the planned</p>		

Table 1.B: Arantine Hills Specific Plan Environmental Impact Summary

Issues/Impacts	Mitigation Measures	Level of Significance
<p>expansion at WRF3 is in place and operational prior to grading activity for the various phases of the Specific Plan. This requirement is identified as Mitigation Measure 4.17.6.1A. Adherence to this mitigation measure would ensure that adequate capacity is available prior to wastewater flows being generated and handled at WRF3. Therefore, the proposed project would not contribute to a cumulatively significant wastewater capacity impact.</p> <p>In addition, by adhering to the wastewater treatment requirements established by the Santa Ana RWQCB through the NPDES permit, wastewater from the Specific Plan area that is processed through WRF3 would meet established standards. As the wastewater from all development within the service area of WRF3 would be similarly treated under the NPDES, no cumulatively significant exceedance of Santa Ana RWQCB wastewater treatment requirements would occur. The proposed project would not result in significant cumulative impacts to wastewater treatment or wastewater treatment facilities.</p> <p>Drainage. The cumulative area for drainage-related issues is the project study area. Cumulative population increases and development within the area would increase the amount of impervious surfaces and therefore the amount of stormwater runoff generated within the area. All projects in the Specific Plan area are required to handle drainage without increasing downstream flows and velocities. Since all projects would similarly be required to control runoff and drainage features, the cumulative increase in development would not create a cumulatively significant increase in runoff. Cumulative development would not exceed the capacity of the planned drainage system. Because the proposed project would be required to have drainage infrastructure in place that would accommodate project-related flows as would all cumulative developments in the area, the proposed project would not contribute to a cumulatively significant drainage impact.</p> <p>Solid Waste Services. The cumulative area for solid waste is the area serviced by the El Sobrante Landfill. AB 939 mandates the reduction of solid waste disposal in landfills. The El Sobrante Landfill has an estimated closure date of 2045, and it is expected that the City's waste hauler will also use other County landfills in the area (e.g., Lamb Canyon Landfill and Badlands Landfill). The estimated closure date of the Lamb Canyon Landfill is 2023 and the estimated</p>		

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Table 1.B: Arantine Hills Specific Plan Environmental Impact Summary

Issues/Impacts	Mitigation Measures	Level of Significance
<p>closure date of the Badlands Landfill is 2016. With planned expansion activities of landfills in the project vicinity and projected growth rates contained within the City's General Plan EIR, sufficient landfill capacity would exist to accommodate future disposal needs through City build out in 2030. Therefore, development that would occur under the proposed project would not create demands for solid waste services that are not accounted for in the City's growth projections and therefore would not exceed the capabilities of the County's waste management system. Consequently, cumulative impacts associated with solid waste within the City would be considered less than significant.</p>		
SIGNIFICANT IMPACTS		
Impact 4.17.6.1: Wastewater Treatment Capacity and/or New or Expanded Wastewater Treatment Facilities		
<p>Implementation of the Specific Plan would require:</p> <ul style="list-style-type: none"> • That the City manage the expansion of WRF3 and its wastewater systems to meet increasing wastewater flows from the Specific Plan area, already entitled projects and projects adjacent to existing sewerlines that are tributary to WRF3; • That the City comply with the mitigation and monitoring plan identified in the Final Environmental Impact Report for Wastewater Treatment Plant No. 3. (1997); and • That the developer construct infrastructure within the Specific Plan area in accordance with the proposed phasing plan. <p>It is anticipated that wastewater flows from potential future development within the Specific Plan area would be handled by the CDWP and conveyed to WRF3 within the southeastern portion of the City. As previously identified, current capacity at WRF3 is 1.0 mgd with an existing average inflow of approximately 0.54 mgd. Under current conditions, the average daily surplus treatment capacity is approximately 0.46 mgd. The amount available for the project would be diminished by sewer connections occurring from entitled projects and lands along existing sewer lines tributary to WRF3, and thus require the expansion of the treatment plant. However, to avoid significant environmental effects, this expansion shall be in conformance with the mitigation and monitoring plan identified in the</p>	<p>4.17.6.1A: Prior to the issuance of grading permits for any development phase that would occur under the Specific Plan, the project proponent shall obtain verification from the City that planned wastewater capacity improvements at WRF3 or elsewhere in the city's wastewater system are in place and operational or said improvements are funded or under construction and will be available for service to completed homes and businesses.</p> <p>4.17.6.1B: The City shall implement the mitigation and monitoring plan identified in the EIR for Wastewater Treatment Plant No. 3 as a part of any expansion of said plant. Alternatively, the Developer shall negotiate an advanced funding option for implementation of the mitigation and monitoring plan identified in the EIR for Wastewater Treatment Plant No. 3 in lieu of paying a Sewer Connection Fee for sewer capacity to ensure that wastewater plant capacity is available so phases of the project may proceed without being delayed.</p>	<p>Less Than Significant.</p>

Table 1.B: Arantine Hills Specific Plan Environmental Impact Summary

Issues/Impacts	Mitigation Measures	Level of Significance
<p>EIR for Wastewater Treatment Plant No. 3.</p> <p>A combination of funding sources may be utilized for the construction of public infrastructure features such as sewer treatment facilities. Typically, project proponents install internal sewer lines within the project site and replacing downstream facilities needing additional capacity. For sewer facilities, such as WRF3, that are affected by the proposed project, a fair-share amount is typically contributed by the project proponent to the City's sewer program, usually in form of a Development Impact Fee (DIF). In the City, a sewer capacity fee is assessed on urban development. This sewer capacity fee funds construction of incremental expansions of the sewage system to ensure that adequate capacity exists for future development. Funds received as part of a citywide development mitigation program can be spent on any sewer infrastructure projects within the City's jurisdiction that have been listed in the City's program documentation (e.g., a capital improvement plan). The timing of the improvements is established through the City's Engineering Department to ensure that construction and needed improvements occurs prior to or concurrent with the time at which the identified sewer facility or sewer mainline is forecast to exceed existing capacity.</p> <p>The City's Capital Improvement Program (CIP) for 2010/2011 and the Sewer Master Plan identify a 2.0 mgd expansion of WRF3. The CIP identifies the Project as T-16A planned for 2015 or later. Upon its expansion, WRF3 would have a total daily treatment capacity of 3.0 mgd. Development within the Specific Plan is anticipated start no earlier than five years from now. The current CIP program could fit with the project schedule. However, there is no guarantee that the planned expansion at WRF3 would be completed at the time that capacity is needed for the project and WRF3 would not be able to accommodate the anticipated wastewater generation associated with Phase 3 of the Specific Plan. For this reason, impacts are considered significant.</p>		

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2.0 INTRODUCTION AND PURPOSE

This EIR is intended to serve as an informational document to be used by the City in assessing the environmental impacts that may result from the implementation of the proposed project, and to identify mitigation measures to avoid or minimize significant environmental impacts. This document is also a public disclosure document available to agencies and the public for review and comment prior to the consideration of the proposed project by the City.

This chapter of the EIR describes the purpose of the CEQA, the intended uses of this Draft EIR, and summarizes the incorporated documents and technical reports. It briefly discusses the public review of the Draft EIR as well as the scoping meeting that was held by the City to solicit public comment on the proposed project. The significant environmental impacts that may result from the construction and operation of the proposed project are identified below and are addressed in greater detail in Chapter 4.0.

2.1 DOCUMENT FORMAT

To assist the reader's review of the document, the following describes the format of this EIR.

Chapter 1.0 Executive Summary provides a summary of the EIR document and (in Table 1A) identifies potentially significant impacts, mitigation measures, and the level of significance of each impact following mitigation.

Chapter 2.0 Introduction and Purpose provides a discussion of the EIR's purpose, focus, legal requirements, and an outline of the document's format and content.

Chapter 3.0 Project Description provides a detailed description of the proposed project, discretionary actions required to implement the project, and objectives of the proposed project.

Chapter 4.0 Existing Setting, Impacts, and Mitigation Measures evaluates the impacts associated with the proposed project. This chapter is organized by issue area and follows the following framework:

- *Existing Setting:* Information in the existing setting contains a discussion of the local and regional environment conditions (environmental and built) in existence at the time this EIR was prepared. Existing setting information provides the reader with the "baseline" from which future impacts are analyzed, and provides a standard against which to measure these impacts.
- *Existing Policies and Regulations:* Regulatory requirements and policies (federal, state, and local) applicable to the issue area are summarized.
- *Thresholds of Significance:* Determinations regarding the significance of potential impacts resulting from implementation of the proposed project are provided. These thresholds represent the criteria used in this EIR to determine whether identified impacts are significant.
- *Impacts:* Potential impacts are identified based on implementation of the proposed project.
 - *Impact Analysis:* An analysis of potential impacts of the proposed project is presented in this section. This discussion focuses on the impacts of implementation of the proposed project, and includes potential short-term/

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long-term and direct/indirect project impacts, and consistency with applicable planning documents or regulations.

- *Mitigation Measures*: The measures proposed to mitigate potential impacts of the proposed project are identified.
- *Level of Significance after Mitigation* provides a conclusion as to whether implementation of the proposed project will reduce the project-related and cumulative impacts to a level that is less than significant.
- *Cumulative Impacts*: This discussion focuses on the potential environmental effect of the proposed project combined with the effects of reasonably foreseeable development within the project study area.

Chapter 5.0 Additional Topics Required by CEQA contains discussions of additional topics required by CEQA, including effects found not to be significant, unavoidable effects of the proposed project, significant irreversible environmental changes, and growth-inducing impacts.

Chapter 6.0 Alternatives contains discussion of alternatives to development of the proposed project. As allowed by CEQA, the impacts of these alternatives are evaluated at a more general level than the analyses of the proposed project contained in Chapter 4.0. This chapter also evaluates the proposed effects of the “No Project” Alternative and identifies the environmentally superior alternative.

Chapters 7.0–9.0 Contain listings of organizations and persons consulted in preparation of the EIR, references cited, a list of the EIR preparers, and definitions of acronyms used in the document.

The *Appendices* include a copy of the NOP, NOP mailing list, NOP comment letters, and technical reports utilized or consulted during the course of the analysis of the proposed project.

2.2 PURPOSE OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

CEQA requires that the proposed project be reviewed to determine the environmental impacts that would result if the project were approved and implemented. The City has the responsibility for preparing, processing, and determining whether to approve the proposed project and certify this EIR. As Lead Agency, the City has the authority to make decisions regarding discretionary actions relating to implementation of the proposed project. Among these discretionary actions would be the following:

- Approval of a General Plan Amendment;
- Approval of a Specific Plan;
- Approval of a Master Tentative Tract Map;
- Cancellation of Williamson Act Contract and;
- Certification of the project-specific Environmental Impact Report

Project-related approvals may be required by the following agencies, including but not limited to: Regional Water Quality Control Board, California Department of Fish and Game, and the U.S. Army Corps of Engineers.

This EIR has been prepared according to CEQA requirements to evaluate the potential environmental impacts associated with the construction and operation activities of the proposed project. It also discusses alternatives to the proposed project and identifies mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts. This EIR has been prepared in

accordance with CEQA, California Public Resources Code §21000 *et seq.*; the *Guidelines for California Environmental Quality Act* (California Code of Regulations, Title 14, Chapter 3); and the rules, regulations, and procedures for implementing CEQA as adopted by the City.

The objective of the EIR is to inform City decision-makers, representatives of other affected/responsible agencies, the public, and other interested parties of the potential environmental consequences that may be associated with the approval and implementation of the proposed project. The EIR also examines various alternatives to the proposed project and describes potential impacts relating to a variety of environmental issues and methods in which these impacts can be mitigated or avoided.

2.2.1 Purpose of the California Environmental Quality Act

According to Section 15002 of *CEQA Guidelines*, the basic purposes of CEQA are to:

- Inform government decision-makers and the public about the potential significant environmental effects of proposed activities;
- Identify ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governing agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

2.2.2 Intended Use of This Draft EIR

This EIR is intended to serve as an informational document to be used by the City in assessing the environmental impacts of the proposed project and mitigation measures recommended to avoid or minimize identified significant impacts. This document is also a public disclosure document available to agencies and the public for review and comment prior to consideration of the discretionary actions required for project approval.

The City, as the Lead Agency, has the responsibility for preparing the EIR for the proposed project, as well as for reviewing and approving the associated project-related actions. As permitted under *CEQA Guidelines* (§15084[d-e]), LSA Associates, Inc. has prepared the Draft EIR under contract to the City; however, prior to certification, this EIR must be subjected to the independent review and analysis by the City. The information included in and the conclusions reached in the EIR must represent the City's independent judgment. This EIR has been prepared utilizing information from City planning and environmental documents, applicant-provided technical studies, and other publicly available data. The EIR is intended to provide decision-makers and the general public with relevant environmental information to use in considering approval of the proposed project by the City.

2.2.3 Incorporated Documents

CEQA Guidelines (§15150) permits the incorporation by reference of all or portions of other documents that are generally available to the public. Any document incorporated by reference shall be made available to the public for inspection at a public place or public building and requires that the EIR state where the incorporated documents will be made available for public inspection. The following documents have been incorporated by reference, and are available for review at the City of Corona or online at www.discovercorona.com:

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- *City of Corona General Plan*, adopted March 17, 2004.
- *City of Corona General Plan, Technical Background Report*, March 2004.
- *City of Corona General Plan Final Environmental Impact Report*, EIP Associates, Inc., certified March 2004.
- City of Corona Municipal Code. Various chapters.

2.2.4 Technical Studies

Various technical reports have been prepared to assess specific issues that may result from the construction and operation of the proposed project. The technical studies utilized during the environmental analysis have been included as appendices to this document. Table 2.A identifies these reports and their corresponding EIR appendices.

Table 2.A: Technical Studies and EIR Appendices

Appendix	Study/Report	Author	Date
A	Notice of Preparation, Notice of Preparation Distribution List, Notice of Preparation Comment Letters, and Notice of Public Scoping Meeting.	City of Corona	January 2010
B	Arantine Hills Specific Plan	KTGY Consulting	January 2010
C	LESA Model Worksheets	LSA Associates, Inc.	March 2011
D	Arantine Hills Specific Plan Air Quality Impact Analysis	Urban Crossroads	May 2011
E-1	Arantine Hills Specific Plan General Biological Report	Glenn Lukos Associates, Inc.	November 2010
F-1	Cultural Resources Assessment Arantine Hills Specific Plan	LSA Associates, Inc.	August 2010
F-2	A Phase I Cultural Resources Investigation of 500+/- Acres in the Bedford Canyon Area near the City of Corona of Riverside County	McKenna and Brunzell	July 2003
G-1	Preliminary Geotechnical Feasibility Investigation 580 +/- Acres Bedford Canyon Corona Area	LOR Geotechnical Group, Inc	March 2002
G-2	Preliminary Update and Document Review of Seismic Hazards 508 +/- Acres Bedford Canyon Corona, California	LOR Geotechnical Group, Inc	February 2003
G-3	Addendum Fault Investigation, 508 +/- Acres Arantine Hills, Corona California	LOR Geotechnical Group, Inc	November 2004
G-4	Arantine Hills Master Planned Community, City of Corona, Riverside County, California	LOR Geotechnical Group, Inc	October 2009
H	Arantine Hills Specific Plan Climate Change Analysis	Urban Crossroads	May 2011
I-1	Phase I Environmental Site Assessment and Limited Site Characterization, McMillan Farm Properties	LOR Geotechnical Group, Inc.	March 2002
I-2	Phase I Environmental Site Assessment Update, Arantine Hills, Corona California	LOR Geotechnical Group, Inc.	September 2009
J-1	Preliminary Water Quality Management Plan for Arantine Hills Project	AEI-CASC Consulting	February 2011
J-2	Master Drainage Plan for the Arantine Hills Specific Plan	AEI-CASC Consulting	February 2011
K-1	Arantine Hills EIR Noise Analysis	Urban Crossroads	May 2011

Table 2.A: Technical Studies and EIR Appendices

Appendix	Study/Report	Author	Date
K-2	Arantine Hills Specific Plan Existing Plus Project Supplemental Letter	Urban Crossroads	July 2011
L-1	Arantine Hills Specific Plan Traffic Impact Analysis	Urban Crossroads	August 2011
L-2	Arantine Hills Specific Plan Addendum – Existing Plus Project Conditions	Urban Crossroads	July 2011
M-1	City of Corona Arantine Hills Water Master Plan Final Report	AKM Consulting Engineers	February 2011
M-2	Sewer Analysis Arantine Hills	AEI-CASC Consulting	February 2011
M-3	Water Supply Assessment for the Arantine Hills Specific Plan Project Corona, California	City of Corona Department of Water and Power	September 2010
M-4	Recycled Water Analysis Arantine Hills	AEI-CASC Consulting	November 2010

These documents are available for review at the following location:

Corona City Hall
 Planning Division
 400 South Vicentia Avenue
 Corona, California 92882
 Phone: (951) 736-2299
 Monday–Friday 8:00 a.m.–5:00 p.m.

2.3 PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

This EIR was distributed to responsible and trustee agencies, other affected agencies, and interested parties. Additionally, in accordance with Public Resources Code §21092(b)(3), the Draft EIR has been provided to all parties who have previously requested copies. The Notice of Completion and Notice of Availability of the Draft EIR have been distributed as required by CEQA. During the 45-day public review period, the Draft EIR and technical appendices have been made available for review.

Written comments regarding this Draft EIR should be addressed to:

Terri Manuel, Planning Manager
 Planning Division
 400 South Vicentia Avenue
 Corona, California 92282
 Phone: (951) 736-2262

After the 45-day public review period, written responses to all significant environmental issues raised will be prepared. These responses will be available for review for a minimum of 10 days prior to the public hearing before the City of Corona City Council, at which time the certification of the Final EIR will be considered. The Final EIR (which includes the Draft EIR, the public comments and responses to the Draft EIR, and findings) will be included as part of the environmental record for consideration by the City decision-makers.

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2.3.1 Initial Study and Notice of Preparation

The environmental review process for the proposed project is normally a three-step process governed by CEQA. The first step is for the Lead Agency, the City of Corona, to determine whether a project is exempt from CEQA review. The City has determined that this project is not exempt. As permitted under CEQA Guidelines (§15060(d)), if an EIR is clearly required for a project, the City may skip initial review of the project and begin work directly on the EIR. As the City has determined the preparation of an EIR is clearly required for the project, it elected to prepare the Draft EIR without preparation of an Initial Study.

The City circulated an NOP two separate times for the proposed project. The first NOP was circulated to state, regional, and local agencies and other interested parties on September 18, 2006, for a 30-day review period.¹ The City circulated a second NOP for the proposed project on January 20, 2010, for a 30-day review period.² Each NOP was distributed to the State Clearinghouse, as well as to agencies, organizations, and persons who may provide appropriate comment on the proposed project regarding potential environmental impacts that may result from the implementation of the proposed project.

Comments received regarding the NOP were used to help identify impacts that could result from implementation of the proposed project requiring further analysis in the EIR. The City received ten comment letters to the NOPs. The two NOPs, as well as the comment letters received regarding the NOP, are included in Appendix A of the EIR. Table 2.B provides a brief summary of NOP comment letters.

Table 2.B: Notice of Preparation Comment Letters Received

Agency/ Organization/ Person	Date	Comments	Addressed in Chapter(s)
September 18, 2006 NOP			
Governor's Office of Planning and Research	September 18, 2006	This letter acknowledges receipt of the NOP and identified the 30-day review period.	Not applicable.
Pechanga Band of Luiseño Indians	September 29, 2006	This letter requests that the City consult with the Pechanga for the purpose of protecting, and/or mitigating impacts to cultural places. The letter also requests copies of any archaeological or cultural resource documentation.	Chapter 4.5
City of Chino Hills	September 20, 2006	This letter states that the City of Chino Hills has no comment at this time.	Not applicable.
Metropolitan Water District of Southern California	October 16, 2006	This letter requests that the City identify the Central Pool Augmentation (CPA) Project and to analyze the consistency of the proposed project with growth management measures adopted by SCAG.	Chapter 4.10
January 20, 2010 NOP			
Governor's Office of Planning and Research	January 20, 2010	This letter acknowledges receipt of the NOP and identified the 30-day review period.	Not applicable.
Southern California Association of Governments	February 8, 2010	This letter requests that a project consistency analysis with SCAG policies be conducted as part of the EIR process.	Chapter 4.10

¹ The Notice of Preparation 30-day public review period was from September 18 to October 17, 2006.

² The Notice of Preparation 30-day public review period was from January 20 to February 18, 2010.

Table 2.B: Notice of Preparation Comment Letters Received

Agency/ Organization/ Person	Date	Comments	Addressed in Chapter(s)
Department of Conservation – Division of Land Resource Protection	February 24, 2010	This letter recommends that the EIR discuss impacts to existing agricultural resources on site through the provision of data on the types of crops grown, crop yields, mitigation measures, and cancellation of a Williamson Act contract.	Chapter 4.2
Soboba band of Luiseño Indians	February 24, 2010	This letter requests further consultation with the tribe regarding the project.	Chapter 4.5
Pechanga Band of Luiseño Indians	February 25, 2010	This letter requests that the City consult with the Pechanga for the purpose of protecting, and/or mitigating impacts to cultural places. The letter also requests copies of any archaeological or cultural resource documentation.	Chapter 4.5
Cahuilla Band of Indians	March 3, 2010	This letter requests that copies of any other archaeological or cultural resource documentation be sent to the tribe. The letter also requests that a certified Native American Cultural Resource Monitor be present during any ground-disturbing proceedings.	Chapter 4.5
California Regional Water Quality Control Board – Santa Ana Region	March 8, 2010	This letter requests that that EIR discuss each of the intermittent beneficial uses listed for Bedford Canyon Wash, that a jurisdictional delineation be prepared, and that the EIR specifically address how the project would protect the integrity of the Bedford Canyon Wash channel.	Chapter 4.9

Note: All NOP response letters are included in Appendix A of the EIR.

2.3.2 Public Scoping Meeting

Two public scoping meetings were held for the proposed project. The first public scoping meeting was held at the City of Corona Multi-Purpose Room in Corona on July 27, 2006. Of the 27 members of the general public who attended, 16 provided written comments about the proposed project. The second public scoping meeting was held at the Woodrow Wilson Elementary School in Corona on February 11, 2010. Seven members of the general public provided written comments about the proposed project.

2.4 MITIGATION MONITORING AND REPORTING PROGRAM

A Mitigation Monitoring and Reporting Program (MMRP) will be prepared to comply with the requirements of CEQA (§21081.6). When mitigation measures are required to avoid or reduce the severity of significant impacts, CEQA requires the adoption of an MMRP. The monitoring program is intended to ensure compliance during implementation of the program. An MMRP will be adopted by the City Council concurrent with certification of the Final EIR for the proposed project.

2.5 POTENTIAL SIGNIFICANT IMPACTS OF THE PROPOSED PROJECT DISCUSSED IN THE EIR

This Draft EIR focuses on the areas of concern identified in the NOP and comments submitted regarding the NOP. The following 17 environmental topics are addressed in this EIR:

- Aesthetics;
- Agricultural and Forest Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Global Climate Change;
- Hazards and Hazardous Materials;
- Hydrology/Drainage and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Noise;
- Population and Housing;
- Public Services;
- Recreation;
- Traffic and Circulation; and
- Utility Systems.

2.6 CUMULATIVE PROJECTS

Substantial changes are anticipated to occur as the result of population and employment as well as the development of other projects in the City and region. *CEQA Guidelines* (§15130) requires that an EIR include a discussion of the potential cumulative impacts of a proposed project. Cumulative impacts are defined as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the development when added to the impacts of other closely related past, present, and reasonably foreseeable or probable future developments. Cumulative impacts can result from individually minor, but collectively significant, developments taking place over a period of time. The *CEQA Guidelines*, state:

- (a) Cumulative impacts shall be discussed when the project's incremental effect is cumulatively considerable.*
- (b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided of the effects attributable to the project. The discussion should be guided by the standards of practicality and reasonableness.*

The cumulative baseline for this project includes past, present, and probable future projects, which are either approved or being considered for approval, or anticipated to be submitted for consideration, including projects in the design phase or under construction. The significance of a cumulative impact may be greater than the effects resulting from the individual actions if the effects of more than one action are additive. This section evaluates the proposed project together with the reasonably foreseeable potential effects of other closely related past, present, and reasonably foreseeable or probable future development in the area of the project.

Criteria for evaluating the significance of adverse effects are identified for each environmental issue in Section 4.0. These criteria, which are based on resource sensitivity, quality, and quantity, are also instructive when evaluating whether the environmental effect resulting from implementation of a particular project is cumulatively considerable. The timing and duration of each activity is also an important consideration for evaluating the potential cumulative effects of activities that may occur only for a limited period. In such cases, a cumulative effect may occur only when two or more of the activities are occurring simultaneously.

2.6.1 Potential Cumulative Development

Because of the nature of individual environmental factors, the cumulative area for every issue addressed in this EIR will not be identical. For example, the cumulative area for air quality impacts (the South Coast Air Basin) is much larger than the cumulative area for public service impacts (the service area of the various service providers.) The individual cumulative areas for the issues addressed in this EIR are provided within the cumulative impacts discussion in the respective impact sections.

In determining the cumulative impacts of a proposed project with other area projects, an EIR may either consider a list of past, present, and probable future projects, or it may consider a summary of projections method.¹ Depending on the topic addressed, this EIR utilizes both methods. The following cumulative project list includes projects identified by the City in the study area (Table 2.C). Projects included within Table 2.C would be built out over time as market conditions permit. The potential exists that several of the projects listed may not be constructed within the reasonably foreseeable future. By including all of the listed projects in the cumulative analysis for the project, this EIR would likely overstate identified cumulative impacts because many of the identified projects may never be built or may not be built at the densities identified. Cumulative projects include commercial, industrial, single-family, and multiple-family residential uses. Figure 2.1 identifies the locations of approved and pending projects within the focused cumulative project area.

Table 2.C: Cumulative Project List

Map No	Project	Location	Type	Status
1	Far West Housing (TTM 32023)	South of Calle Del Oro (Sierra Bella)	249 single family lots/322 ac	Map extended Project dormant
2	Voit (formerly BKM) (TTM 35590/PP07-007)	Southwest corner of Serfas Club and Palisades	Mixed use on 38 ac includes 108 multifamily units; 10 office buildings total 62,096 sf; 2 commercial retail total 11,200 sf.; 12 light industrial total 77,000 sf Self storage 867 units	Map extended Project dormant
3	Cesar Chavez School expansion (DPR11-006)	West side of Paseo Grande south of West Sixth Street	93,684 sf middle school addition to existing elementary school	Phased between 2012 and 2015
4	Knowleton Communities (TTM 33135)	South of Skyline Drive, south of Foothill Parkway, west of Lincoln	63 single-family lots/60 ac	Map extended Project dormant
5	Knowleton Communities (PM 36250/PP09-004)	Southwest corner of Ontario and Buena Vista	3 lots for 2 commercial buildings totaling 18,400 sf	Recent approval completion on hold
6	Rancho De Paseo Valencia (TTM 34760 Annex 110/SPA08-005/EIR)	South and west of Malaga Street, south of Upper Drive, west of Main Street	34 single-family estate lots/64 ac	Approval pending
7	DJJ Development (TTM 32386)	Southerly terminus of Main Street, south of Fletcher Drive	49 single-family lots/75 ac	Map extended Project dormant

¹ State CEQA Guidelines, Section 15130(b)(1).

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Table 2.C: Cumulative Project List

Map No	Project	Location	Type	Status
8	Harrington B. Investment (TTM 34488/PP06-009)	Southeast corner of Harrington Street and Lincoln Avenue	142 multifamily units/7.3 ac	Map extended Project dormant
9	Corona North Main, LLC (TTM 35973/PP09-003)	West side of N. Main Street, north of Rincon Street	404 multifamily units/14.4 ac	Under construction
10	Pecuniary Capital, LLC (TTM 35851/CUP10-017)	North of Corona Avenue, west of I-15	60 townhome units (multifamily)/3.5 ac	Project entitled Completion on hold
11	Mulligan-Allen & Assoc (PM 35661/PP08-001)	Southeast corner of Collett and Promenade Avenues in northeast Corona	442 multifamily units/17.2 ac	Map extended
12	Sherborn, LLC (PM 33959)	South of Magnolia Avenue, west of Sherborn Street	29 industrial lots/76 ac	Map extended Project dormant
13	Fletcher Development/67 (TTM 34584)	Laurel Canyon, northeast of Old Temescal	65 single family lots/61 ac	Map extended Project dormant
14	Cornerstone Enterprises (PM 36311/PP10-001/CUP10-003; 004; 005)	West of I-15; north of Foothill Parkway/El Cerrito Road	Commercial center (9.8 ac): Restaurant total 17,200 sf Retail in-line 24,000 sf Service station 3,000 sf Hotel 119 rooms, 38,670 sf	Project entitled Completion on hold
15	Villages at Verona (TTM 36355/PP11-001 pending)	North of Foothill Parkway, west of I-15	463 multifamily units/21.7 ac	Pending
16	Gateway Business Park Crossings (PM 29503R/PP08-008)	East of I-15; north of Cajalco Road at Tom Barnes Way	44 commercial and industrial lots; 216,400 sf/28 ac	Map recorded Project dormant
17	SE Corporation, Lakeshore Plaza (PM 34890/PP06-006)	West side of I-15, east of Temescal Canyon	Four lots for three office buildings (one constructed), two remain at 289,613 sf	Remaining buildings project dormant
18	Meridian Dos Lagos, LP (PM 34851/PP06-011)	East of Temescal Canyon, Planning Area 6 of Dos Lagos	7 lot condo map with 7 office buildings totaling 35,931 sf/3.6 ac	Map extended project dormant
19	PM 33151/PP04-018	Southwest corner of Temescal Canyon and Blue Springs	92 live-work units	Project is in plan check
20	America's Tire Store	Northeast corner of Ontario and Compton	8,189 sf	Under construction

Sources: City of Corona, April 2011.
Notes: sf = square feet ac = acres

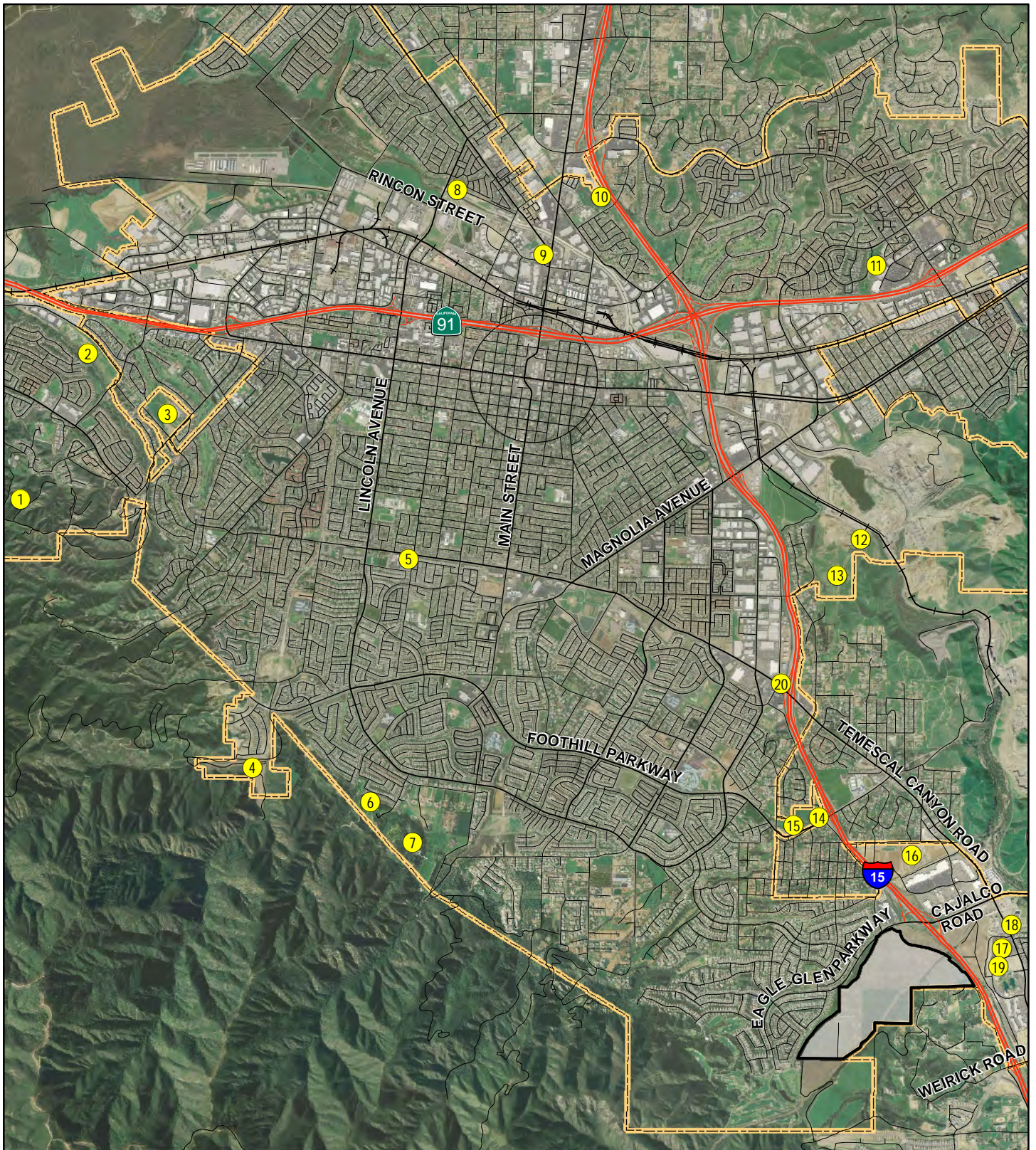
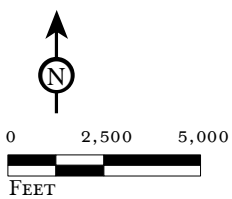


FIGURE 2.1

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- Project Location
- Cumulative Projects
- Corona City Limits

*Arantine Hills Specific Plan
Environmental Impact Report*

Cumulative Projects

SOURCE: AirPhotoUSA, 2008; Thomas Bros., 2009

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3.0 PROJECT DESCRIPTION

The proposed project description is provided in this chapter of the EIR in conformance with *CEQA Guidelines* (§ 15124). It provides the location and boundaries and environmental setting of the project, a description of the project that is analyzed in Chapter 4.0 of the EIR, the objectives of the project, and a summary of the discretionary actions that would be required to approve and implement the proposed project. This section is based in part on the *Arantine Hills Specific Plan 4th Screencheck*, KTG, January 2010, which is included as Appendix B of this EIR.

The proposed project, known as the Arantine Hills Specific Plan (hereafter referred to as the “Specific Plan”), is a specific plan that gives detailed guidelines for the development of the project area. The City’s General Plan identifies the area as an opportunity district where a Master Plan is appropriate. The main features of the Specific Plan include single-family and multifamily residential neighborhoods, a general commercial area, mixed use areas (commercial, industrial, and residential), parks and trails providing pedestrian and bicycle access throughout the site, and open space areas.

3.1 GEOGRAPHICAL SETTING AND PROJECT LOCATION

The proposed project is located within the City of Corona in Riverside County, California. The project site is located along the northeastern foothills of the Santa Ana Mountains, just north of the Elsinore-Temecula basin (refer to Figure 1.1 in Chapter 1). The City of Corona is generally situated southwest of the City of Riverside, south of the City of Norco, and northwest of the City of Lake Elsinore.

The 276-acre project site is located in the Bedford Canyon area of the Santa Ana Mountain foothills in the southeastern portion of Corona. Interstate 15 (I-15) traverses the northeastern boundary of the Specific Plan area. West of the I-15, Eagle Glen Parkway and the Eagle Glen Specific Plan area surround the project site on the north and west, and the Cleveland National Forest is to the south. Rural residential development within unincorporated Riverside County is located to the southeast. Current access to the site is from Eagle Glen Parkway via an agricultural access road located along the north center portion of the site.

3.2 EXISTING SITE CHARACTERISTICS

3.2.1 General Site Characteristics

The Specific Plan Area is characterized by rolling terrain with Bedford Wash bisecting the property. As illustrated in Figure 3.1, elevations across the site range from 800 to 1,240 feet above mean sea level (AMSL). Two intermittent blue-line streams traverse the property and converge near its mid-section. The subject property is currently vacant but portions of the property have historically been used for citrus cultivation by McMillan Farm Management.

The site can be divided into two basic regions based on topography: the lower-lying Bedford Canyon Wash area; and the higher, elevated bluff, above and south of the canyon. The lower-lying canyon areas comprise the majority of the site and make up the northern portions. This lower-lying area is relatively flat, with an overall gentle gradient to the northeast. Citrus groves were present across the majority of the lower-lying regions of the site except for two small areas, which are in a relatively natural state, with a moderate to heavy growth of brush. An updated Phase 1 Site

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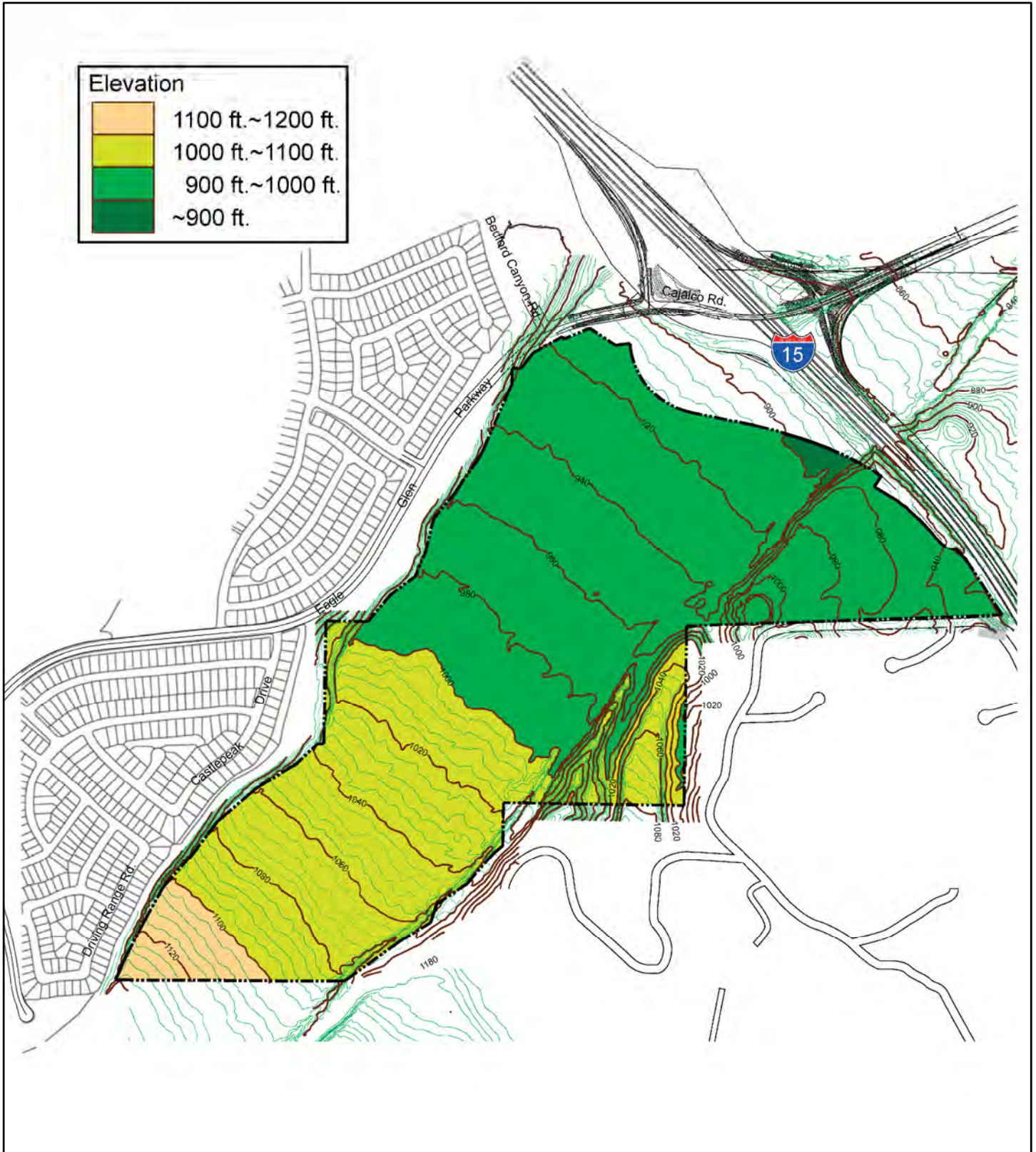
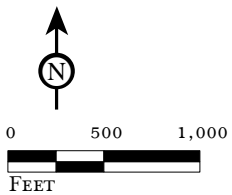


FIGURE 3.1

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SOURCE: Arantine Hills Specific Plan, 2010.

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Assessment was conducted in 2009 to document changes to the project site since 2002.¹ During the 2009 Phase 1 Site Assessment, it was noted that the project site had been cleared of all citrus trees that were present during the 2002 survey. Structures still present on the project site included a mobile home, one steel storage building, water wells/pumps, power poles, aboveground fertilizer tanks, and one aboveground diesel fuel tank.

The active drainage of the site lies along the southern portion of the lower-lying region and marks the boundary of the elevated areas to the south. Figure 3.2 is an aerial view of the project area, providing an indication of the project site coverage.

The elevated portion of the site rises steeply to the south from the lower-lying area up to 100 feet. Along the southeast side of Bedford Canyon, the canyon walls have been eroded off to near vertical cliffs. The canyon walls along the northeast side are much more subdued.

3.2.2 Surrounding Land Uses

Directly north of the Specific Plan area is the Eagle Glen Specific Plan area, a residential and golf course community. There is an existing neighborhood commercial center located on Bedford Canyon Road, just north of Cajalco Road, adjacent to I-15. To the northeast, the Specific Plan area abuts land owned by the Riverside County Transportation Commission (RCTC). To the south of the project lies unincorporated County land and a series of large scattered lots located on rugged topography that is privately owned agricultural and estate residential land. Table 3.A provides a summary of on-site and adjacent current land uses.

Table 3.A: On-Site and Adjacent Land Use Designations

Location	Current Land Uses	General Plan Land Uses	Zoning Designations
On-site	Vacant/fallow	Agriculture (Possible Future Urban Use)	Agriculture
Northwest	Eagle Glen Specific Plan	Low Density Residential	Single-Family Residential
Southeast	Unincorporated Rural Residential	Riverside County Rural Residential	Riverside County Rural Residential
Northeast	I-15 ROW ¹ planned for improvements	Agriculture (Possible Future Urban Use)	Agriculture
Southwest	Eagle Glen Golf Course	Open Space/Recreation	Eagle Glen Specific Plan – Open Space/Golf Course

1. ROW = right of way
Sources: City of Corona General Plan Land Use Map, adopted March, 2007.

3.2.3 Existing General Plan Land Use Designations and Zoning

Under the adopted General Plan, the Specific Plan area is designated as “Agriculture – Possible Future Urban Use.” The purpose of the Specific Plan process is to guide future development of the project site. The Specific Plan area is currently zoned as “Agricultural.” Previously identified Table 3.A provides existing zoning designations for the project site and adjacent uses. Figures 3.3 and 3.4 illustrate existing General Plan land use designations and zoning for the project site and adjacent

¹ *Phase I Environmental Site Assessment Update, Arantine Hills, Corona California, LOR Geotechnical Group, Inc., September 16, 2009.*

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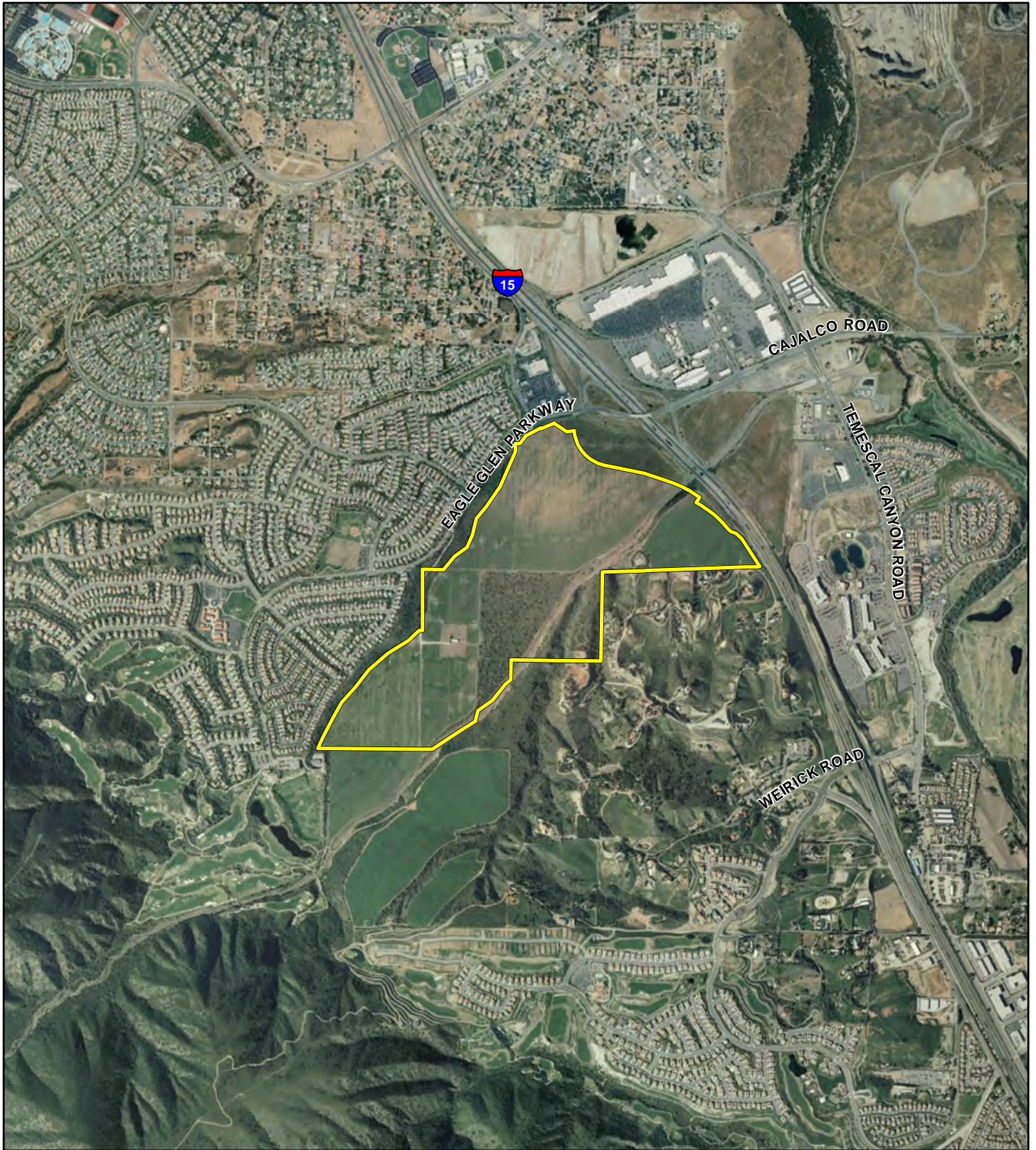
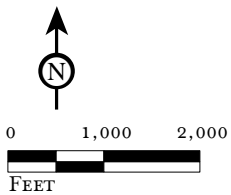


FIGURE 3.2

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 Project Boundary

*Arantine Hills Specific Plan
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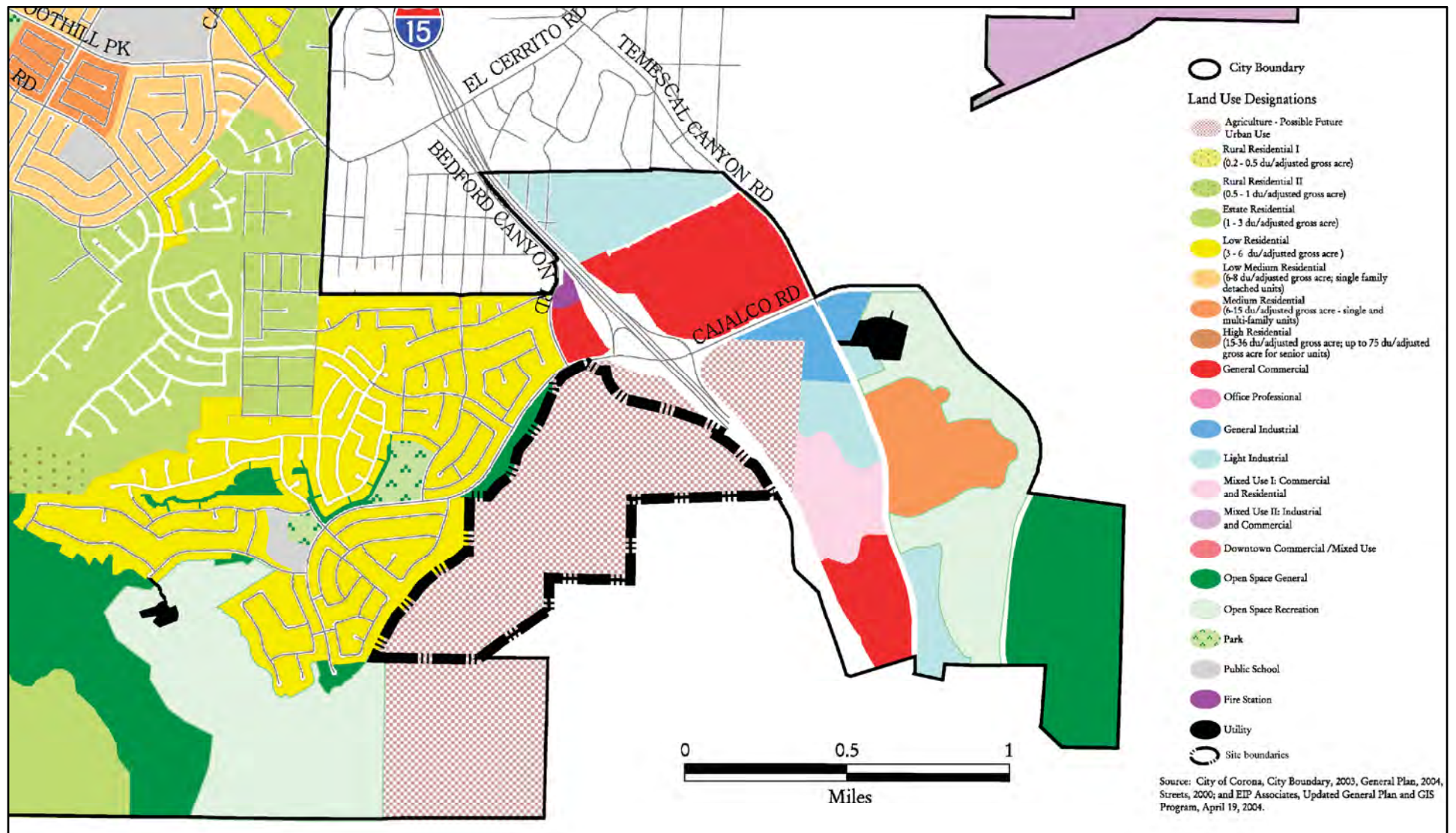
Aerial View of Specific Plan Area

SOURCE: ESRI World Imagery, 2010.

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Existing General Plan and Land Use Designations



Proposed General Plan and Land Use Designations

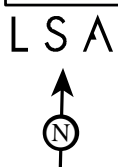
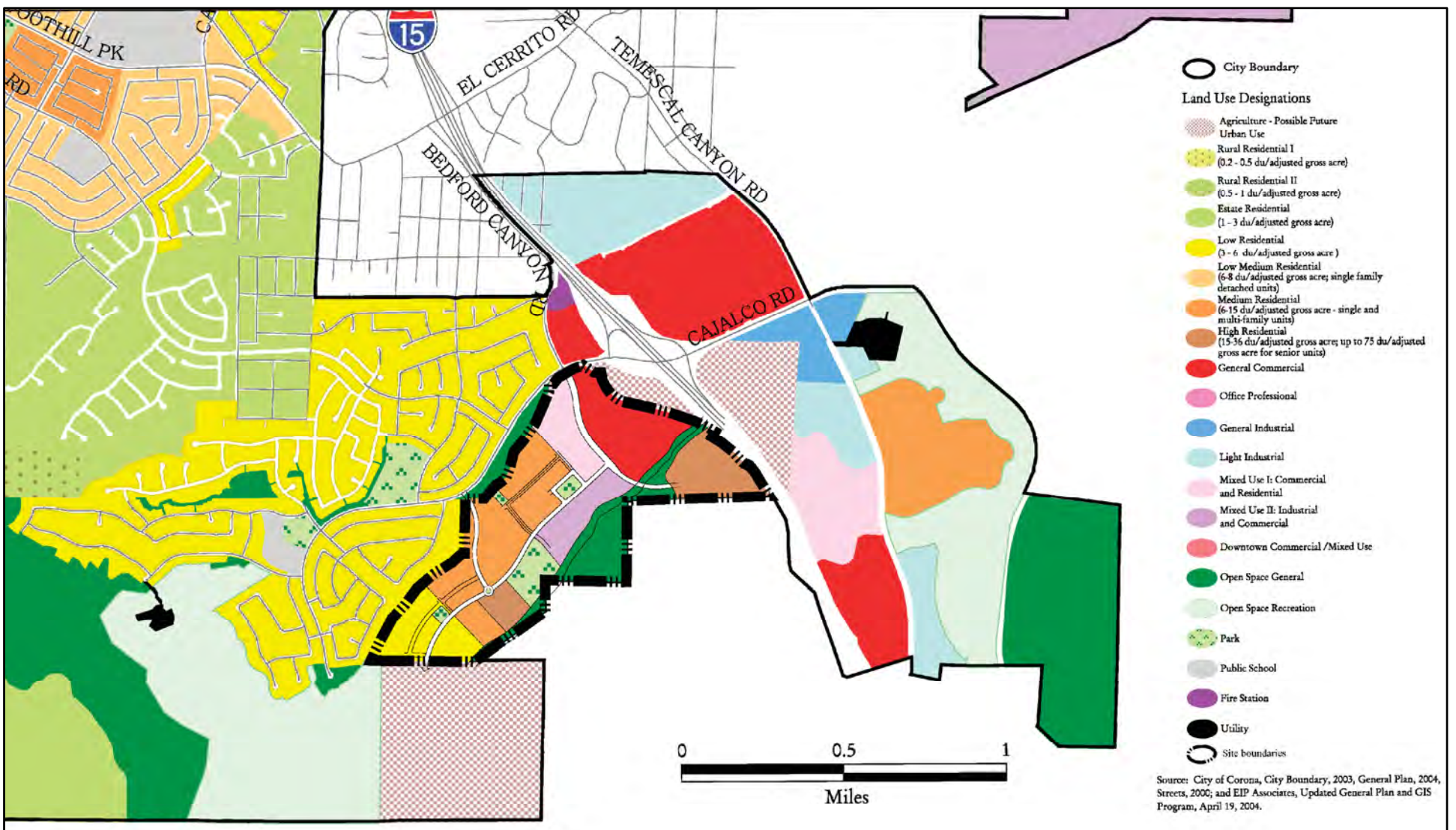
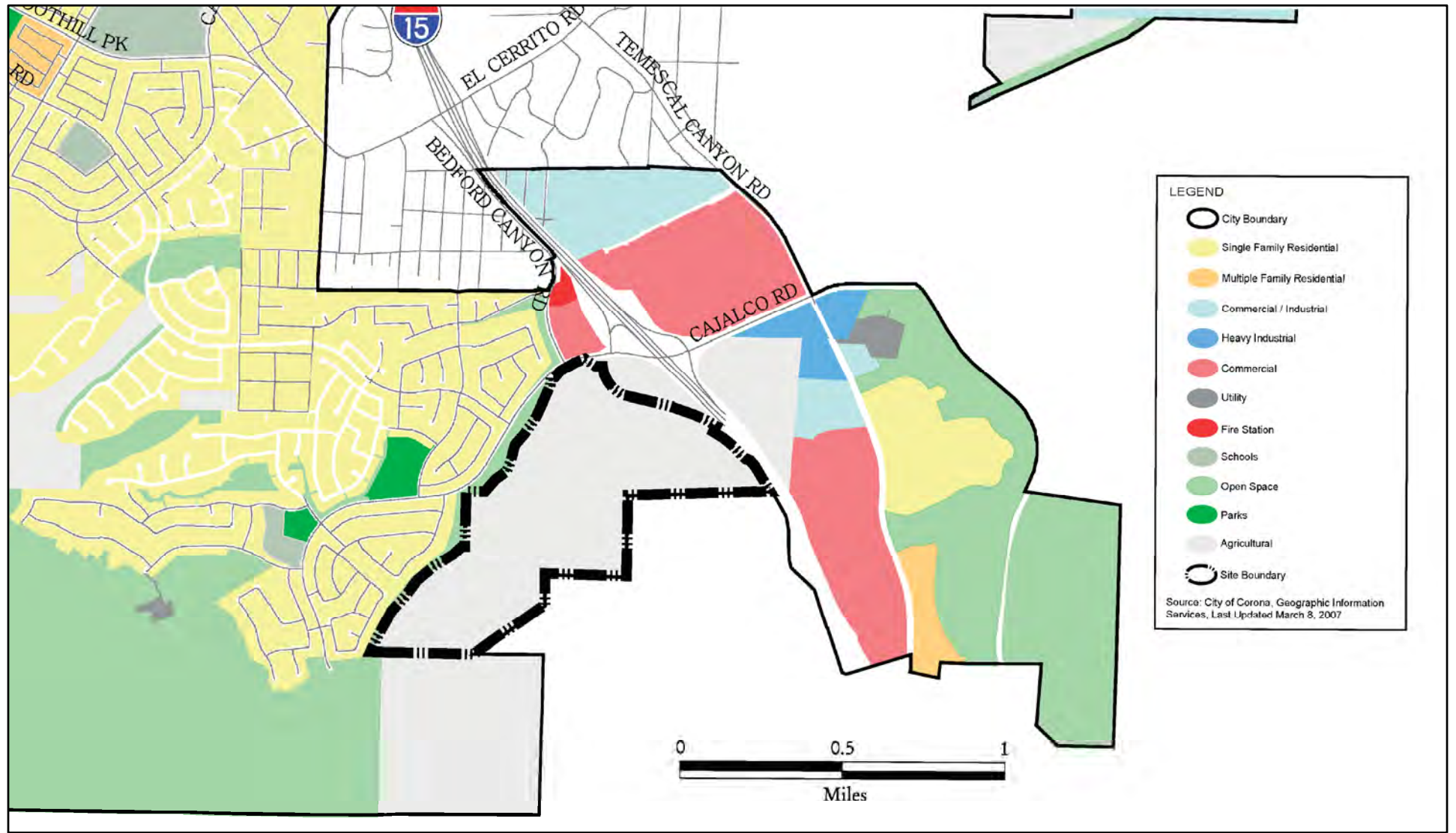


FIGURE 3.3

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Existing Zoning Designations



Proposed Zoning Designations

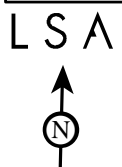
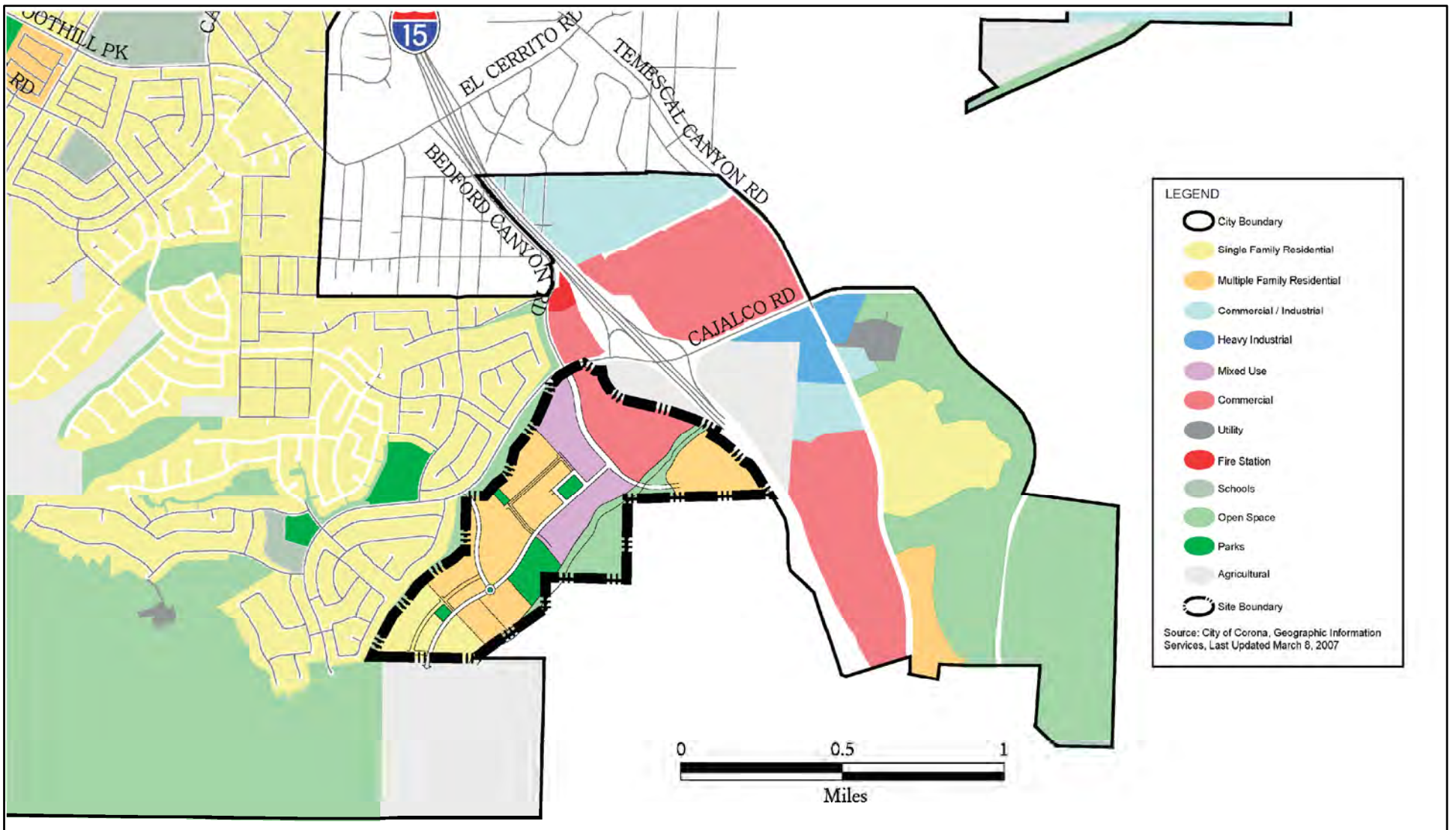


FIGURE 3.4

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areas. The same exhibits also correlate the proposed General Plan land use designations and zoning for the site.

3.3 PROJECT CHARACTERISTICS

3.3.1 Specific Plan Legal Requirements

State law authorizes cities and counties to prepare and adopt specific plans (Government Code Sections 65450 et seq.). These plans have developed as a bridge between the local general plan and individual development proposals, and contain both planning policies and regulations. They often combine zoning regulations, capital improvement programs, detailed development standards, and other regulatory schemes into one document, which can be tailored to meet the needs of a specific plan area. Government Code Section 65451 describes the required contents of a specific plan as follows:

- (a) *A specific plan shall include a text and a diagram or diagrams which specify all of the following in detail:*
- (1) *The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.*
 - (2) *The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan.*
 - (3) *Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.*
 - (4) *A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs (1), (2), and (3).*
- (b) *The specific plan shall include a statement of the relationship of the specific plan to the general plan.*

A specific plan includes the goals, policies, development standards, and implementation measures that would guide future development, in accordance with State law. The Specific Plan's relationship to the City's General Plan is discussed in Chapter 4.10 of this EIR.

A specific plan is designed to meet the goals established in the City's General Plan by providing a framework for future development of the project area. A specific plan also provides a bridge between the City's General Plan and detailed plans for development and will direct all facets of future development within the project area including:

- Designation of land uses;
- Designation of required access and circulation elements;
- Location and sizing of infrastructure;
- Phasing of development;
- Financing methods for public improvements; and
- Establishing standards of development.

3.3.2 Land Use Pattern and Development Potential under the Specific Plan

The Specific Plan provides policies and programs that will guide future development of the Specific Plan area. The Specific Plan calls for open space, residential, and mixed/commercial uses as well as associated roads and pedestrian/bike paths. There are eight land use categories where additional requirements apply. These land use categories guide the general distribution, location, and extent of the various types of land uses in the Specific Plan area. Locations of subareas and land use categories are illustrated in previously referenced Figure 1.2 in Chapter 1. Land Use Categories in the Specific Plan Area include the following:

- Low Density Residential (LDR);
- Medium Density Residential (MDR);
- High Density Residential (HDR);
- General Commercial (GC);
- Mixed-Use I: Commercial and Residential (MU-I);
- Mixed-Use II: Industrial and Commercial (MU-II);
- Parks (P); and
- Open Space General (OS/G).

The following is a brief description of the pattern and intensity of the proposed development pattern within the Specific Plan.

- *Residential Density and Pattern:*
 - Within planned development areas, residential densities would range in density, typically decreasing in intensity from north to south. This density pattern is intended to avoid conflicts with nearby adjacent lands outside the Specific Plan area.
 - Residential densities and patterns are responsive to on-site natural resources and topography. In general, higher intensity development would occur in more level areas and will avoid the identified natural drainage. For example, PAs 17, 18, and 19 contain all of the portions of the Bedford Canyon Wash that lie within the Specific Plan boundaries. In addition, PAs 18 and 19 designate the area south of the wash containing steep slopes. These three PA are designated OS, in order to keep the wash area and associated steep slopes from being developed.
- *Commercial Development:*
 - Limited Commercial development could occur in the northeastern end of the site, near I-15 and future Street "A."
- *Mixed Use Development:*
 - Two Mixed-Use areas permit development of commercial/residential (MU-I) and industrial/commercial (MU-II). These areas are PA 13 (MU-I) and PA14 (MU-II) located near Commercial PA 15.
- *Open Space, Parks, and Trails:*
 - On-site drainages would generally be preserved in open space. A total of 36.9 acres (13% of the site) are preserved as designated open space, most of which would be along the Bedford Canyon Wash.

- An additional 15.2 acres (5% of the site) would be developed for recreational uses in the form of one 11.0-acre neighborhood park, one 2.1 acre special use park, and two mini parks (1.0 and 1.1 acres).
- The project would include a trail system, which includes a continuous pedestrian/bicycle trail along the north side of the Bedford Canyon Wash.

3.3.3 Specific Plan Policy Framework

A specific plan is based on policy direction contained in the City's General Plan, and must be consistent with the General Plan. Within the scope of a specific plan, the Planning Commission and City Council have the authority to:

- Provide flexibility in terms of:
 - Distribution of densities within the geographic area covered;
 - Parcel sizes and location (including clustering to retain unique site features);
 - Development Standards and other Zoning Ordinance requirements; and
 - Opportunities for mixed-use provisions (e.g., neighborhood serving commercial land uses) within the overall residential densities anticipated in the General Plan. This flexibility includes the ability to provide for multifamily land uses as long as the total dwelling unit count is within the scope of the General Plan designation for the geographic area under consideration.
- Address community-wide issues on a comprehensive basis, including:
 - Fiscal impacts;
 - Infrastructure phasing and financing;
 - Parks and trails;
 - Project amenities; and
 - Coordinated architecture.

Within a specific plan area, a fee schedule may be established to provide adequate funding for on- and off-site public facilities and improvements of benefit to properties within the designated specific plan areas. Such fees are above and beyond any property-specific or citywide property taxes, fees, charges, or assessments. A specific plan typically also includes policies related to the following topics:

- Land Use (including grading);
- Circulation; and
- Infrastructure.

Additional policies are included to address development within each subarea. These policies discuss the development parameters of each area, including maximum number of dwelling units and commercial potential, grading requirements, and the infrastructure required prior to the development of a particular area. Development standards specific to each subarea are also included. These typically relate to natural resource protection, visual impacts, agricultural buffers, and noise attenuation techniques.

3.3.4 Specific Plan Components

The proposed project is a 276-acre master planned community that would support up to 1,806 residential units with densities ranging from 3 units per acre to 35 units per acre, 745,300 square feet of commercial, office, business park, and light industrial space, 15.2 acres of parks, 36.9 acres of open space, and 16.5 acres of master planned roadways. As illustrated in previously identified Figure 1.2, the project area is divided into 19 different planning areas. The following discussion provides a summary of the type of development anticipated for the planning areas.

Residential Development (Planning Areas 1, 2, 4, 5, 6, 7, 10, 11, and 16). The Specific Plan would include three types of residential development summarized in Table 3.B.

Table 3.B: Residential Density Descriptions

Residential Type	Density	Planning Area	Summary
Low Density Residential	3–6 du/ac	Planning Areas 1 and 2	The Low Density Residential (LDR) District is intended as a district of single-family homes with not more than one dwelling and customary accessory buildings upon one lot, at densities of up to 6 dwelling units per acre.
Medium Density Residential	6–15 du/ac	Planning Areas 4, 5, 7, 10, and 11	The Medium Density Residential (MDR) District is intended as a residential district for single-family dwellings, duplexes townhomes, and multiple-family residences at densities up to 15 dwelling units per acre.
High Density Residential	15–36 du/ac	Planning Areas 6 and 16	The High Density Residential (HDR) District is planned for attached multifamily dwelling units, including townhomes, stacked flats, and apartments, at densities of up to 36 dwelling units per acre.
Mixed-Use Residential		Planning Area 13	The Mixed-Use (MU-I) District is planned to allow a mix of retail, office, and multifamily residential uses. Multifamily dwelling units could be built at a density of approximately 35 dwelling units per acre. The project plans to develop up to 451 dwelling units at a density of 21.4 dwelling units per acre.

du/ac = dwelling units per acre
Sources: Arantine Hills Specific Plan, June 2011.

Total build out of Planning Areas 1, 2, 4, 5, 6, 7, 10, 11, and 16 would result in the construction of 1,170 detached and attached dwelling units on 129.6 acres, excluding mixed-use residential.

Planning Area 16 may build out with either market-rate housing for families, or as an age-qualified community to help provide housing options for the region’s growing population of seniors. It will be determined by the project master developer as to whether Planning Area 16 develops with high density residential housing or senior housing. For the purposes of this EIR, it has been assumed that Planning Area 16 will be developed with market-rate apartments.

General Commercial (Planning Area 15). The General Commercial (GC) District is intended for higher intensity commercial uses that serve community and subregional needs with an emphasis on convenient automobile access, while incorporating efficient, safe, and attractive on-site pedestrian circulation. Although the GC District designation is intended to generally apply to areas appropriate to serve the entire community (e.g., shopping centers, automotive service and repair, theaters, and drive-through services), neighborhood-serving retail uses are also permitted. The GC District may also contain low- and medium-rise office uses.

Planning Area 15 would provide approximately 38.3 acres or up to 396,400 square feet for retail, restaurants, services, entertainment, lodging, and offices in the Specific Plan area. In addition to serving the Arantine Hills residents and visitors, the GC planning area would provide employment opportunities for community residents. The commercial areas may also serve as sites for additional community services such as daycare, emergency medical care, and others.

Mixed-Use I (Planning Area 13). The Mixed-Use (MU)-I District in Planning Area 13 consists of approximately 21.1 acres and is intended to allow for a mix of retail, office, and multifamily residential uses in accordance with objectives, policies and proposals of the City of Corona General Plan. Up to 451 dwelling units are planned in Planning Area 13 at a density of approximately 21.4 dwelling units per acre and FAR of 2.0 as shown in Table 3.B. The MU-I district would be located in proximity to the on-site commercial, office, research and development (MU-II, Planning Area 14), and higher density residential uses. The intent of the MU-I district is to allow for up to 118,000 square feet of retail and office uses integrated into the same building and/or the same site as residential uses. The retail commercial and professional office uses in mixed-use development would be limited to those uses that are compatible with residential development.

Multifamily residential uses in the MU-I district would be permitted only in conjunction with commercial development and would have separate entrances from the non-residential uses. The office/work portion of live-work units would not be used for residential use. In addition, no single-family detached dwelling units would be permitted within the MU-I district.

Mixed Use II (Planning Area 14). The MU-II District in Planning Area 14 consists of approximately 18.6 acres and is intended to allow for approximately 230,900 square feet of office, business park, research and development, and light industrial uses in accordance with objectives, policies and proposals of the City of Corona General Plan. No residential uses would be permitted in the MU-II district.

Parks (Planning Areas 3, 8, 9, and 12). The Parks District would allow for the development of both active and passive park uses. The project includes four parks totaling 15.2 acres, including one 11-acre active neighborhood park, one 2.1-acre special use park (i.e., town square), and two mini parks (1.1 and 1.0 acres). These four parks will be constructed by the project master developer. The 11-acre and 2-acre parks (Planning Areas 8 and 12) would be dedicated to the City of Corona while the two 1-acre mini parks (Planning Areas 3 and 9) would be owned and maintained by the Master Homeowners Association. All four parks would be available for use by the general public.

Open Space (Planning Areas 17, 18, and 19). The Open Space District is designed for natural open space areas, mitigation areas, creeks and waterways, and areas used for flood control purposes. Approximately 36.9 acres of open space land would be preserved along Bedford Canyon Wash, including some of the bluffs that abut the southern edge of the wash. Except where flood control channel improvements are planned for Bedford Canyon Wash, the remaining open space areas will be preserved in a natural condition to protect habitat and existing drainage courses, where feasible. The open space also integrates the project aesthetically while providing natural buffers for the residential, commercial, and mixed-use planning areas. A continuous pedestrian/bicycle trail will be constructed along the north side of the Bedford Canyon Wash. Portions of the open space areas will be maintained according to the recommendations of the Corona Fire Department and any future fuel modification plans that are specific to the various planning areas.

Master Planned Roadways. A total of 16.5 acres will be allocated for the construction of on-site, Master Planned, roadways.

3.3.5 Specific Plan Phasing and Implementation

The project will be developed in four phases, which may occur sequentially or concurrently with one another. Build-out of the project is estimated to occur over a 10-year period. The primary intent of the phasing of the project is to ensure that complete and adequate public facilities and services are in place and available to the future community residents and visitors as needed. The phasing program for the Specific Plan will be scheduled to provide the services and infrastructure required for each of the development planning areas. Street and traffic signal improvements will be phased in order to minimize the impacts on site and to the neighboring Eagle Glen community. The phasing set forth in the Specific Plan will be conditioned on the approval of tentative tract maps. It should be noted that the ultimate pace and phasing of the development is dependent on a number of internal and external factors and is subject to change and modification.

Not all planned development within a given phase may be completed prior to the initiation of the next phase. In cases where development within a new phase is to begin prior to the completion of a phase in progress, all infrastructure improvements will be fully funded or guaranteed by the project applicant and designed for the phase in progress before any new phase may begin. All required water and sewer infrastructure will be completed for each phase prior to issuing a certificate of occupancy for a unit in that phase. Except when a Specific Plan policy calls for accelerated construction of infrastructure, as development occurs the infrastructure system planned for the Arantine Hills area will be constructed as necessary to accommodate the development within a specific subarea. Figure 3.5 illustrates the conceptual phasing plan while Table 3.C provides the phasing plan summary for the proposed project.

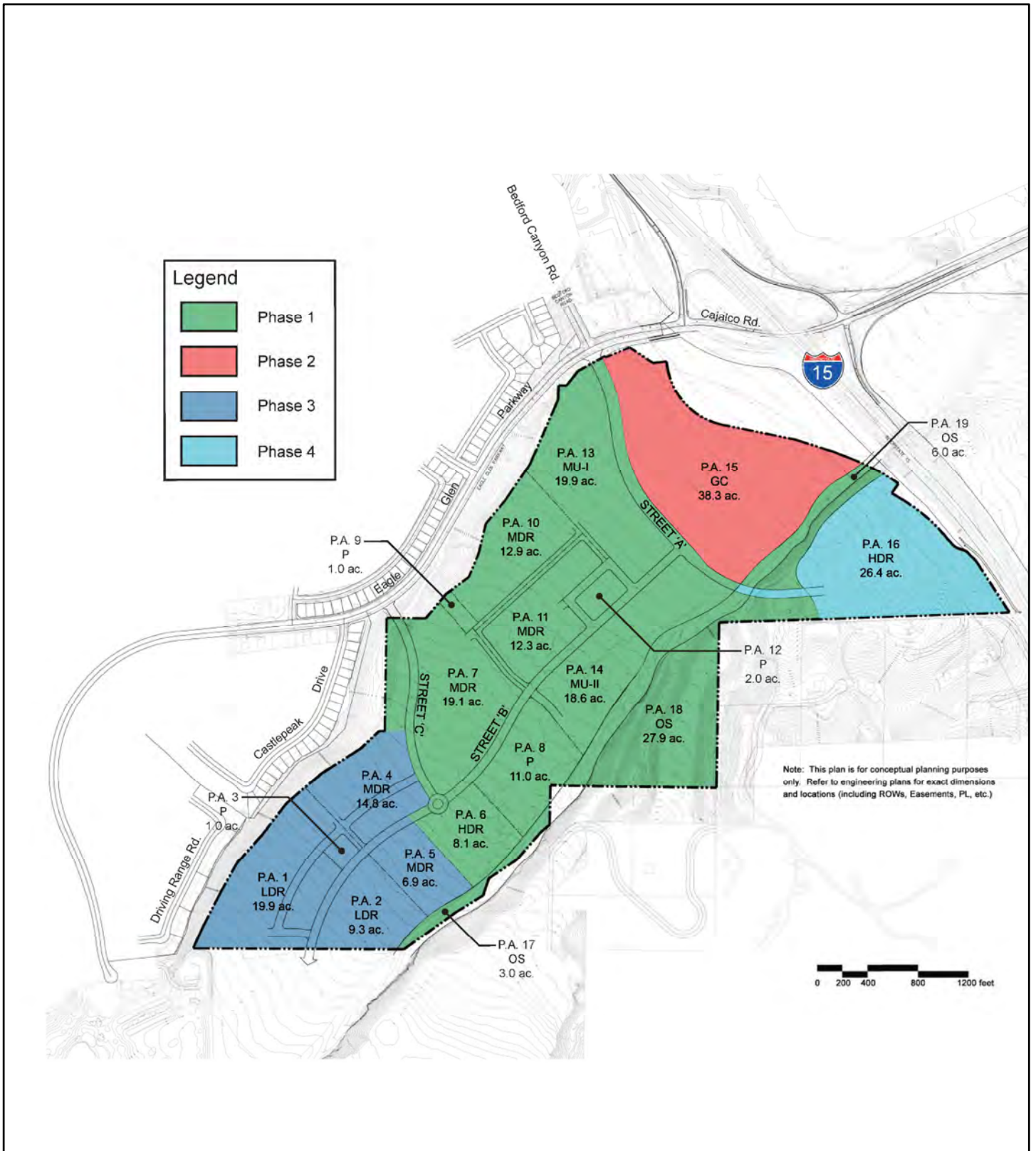
3.3.6 Water and Sewer Infrastructure

Phase 1. As illustrated in Figure 3.6, construction of a 16-inch water line from Eagle Glen Parkway will extend in Street "A" into the Phase 1 area, through Streets "B" and "C" back to Eagle Glen Parkway. A 12-inch reclaimed water line will connect to the existing reclaimed water line in Eagle Glen at Bedford Canyon Road. This reclaimed water line will then be extended within Street "A" and Street "B" to the southern boundary of Phase 1 as shown in Figure 3.7.

A 15-inch sewer line will be constructed in Cajalco Road in order to serve Phase 1 development. This 15-inch line will connect to a new 18-inch line replacing the existing 12-inch sewer line that currently connects to Wastewater Treatment Plant #3 (Figure 3.8). The 15-inch sewer line will extend westerly under I-15 at the Bedford Canyon Wash to Street "A." A 12-inch sewer line will be installed in Street "B" westerly within Phase 1, ultimately reducing to an 8-inch line at Street "C." Wastewater Treatment Plant #3 may need to be expanded to a capacity sufficient to accommodate the project prior to the issuance of building permits for Phase 3. Expansion of wastewater treatment facilities is discussed in Section 4.17 (Utilities and Service Systems) of this EIR.

Phase 2. Water and sewer lines constructed in Phase 1 will also serve Phase 2 development (i.e., Planning Area 15) with no additional lines required.

Phase 3. For development occurring during Phase 3 (i.e., Planning Areas 1 through 5), a 12-inch transmission water line will be constructed in Street "B" from Street "C" to the southern boundary of the Specific Plan area. The 12-inch water line in Street "C" will extend north to Eagle Glen Parkway westerly along Eagle Glen Parkway and connect to the existing 16-inch Zone 4 water line in the Eagle



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FIGURE 3.5

*Arantine Hills Specific Plan
Environmental Impact Report*

Conceptual Phasing Plan

SOURCE: Arantine Hills Specific Plan, 2010.

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Table 3.C: Specific Plan Phasing Summary

Planning Area	Land Use	Acres	Density Range	Target Density	Target Units	Floor Area Ratio	Commercial/Industrial Square Footage
Phase 1							
6	High Density Residential	8.1	15–36 du/ac	18.0	146 du	—	—
7	Medium Density Residential	18.7	6–15 du/ac	7.0	132 du	—	—
8	Park	11.0	—	—	—	—	—
9	Park	1.0	—	—	—	—	—
10	Medium Density Residential	12.9	6–15 du/ac	7.0	90 du	—	—
11	Medium Density Residential	12.6	6–15 du/ac	7.0	88 du	—	—
12	Park	2.1	—	—	—	—	—
13	Mixed-Use I	21.1	25–40 du/ac	35.0	451 du	2.0	118,000 sf
14	Mixed-Use II	18.6	—	—	—	2.0	230,900 sf
17	Open Space	3.0	—	—	—	—	—
18	Open Space	27.0	—	—	—	—	—
19	Open Space	6.6	—	—	—	—	—
Phase 1 Totals		142.7	—	—	907 du	—	348,900 sf
Phase 2							
15	General Commercial	38.0	—	—	—	0.25	396,400 sf
Phase 2 Totals		38.0	—	—	—	0.25	396,400 sf
Phase 3							
1	Low Density Residential	20.0	3–6 du/ac	3.0	60 du	—	—
2	Low Density Residential	9.3	3–6 du/ac	3.0	28 du	—	—
3	Park	1.1	—	—	—	—	—
4	Medium Density Residential	14.7	6–15 du/ac	7.0	103 du	—	—
5	Medium Density Residential	6.9	6–15 du/ac	7.0	48 du	—	—
Phase 3 Totals		52.0	—	—	239 du	—	—
Phase 4							
16	High Density Residential	26.3	15–36 du/ac	18.0	475 du 660 du*	—	—
Phase 4 Totals		26.3	15–36 du/ac	18.0	475 du 660 du*	—	—
—	Master Planned Roadways	17.0	—	—	—	—	—
Specific Plan Totals		276	—	—	1,621 du 1,806 du*	—	745,300 sf

du = dwelling unit

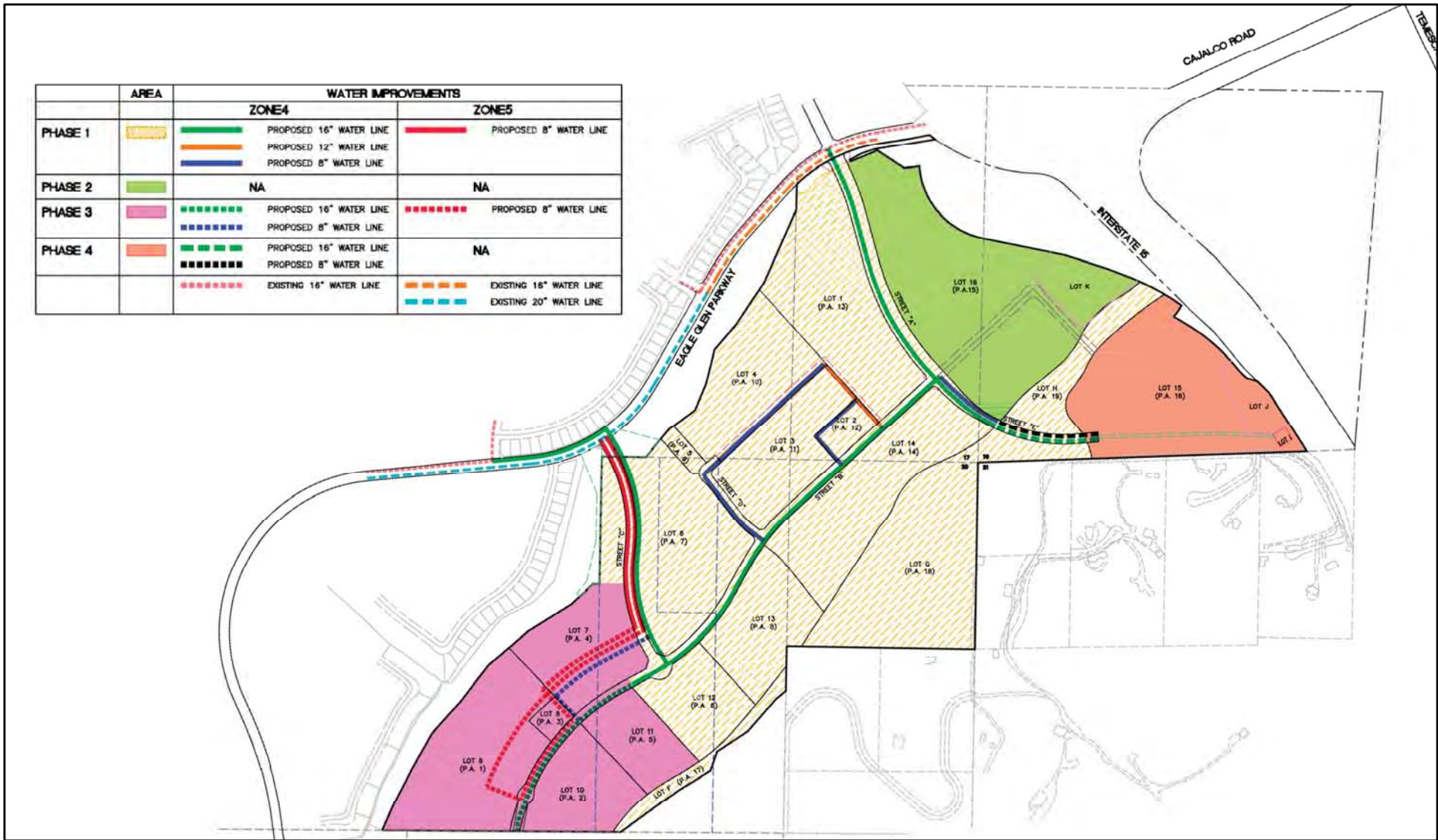
du/ac = dwelling units per acre

sf = square feet

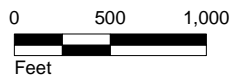
* Planning Area 16 may build out with age-qualified units at up to 25.0 du/adjusted gross acre. If so, the total number of dwelling units permitted in Planning Area 16 will be 660 dwelling units and project-wide dwelling unit total shall not exceed 1,806 dwelling units.

Sources: Arantine Hills Specific Plan, June 2011.

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SOURCE: Arantine Hills Specific Plan, 2011.

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FIGURE 3.6

Arantine Hills Specific Plan
Environmental Impact Report

Water Infrastructure Phasing
No Reservoir

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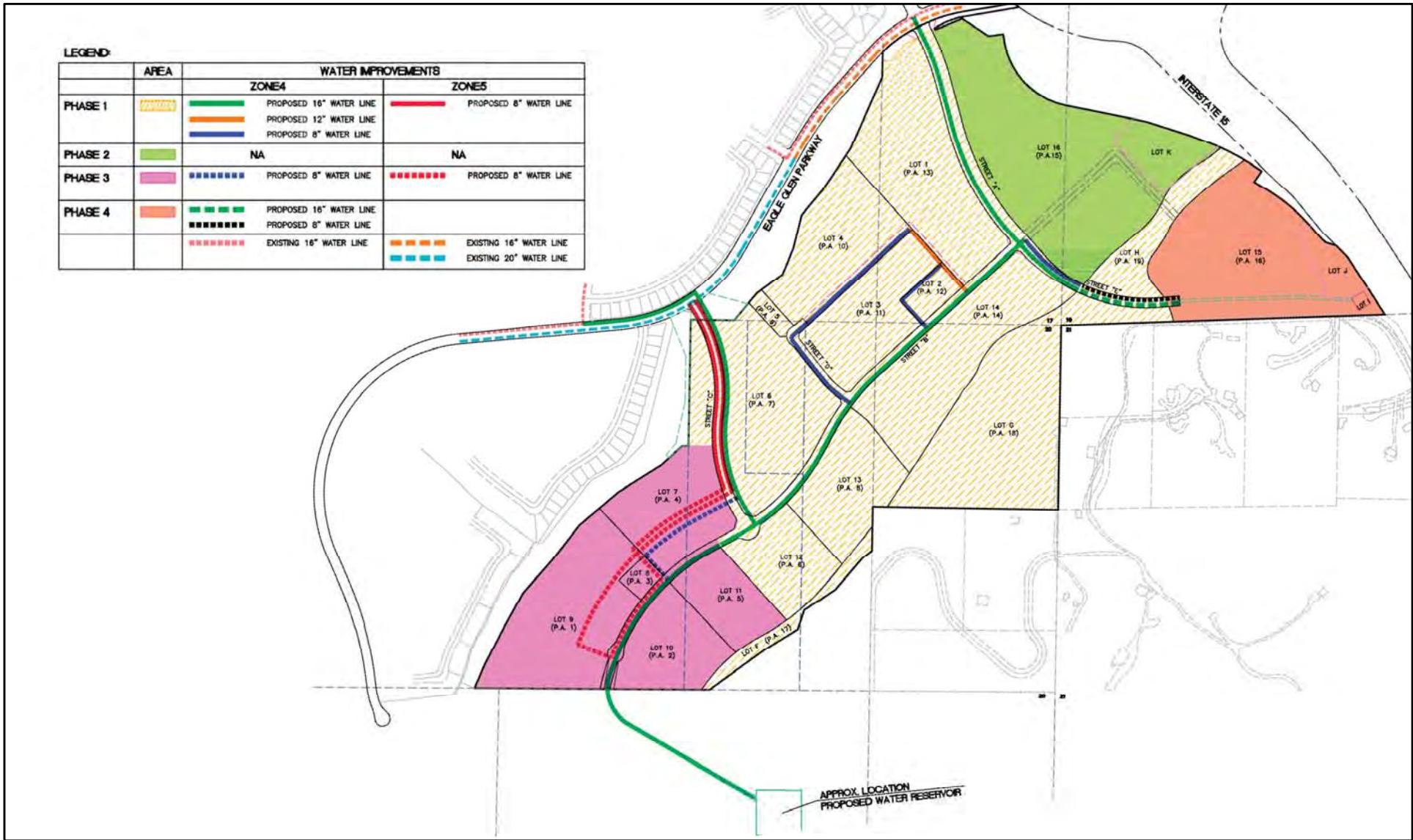
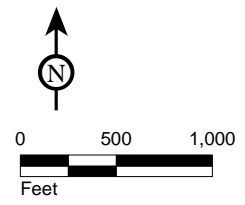


FIGURE 3.7

LSA



SOURCE: Arantine Hills Specific Plan, 2011.

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Arantine Hills Specific Plan
 Environmental Impact Report
 Water Infrastructure Phasing
 With Reservoir

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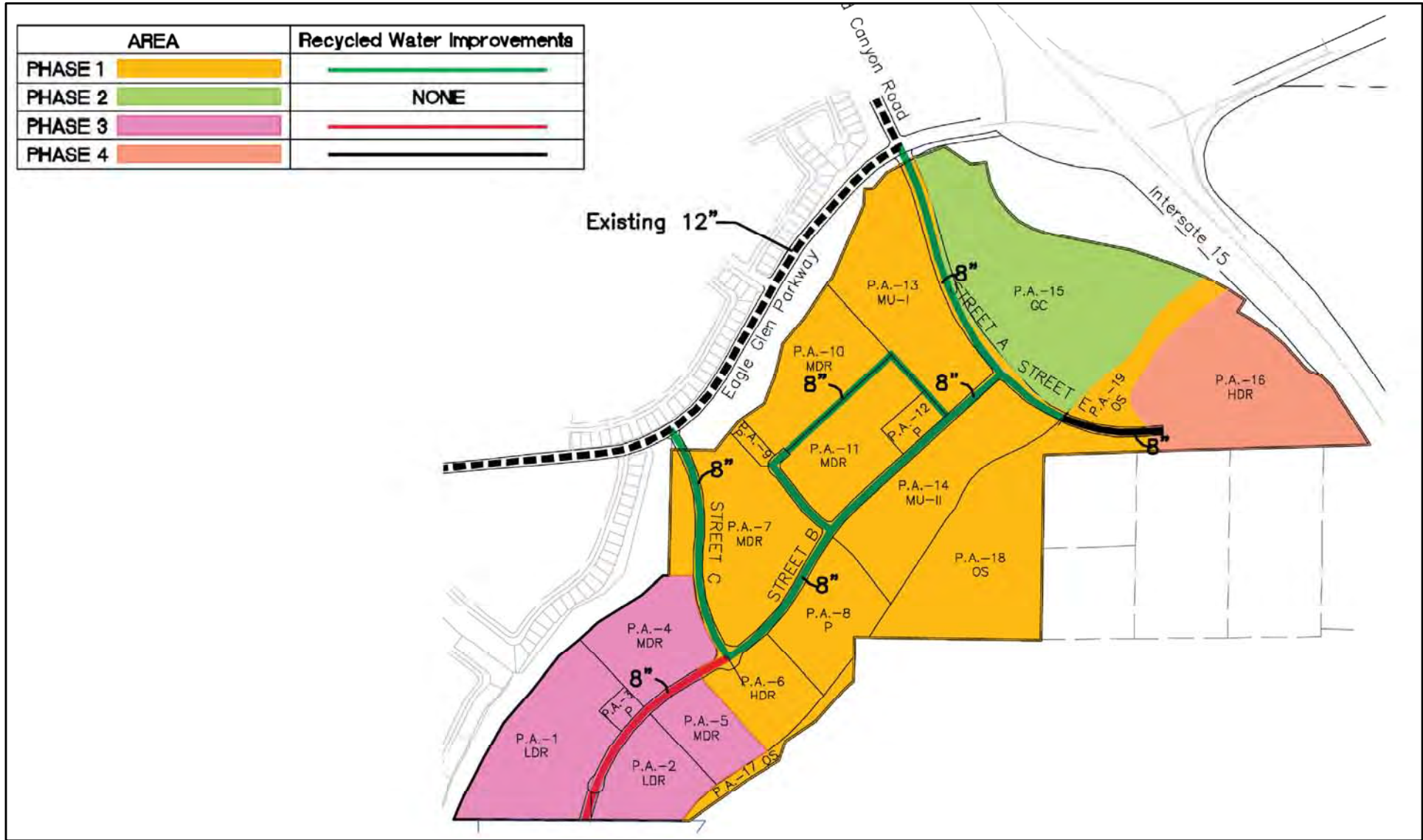
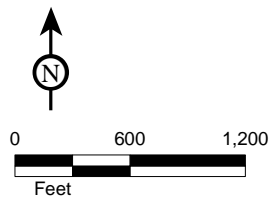


FIGURE 3.8

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Arantine Hills Specific Plan
Environmental Impact Report

Recycled Water Infrastructure Phasing

SOURCE: Arantine Hills Specific Plan, 2011.

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Glen development. During the construction of Phase 3, the reclaimed water lines will be extended from the Phase 1 stub out within Street “B” and continue south to service the park in Planning Area 6. From Planning Area 5, the reclaimed water line will extend to the southwest to the project boundary. This pipeline will then travel north back to Eagle Glen Parkway to reconnect to the existing reclaimed water line. For Phase 3, an 8-inch sewer line will be extended from Street “B” at Planning Area 6, installed in the extension of Street “B,” and extend westerly to the southwestern project boundary.

Phase 4. During development of Phase 4 (i.e., Planning Area 16), a 12-inch transmission water line will be constructed in Street “A,” which will extend southerly across Bedford Canyon Wash to Planning Area 16. To provide sewer service to Phase 4 development, a lift station will be constructed in Planning Area 16, and a 6-inch force main will be placed in Street “A,” extending from the lift station to Bedford Canyon Wash.

3.3.7 Drainage Infrastructure

The Specific Plan preferred drainage and flood control system consists of several components that would function as an integrated system, as illustrated in Figure 3.9.

Phase 1. Phase 1 improvements providing drainage protection include two detention/water quality basins south of Street “B” in Planning Area 14. These flows will then enter Bedford Canyon Wash. Scour protection will be constructed along the banks of the Bedford Canyon Wash to the northeastern project boundary as part of Phase 1. Storm water lines within Phase 1 will vary in size from 30 to 66 inches.

Phase 2. Phase 2 improvements within Planning Area 15 will include 42-inch and 36-inch storm drains and additional detention/water quality basins before discharging into Bedford Canyon Wash.

Phase 3. Phase 3 improvements include the slope and scour protection on the sides of the Bedford Canyon Wash to the project’s southwesterly boundary. Additional drainage infrastructure includes a 30-inch reinforced concrete pipe (RCP) in a portion of Street “B,” terminating at the southwestern project boundary.

Phase 4. Phase 4 improvements to protect Planning Area 16 will include concrete slope and scour protection in Bedford Canyon Wash adjacent to Planning Area 16 along with the box crossing of Street “A,” which will ensure the continuous flow of the wash. Additionally, a detention and water quality basin will be constructed adjacent to I-15 and outlet into the existing Caltrans culvert. Also, a 36-inch RCP drainage line will be installed parallel to I-15 connecting into Bedford Canyon Wash.

As noted previously, the ultimate phasing of the development is dependent on a number of internal and external factors. Not all planned development within a given phase may be completed prior to the initiation of the next phase. All backbone infrastructure necessary to complete previous phases will be in place prior to commencing construction activities on a following phase.

3.3.8 Circulation System

The Specific Plan delineates the major roadways needed to implement the City’s General Plan Circulation Element. Specifically, the circulation plan would link interior roadways with existing

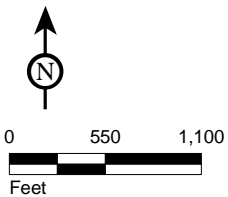
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	AREA	SEWER IMPROVEMENTS
PHASE 1		
PHASE 2		N/A
PHASE 3		
PHASE 4		
EXIST. 15" SEWER		



FIGURE 3.9

LSA



SOURCE: Arantine Hills Specific Plan, 2011.

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Environmental Impact Report
Sewer Infrastructure Phasing

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arterials, including Eagle Glen Parkway, Bedford Canyon Road, and Cajalco Road. Figure 3.10 illustrates the proposed Specific Plan circulation system and Figure 3.11 provides the phasing of the traffic improvements. The following discussion provides a summary of the road system proposed under the Specific Plan. Traffic improvements are discussed in detail in Chapter 4.16.

Modified Secondary Arterial. The Modified Secondary Arterial (portion of Street “A” between Eagle Glen Parkway and Street “B”) will be the continuation of Bedford Canyon Road and is designed to allow residents and visitors safe and efficient movement from the I-15/Cajalco Road interchange and Eagle Glen Parkway into the commercial center (Planning Area 15) and the mixed-use and residential areas in Arantine Hills.

Street “A” is planned as a divided street with a right-of-way of 110 feet. The 110-foot right-of-way section includes two travel lanes in each direction, with separation by a 14-foot wide raised median and a separated 4-foot striped bike lane on each side. The portion of the parkway situated adjacent to the MU-I District may develop with a 16-foot wide sidewalk with a 4-foot landscape strip adjacent to the buildings. Street “A” will serve as the main entry drive into the Arantine Hills community.

Collector Streets. The Collector Streets (southern portion of Street “A” and Streets “B” and “C”) are designed primarily to collect traffic from residential neighborhoods and distribute to the Modified Secondary Arterial (northern portion of Street “A”) and Eagle Glen Parkway. Collector Streets have a 68-foot right-of-way, with one travel lane in each direction capable of handling curbside parking.

Residential and Mixed-Use I and II Local Streets. The Residential Local Streets and MU-I and MU-II Local Streets are designed as two-lane streets to serve the project within residential and mixed-use neighborhoods. A typical Local Street would have a 64-foot right-of-way, with one travel lane in each direction. Curbside parking would be permitted.

Residential Private Streets. The residential private streets are designed as two-lane streets to serve the project within the private areas and gated neighborhoods. The private streets would have a right-of-way width of between 48 and 64 feet, per City standards. The actual widths will be determined during the processing of the tentative tract maps.

3.3.9 Infrastructure Financing

The cost of any public improvements and infrastructure not constructed directly by Plan Area developers must be distributed among the development anticipated in the Plan Area in the form of fees proportionate to benefited parcels and projects or as conditions on discretionary approvals. Costs associated with development under the Specific Plan are broadly divided into capital improvements and operations and maintenance.

Capital improvements refer to major infrastructure, including roadways, bridges, water, sewer, and drainage facilities needed to serve new development. Operation and Maintenance refers to the long-term costs of operating and maintaining these facilities, as well as other facilities within the Plan Area such as public landscaping and lighting. The financing of each is discussed below.

Capital Improvements Costs. Several types of financing strategies and tools are available for financing master planned communities. It is anticipated that the project will build out using a variety of these strategies and tools including, but not limited to, the following:

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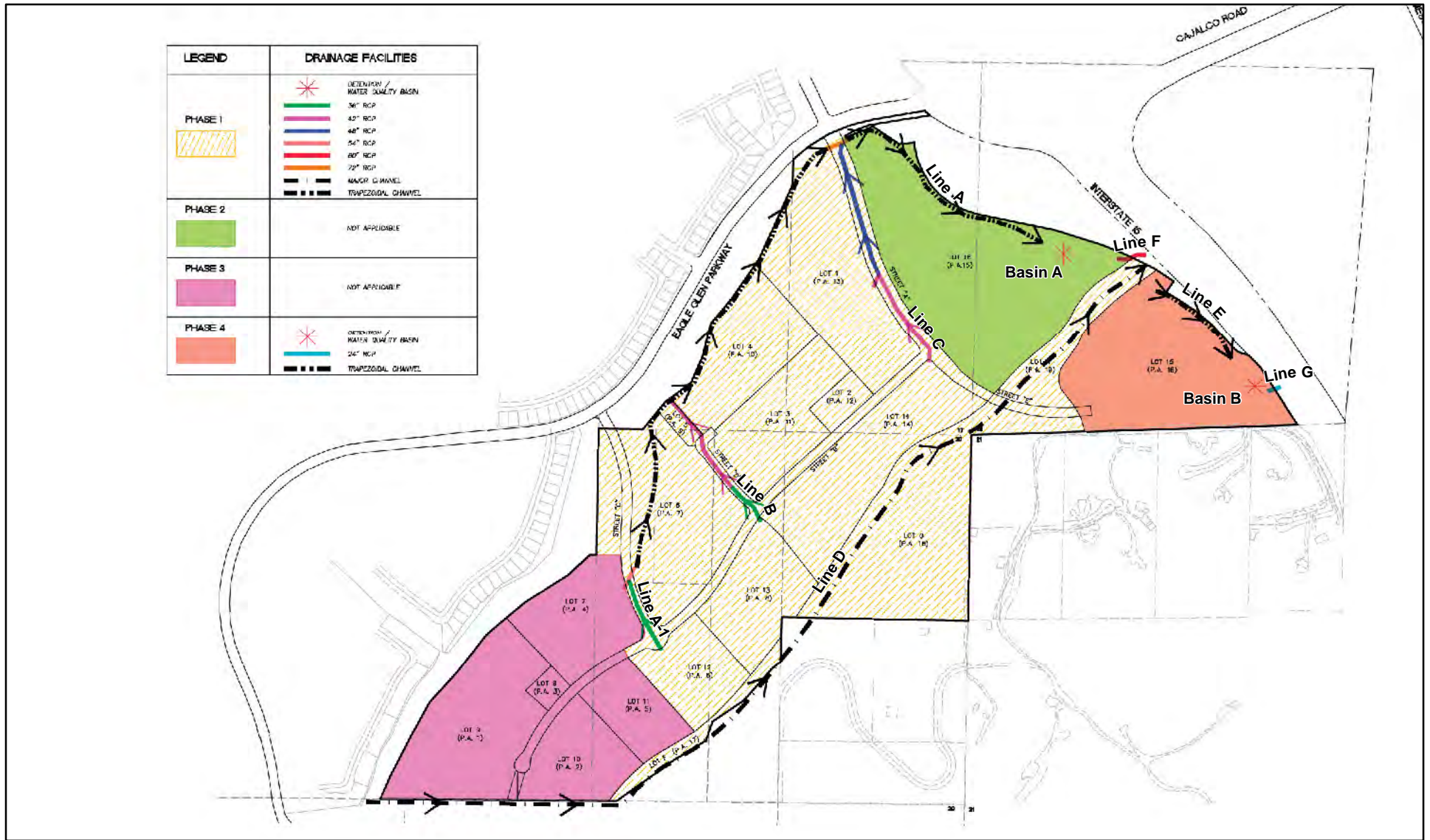
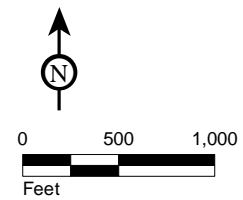


FIGURE 3.10

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SOURCE: Arantine Hills Specific Plan, 2011.

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Arantine Hills Specific Plan
Environmental Impact Report

Drainage Infrastructure Phasing

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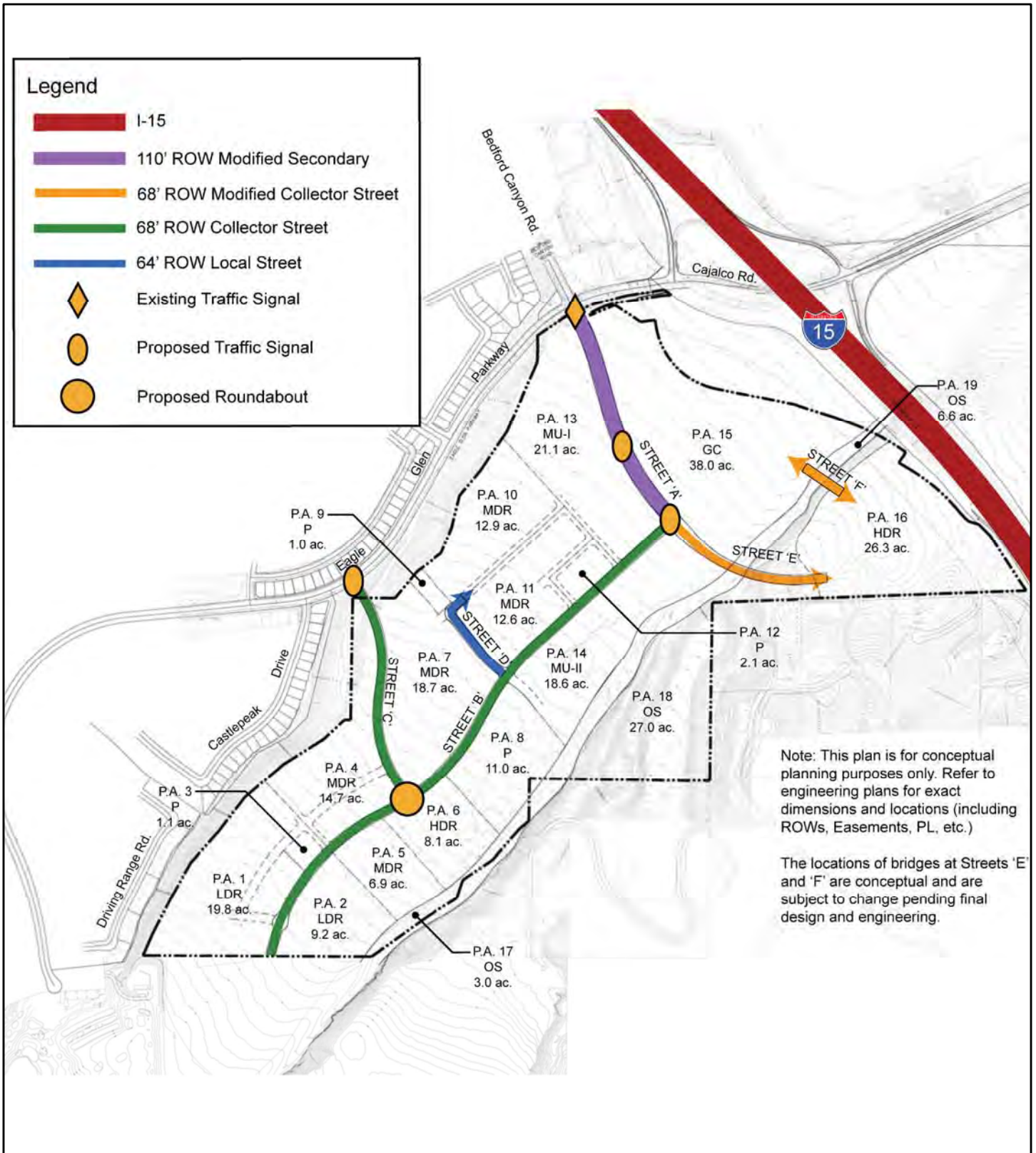
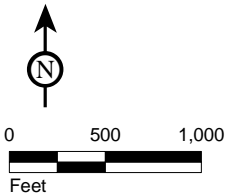


FIGURE 3.11

LSA



SOURCE: Arantine Hills Specific Plan, 2011.

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Arantine Hills Specific Plan
Environmental Impact Report

Proposed Circulation Plan

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- **Development Fees:** These consist of standard City development fees to implement citywide improvements.
- **Developer Responsibility for On-Site Improvements:** In certain instances, funding for on-site facilities may be tied directly to the Arantine Hills project. The project master developer may pay a fair-share portion of the facility in exchange for development rights. On-site local streets, utility connections from the main trunk lines, and drainage facilities are typical examples of facilities that may be funded by the developer. Such improvements will usually be required concurrent with the project development.
- **Community Facilities District Special Taxes or Assessments:** In accordance with the Lighting and Landscape Maintenance Act of 1972, the Municipal Improvement Act of 1913, the Improvement Bond Act of 1915, and the Mello-Roos Community Facilities Act of 1982, special assessment or taxing districts can be formed to provide methods of leveraged financing whereby a public entity determines an area in which the provision of facilities will benefit real property. One or more special taxing or assessment districts may be created for the Arantine Hills project to cover improvements, including maintenance of landscaping and lighting improvements. This financing tool can be used for public improvements that directly benefit specific properties that are assessed to pay for certain public improvements and the ensuing maintenance at no risk to public agency general funds.
- **Property Owner Participation in City Capital Projects:** Certain capital facilities will be needed to serve new development within the Specific Plan. The Mello-Roos Community Facilities Act of 1982 enables cities, counties, special districts, and school districts to establish community facilities districts and to levy special taxes to fund a variety of facilities and services required by a specific plan. A Mello-Roos tax can be applied to the planning and design work directly related to the improvements being financed. Other qualifying services and/or improvements maybe possible for funding under the provisions of the Mello-Roos Community Facilities Act.

3.4 PROJECT OBJECTIVES

The State CEQA Guidelines require that the EIR Project Description include “a statement of objectives sought by the proposed project.” The intent of the proposed project is to provide a cohesive planning framework, such that the major land use, circulation, and infrastructure requirements are coordinated and logically planned. The proposed project seeks to achieve the following objectives:

- Build upon the platform of high-quality design, architecture, and landscaping established by the neighboring Eagle Glen residential community to provide a cohesive, pedestrian-friendly community that offers a variety of both passive and active recreational amenities to residents of Arantine Hills and the City of Corona.
- Establish an open space preservation area and a multipurpose trail along and adjacent to Bedford Canyon Wash to provide an important link to the natural environment.
- Develop Arantine Hills as a well-designed, balanced community that integrates residential uses with office, retail, entertainment, research and development, and other appropriate uses.
- Provide new employment opportunities for Corona residents along the I-15 Freeway corridor.
- Develop freeway-oriented commercial development to serve regional needs and drive revenue for the City.
- Address the City’s current and projected housing needs for all segments of the community by providing a range of family-oriented single-family detached and attached housing and multifamily residences.

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- Establish a mix of land uses and local-serving activities that meet the General Plan's objectives concerning community character and pedestrian-friendly design.
- Implement the City's General Plan Land Use Element goal to provide for compatibility of land uses, fiscal balance, recreation, and resource protection.
- Create a system of roads, trails, and sidewalks that will fulfill the policies of the Corona General Plan by allowing residents to live in proximity to recreational opportunities, retail centers, commercial and business/office development, and research and development uses.
- Provide a network of pleasant, safe, and convenient sidewalks, bike lanes, and a multi-purpose trail along Bedford Canyon Wash.
- Concentrate development within neighborhoods to promote greater efficiency of land use, and promote walking and bicycling as an alternative to motor vehicle use.
- Incorporate "green" and sustainable practices, as practicable, in developing buildings and infrastructure in Arantine Hills.
- Maximize opportunities for using water-wise plant materials in the project landscaping to promote water conservation.
- Identify and address safety hazards, such as wildfire and flooding dangers, through implementation of design safety features and improvements to Bedford Canyon Wash.
- Undertake development of the project site in a manner that is economically feasible and balanced to address both the applicant's and the City's economic concerns.

3.5 REQUIRED PERMITS AND DISCRETIONARY ACTIONS

Implementation of the proposed project would require the following legislative and discretionary approvals from the City of Corona or other responsible agencies:

Discretionary actions anticipated to be taken by the City as part of the proposed project include:

- General Plan Amendment approval;
- Specific Plan approval;
- Master Tentative Tract Map Approval;
- Cancellation of two Williamson Act contracts that are in Non-renewal and expire in 2013; and
- Certification of Environmental Impact Report.

Non-discretionary actions anticipated to be taken by the City at the staff level as part of the proposed project include:

- Approval of improvement plans after the approval of Master Tentative Tract Map, such as approval of subsequent water, sewer, grading, and street widening plans.
- Approval of a Storm Water Pollution Prevention Plan (SWPPP) to mitigate site runoff during construction and a final Water Quality Management Plan (WQMP) to mitigate for post-construction runoff flows.
- Water Supply Verification per SB 221 prior to approval of the Tentative Tract Map.

Approvals and permits required by other agencies include:

- A National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB) to ensure that construction site drainage velocities are equal to or less than the pre-construction conditions and downstream water quality is not worsened;
- Clean Water Act Section 401 Water Quality Certification from the Santa Ana RWQCB;
- Determination of project consistency with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) by the Western Riverside County Regional Conservation Authority (RCA);
- Section 1601/1603 Agreement from the California Department of Fish and Game (CDFG); and
- Clean Water Act Section 404 Permit from the United States Army Corps of Engineers (USACE).

The above list includes approvals known to be required for one or more components of the proposed Specific Plan. Other approvals may be required as individual future projects are proposed for the project area. This EIR is intended to facilitate adoption of the Specific Plan.

Subsequent CEQA Review of Development Consistent with the Specific Plan. Section 65457 of the California Government Code provides that once an EIR has been certified and a specific plan adopted, any residential or commercial development project, including any subdivision or zone change, which is undertaken to implement and is consistent with the specific plan is exempt from additional CEQA review. This exemption does not apply if after the adoption of the specific plan, any of the events which would trigger preparation of a subsequent or supplemental EIR occur, including substantial changes in the project or circumstances under which the project is being undertaken requiring major revisions in the project, or new information becomes available which was not known at the time the EIR was certified. If a supplemental EIR is prepared covering the changes, new circumstances, or new information and is certified, the exemption will apply to the projects that then follow the specific plan. However, it is anticipated that project level environmental review will be conducted by the City for each Planning Area.

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4.0 ENVIRONMENTAL IMPACT EVALUATION

Organization of Sections 4.1 through 4.17

As stated previously, there are 17 environmental issue areas that are analyzed in this EIR with respect to the proposed project. These issues are:

4.1 Aesthetics	4.10 Land Use and Planning
4.2 Agriculture and Forestry Resources	4.11 Mineral Resources
4.3 Air Quality	4.12 Noise
4.4 Biological Resources	4.13 Population and Housing
4.5 Cultural Resources	4.14 Public Services
4.6 Geology and Soils	4.15 Recreation
4.7 Greenhouse Gas Emission	4.16 Transportation and Traffic
4.8 Hazards and Hazardous Materials	4.17 Utilities and Service Systems
4.9 Hydrology and Water Quality	

Within each subsection described in Section 4.0, the following information is presented relative to each environmental issue described:

- Description of the existing setting as it relates to the specific environmental issue;
- Summary of policies and regulations relevant to the specific environmental issue;
- Methodology used to determine impacts as it relates to the specific environmental issue;
- Identification of the thresholds of significance;
- Evaluation of project-specific impacts and a determination of significance based on identified threshold levels;
- Identification of mitigation measures;
- Determination of the level of significance after mitigation measures are implemented; and
- Cumulative impacts.

The environmental analysis provided in Sections 4.1 through 4.17 focuses on changes in the existing physical environment and identifies direct and indirect significant impacts associated with the proposed project. The cumulative impacts for each of the proposed project components are analyzed within the discussion of each component for each threshold.

Development Flexibility within Planning Area 16

Section 3.0, Table 3.C, in this EIR shows the development potential within the Specific Plan Planning Areas (PAs). As shown in the table, PA 16 may build out with either 475 conventional high density residential dwelling units or 660 age-qualified high density dwelling units. If PA 16 is developed with 475 dwelling units, then the proposed Project would result in 1,621 dwelling units. If PA 16 is developed with age-qualified high density dwelling units, then the project-wide dwelling unit count would be 1,806 dwelling units.

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This EIR assesses both of the development scenarios permitted for PA 16, explained as follows. Development of PA 16 under the conventional high density residential option would result in the same amount of land disturbance, higher trip generation, but fewer residents than the age-qualified scenario. For these reasons, environmental impacts associated with the project's trip generation and environmental impacts associated with the project's direct disturbance of the land have been assessed based on the 1,621 residential unit count. These impact topics include:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Climate Change and Greenhouse Gas Emissions
- Hazards
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Transportation and Traffic

The age qualified scenario permitted for PA 16 may or may not result in a greater number of residents within the project. However, assuming the age-restricted units would result in a 2.0 persons per dwelling unit occupancy, approximately 5,080 residents would occupy the residential portion of the SP as opposed to approximately 5,315 residents without development of age-restricted units in PA 16. Nonetheless, environmental impacts associated with the following environmental impacts have been based on both the 1,621 and 1,806 residential unit counts:

- Population and Housing
- Public Services
- Recreation and Parks
- Utilities and Services Systems

4.1 AESTHETICS

This chapter describes the existing aesthetic condition of the project area and addresses potential impacts that may result from the subsequent adoption of the proposed land use actions. Descriptions of existing visual characteristics, both on site and in the vicinity of each of the project sites, are presented. Potential impacts to aesthetic and visual resources resulting from the development that may occur are based on analyses of site photographs, field reconnaissance, and project-specific data provided in reports prepared for the project. The analysis contained in this chapter is based in part on the following reference documents:

- *City of Corona General Plan*, City of Corona, March 2004.
- *City of Corona General Plan Environmental Impact Report*, EIP Associates, certified April 26, 2005.
- *City of Corona General Plan Background Technical Report*, EIP Associates, March 2004;
- *City of Corona Municipal Code*, City of Corona, March 16, 2011; and
- *Riverside County General Plan, Volume 2*, County of Riverside, October 2003.

4.1.1 Existing Setting

4.1.1.1 Topographic/Vegetation Features

The proposed project is located in Bedford Canyon at the foothills of the Santa Ana Mountains. The topography of the proposed project site descends in elevation from the southwest to the northeast with elevations ranging from just under 900 feet to approximately 1,140 feet above mean sea level (AMSL). The Santa Ana Mountains exceed 4,000 feet in elevation and provide a natural backdrop to westerly viewsheds.

The proposed project site previously supported a citrus orchard; however, the citrus trees were removed and all that remains is a fallow field. On-site vegetation consists primarily of Riversidean sage scrub. The proposed project site also consists of non-native grasses and native and non-native riparian vegetation.

4.1.1.2 Existing Viewsheds

A viewshed is the visible surface area from an observer's point of view. A viewshed can be divided into three distinct components: the foreground, midground, and background. The foreground is the part of the view that is or appears to be nearest to the viewer. The background is the part of the view that is or appears to be farthest away from the viewer. The midground view is the part of the view that is between the foreground view and the background view.

As illustrated in Figure 1.1, the project area is located in the southeastern portion of the City of Corona, at the eastern base of the Santa Ana Mountains. The site is generally located southwest of Interstate 15 (I-15) and south of Bedford Canyon Road/Cajalco Road. The majority of the land within the project area is currently vacant. Rural residential and agricultural uses are the primary uses in the project vicinity. I-15 bounds the project area on the east and runs in a northwest to southeast direction. The nearest private airport is the Corona Municipal Airport, located at 1900 Aviation Drive and is approximately 6.5 miles northwest of the site. The major roads that provide access to the project are Bedford Canyon Road and Eagle Glen Parkway with the nearest I-15 interchange located at Cajalco Road adjacent to the northeast portion of the project boundary.

As summarized in Table 4.1.A, views from within the project site to the north and south beyond the immediate rural residential uses to the south and the Eagle Glen Development to the north are

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obstructed due to the depressed elevation of the site. The site is located in a valley approximately 50 to 100 feet below the adjacent development to the north and south. Because of this difference in elevation, the views afforded to the residents north and south of the proposed project site are unobstructed to the north and south because of their elevation over the proposed project site as shown in Figure 4.1.1. The Eagle Glen residential community is located to the northwest and estate residential residences are located to the southeast of the project. Currently, views of the project areas from the areas located to the southeast and northwest are unobstructed due to the absence of development on site to the east and west of the site. Figure 4.1.2 shows the view from Eagle Glen Parkway looking south across the project site.

Table 4.1.A: Existing Viewsheds

Vantage Point	Characteristics of Views		
	Foreground	Midground	Background
Within project site facing north	Vegetation, dirt road	Eagle Glen Development and bluff	Partially blocked with distant views of hills.
Within project site facing east	Vegetation, dirt road	Vegetation	Monument Peak and the foothills of the Estelle Mountains, some residential development
Within project site facing south	Dirt road and vegetation	Denser vegetation and utility pole	Ridgelines of low-lying hills
Within project site facing west	Dirt road and vegetation	Utility pole, small bluff, and small structure	Santa Ana Mountains/ Cleveland National Forest
North of project site facing south	Sloped embankment with landscaping, chain-link fencing	Vegetation	Densely vegetated low-lying hills of the Santa Ana Mountains and surrounding hills of Monument Peak and Estelle Mountain
East of project site facing west	Unimproved I-15 right-of-way	Vegetation, palm trees, chain link fencing	Low-lying hills of the Santa Ana Mountains
South of project site facing north	Densely vegetated bluffs, mature trees	Vegetation	Eagle Glen bluff, Eagle Glen Development, ridgelines of lower-lying hills of the Santa Ana Mountains
West of project site facing east	Densely vegetated bluff, mature trees	Vegetation, shrubs, and small structure	Surrounding hills of Monument Peak and Estelle Mountain

Source: LSA Associates, March 2011.

4.1.1.3 Lighting and Visibility

Within the project area, the ambient nighttime lighting is characteristic of areas within a major transportation corridor. Existing light sources include streetlights from the adjacent Eagle Glen Development and the headlights of vehicles traveling along roadways within the Eagle Glen Development and northbound and southbound along I-15. Due to the absence of on-site development, no lighting sources currently exist within the project limits. Southeast of the proposed project site, no improved roads are present and homes are spaced apart reducing the amount of concentrated light south of the proposed project site.



PHOTOGRAPH A: *This panoramic photo looks to the north from the center of the site.*

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FIGURE 4.1.1A

*Arantine Hills Specific Plan
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Site Photographs

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PHOTOGRAPH B: *This panoramic photo looks to the south from the center of the site.*

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FIGURE 4.1.1B

*Arantine Hills Specific Plan
Environmental Impact Report*

Site Photographs

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PHOTOGRAPH C: *This panoramic photo looks to the west from the center of the site.*

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FIGURE 4.1.1C

*Arantine Hills Specific Plan
Environmental Impact Report*

Site Photographs

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PHOTOGRAPH D: *This panoramic photo looks to the east from the center of the site.*

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FIGURE 4.1.1D

*Arantine Hills Specific Plan
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Site Photographs

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PHOTOGRAPH A: *This panoramic photo looks across the site from Bedford Canyon Road to the south.*

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FIGURE 4.1.2

*Arantine Hills Specific Plan
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Site Photograph

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4.1.2 Policies and Regulations

4.1.2.1 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that pertain to visual resources. Table 4.1.B identifies goals and policies that are applicable to the proposed project.

Table 4.1.B: General Plan Policies Related to Aesthetics and Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona General Plan Community Design Element	
<i>Goal 2.1: Public street landscapes that unify the City of Corona and contribute to the unique identity of its neighborhoods, districts, and public places.</i>	
<p>Policy 2.1.1 Maintain a street landscape master plan that identifies species to be used along public streets throughout the City. A common palette of trees and other plantings that for consistent use throughout the City should be established, which would be differentiated to uniquely identify primary transportation corridors, residential neighborhoods, commercial districts, such as Downtown and North Main Street, industrial districts, and entries at key freeway interchanges. A high density of street trees should be encouraged, as an “urban forest,” to provide shade and enhance the City’s aesthetic quality.</p>	<p>As specified in the Specific Plan, a Conceptual Landscape Master Plan and plant palette that establishes a comprehensive landscape theme of Arantine Hills will be used along Streets ‘A,’ ‘B,’ and ‘C’. A community-wide plant palette is provided in the Specific Plan to ensure that landscaping for public spaces and individual neighborhoods in Arantine Hills will build upon the overall theme and character established for the community. The proposed project is consistent with Policies 2.1.1 and 2.1.6.</p>
<p>Policy 2.1.6 Require developers of residential subdivisions to submit a landscape plan that defines a program of trees and plantings that uniquely identify streets, principal entries and intersections, and activity centers such as parks and community facilities.</p>	
<i>Goal 2.2: Entries that are well-defined by signage, landscape, lighting, and other visual landmarks that provide a clear sense of arrival into and identity for the City of Corona.</i>	
<p>Policy 2.2.1 Develop a plan and implement improvements at key entry locations into the City of Corona from the SR-91 and I 15 transportation corridors that provide a distinct sense of arrival and identity. These may include well-designed signage, landscape, lighting, public art, monuments, fountains, structures, and other elements that serve as visual landmarks. While it may be appropriate to differentiate these elements to reflect the uniqueness of each location, common elements (graphics, signage, etc.) should be used at each to visually distinguish the location as a primary City entry.</p> <p>Potential locations include the SR-91 interchanges at McKinley Street, Main Street, Grand Boulevard, Lincoln Avenue, Sixth Street, Serfas Club Drive-Auto Center Drive, and Green River Road, and the I-15 interchanges at Magnolia Avenue, Ontario Avenue, Cajalco Road, and, as annexed, El Cerrito Road, Weirick Road, and Temescal Canyon Road. Additionally, improvements may be considered at the SR-71 northwest entry to the City.</p>	<p>As described in the Specific Plan, the Arantine Hills community will have a primary community entry located at the intersection of Eagle Glen Parkway and Street ‘A,’ and a secondary community entry located at the intersection of Eagle Glen Parkway and Street ‘C.’ Each entry will be clearly defined by entry monumentation, enhanced landscaping, lighting signature entry features, and low walls. These entries will reinforce the overall community theme, identity, and character through the use of harmonious hardscape materials and plantings. The proposed project is consistent with Policies 2.2.1 and 2.2.2.</p>
<p>Policy 2.2.2 Coordinate the design of entry improvements with adjoining commercial and industrial property owners, where appropriate. Encourage the owners to incorporate landscape, signage, and architectural design elements in their projects that contribute to and</p>	

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Table 4.1.B: General Plan Policies Related to Aesthetics and Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
complement the sense of entry from the freeways.		
Goal 2.4: A city whose urban form and community character are defined by its interconnected parklands and open spaces.		
Policy 2.4.1	Develop a plan and implement improvements that visually and physically interconnect the City's parklands and link these and residential neighborhoods with the Temescal Creek and Wash, the Cleveland National Forest, and other open spaces. This may be accomplished by the installation of a continuous corridor of trees, plantings, informational signage, trails, and/or other defining elements along existing streets that connect the parks and open spaces or new corridors, where feasible.	As specified in the Specific Plan, the provision of 15 acres of parkland, consisting of one active neighborhood park, one special use park, and two passive mini parks, in addition to 36.9 acres of open space with a multi-use trail along Bedford Wash is incorporated into the Specific Plan. These visual and recreational amenities are linked to all uses in the Specific Plan area through a network of roadways, pedestrian walkways, and bikeways. The proposed project is consistent with Policies 2.4.1 and 2.4.3.
Policy 2.4.3	Require that new master-planned residential subdivisions incorporate parks, greenways, and open spaces as a character-defining amenity for their residents, emphasizing the retention of natural landforms and important plant communities.	
Goal 2.5: A city of well-designed residential neighborhoods, commercial districts and corridors, industrial districts, and civic places that are uniquely identifiable in their building form, public places, and landscapes contributing to a high quality of life for residents and positive image for visitors to the City.		
Policy 2.5.8	Work with property owners and developers to establish an urban design program for commercial and office centers to enhance their aesthetic quality, image, and "fit" with adjoining land uses. Elements may encompass site and entry identification by signage, landscape, or lighting, extensive on-site landscape, public art, improvements of abutting public streetscapes, and other amenities.	<p>The Specific Plan identifies the following Implementation Programs:</p> <p><i>Promote a harmonious variety of housing choices and commercial and industrial land uses to attain a desirable balance of residential and employment opportunities, a high level of urban amenities, and to preserve natural and scenic open qualities of open space.</i></p> <p><i>Facilitate quality development within the City by permitting greater flexibility and encouraging more creative and aesthetically pleasing designs for major urban development projects subject to large-scale community planning.</i></p> <p>The Arantine Hills Specific Plan provides architectural and landscape design guidelines that promote the establishment of quality and identifiable products within the community. The proposed project is consistent with Policy 2.5.8.</p>
City of Corona General Plan Environmental Resources Element		
Goal 10.22: Develop and implement land use controls that preserve significant visual resources from potential loss or disruption.		
Policy 10.22.1	Create unobstructed view corridors or viewsheds of the San Bernardino, Santa Ana and San Gabriel Mountains, the Chino and La Sierra Hills, and other significant natural features from public spaces such as	The provision of parks and open space will be incorporated into the proposed project, which will promote the maintenance of existing views. Where

Table 4.1.B: General Plan Policies Related to Aesthetics and Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
<p>parks, termination of streets and community trails, community centers, and school properties, where feasible, as part of the design of development projects.</p>	<p>feasible, the proposed project is anticipated to be designed to create unobstructed view corridors of significant natural features. The Specific Plan incorporates a Landscape Master Plan. The Landscape Master Plan indicates that steep slopes would be preserved as permanent open space and manufactured slopes would be landscaped to provide buffer zones and visual interest. The proposed project is consistent with Policies 10.22.1, 10.22.2, and 10.22.4.</p>
<p>Policy 10.22.2 Require that project applicants identify and map all slopes greater than 15 percent on parcels within the City's hillside areas, referred to as the "Hillside Management District," in increments of 5 percent (e.g., 15 percent, 20 percent, 25 percent, and so on). Lands within this District shall be subject to administrative review to assure that development is located and designed to reflect its distinct environmental and topographic characteristics consistent with the policies of this Plan, under the provisions of a Hillside Development Ordinance.</p>	
<p>Policy 10.22.4 Require that projects be designed and sited to maintain the natural topographic, physiographic, and aesthetic viewshed characteristics of those features, utilizing the following conditions:</p> <ul style="list-style-type: none"> • Minimize the area and height of cuts and fills, to the extent technically achievable ensuring that slope tops and bottoms are rounded and facilitate a smooth and seamless transition where natural and built slopes intersect. • Configure development sites to mimic predevelopment natural topography by clustering sites and individual units and avoiding extensive fragmentation of steep slopes, "stair stepping" and varying terraces of structures, and/or other design practices. • Minimize the size of flat development pads in site grading to that necessary to accommodate the building footprint and a reasonable amount of useable outdoor space, as well as to assure structural and site stability. • Encourage building architectural design styles, forms and shapes, materials, and building siting to complement, rather than visually dominate their landscape setting. • Minimize the height of retaining walls and design with smooth flowing forms that follow topography and with material colors and textures that blend in with the surrounding landscape. • Plant hillside and canyon slopes with drought-tolerant species to soften the visual impact of land grading retaining walls, structures, and roads. • Restore disrupted areas of vegetation, wildlife habitat, natural watercourses and drainage swales, and other important viewshed features. Vegetation should be arranged in informal masses to create a textured slope that is characteristic to a natural chaparral mountain slope terrain. 	

Source: *City of Corona General Plan*, City of Corona, March 2004.

City of Corona Municipal Code. The City of Corona Municipal Code establishes development requirements applicable to the proposed project's potential visual impacts associated with glare, landscaping, and signage. The proposed project will be required to be consistent and implement these sections of the City's Municipal Code.

4.1.3 Methodology

The analysis of visual impacts focuses on changes in the visual character of the project site that would result from any future development that may occur subsequent to the approval of the proposed project. This would include the visual compatibility of on-site and adjacent uses, changes in vistas and viewsheds where visual changes would be evident, changes to scenic resources along designated scenic roadways, and the introduction of sources of light and glare. Impacts to the existing environment in and around the proposed project site are identified by the contrast between the site's visual setting before and after implementation of the proposed development. In this analysis, emphasis has been placed on the transformation of the existing undeveloped conditions into more urbanized uses. Although few standards exist to singularly define perceptions of aesthetic value, the degree of visual change can be described in terms of visual contrast. The visual contrast of pattern elements¹ within visual environments can be described based on four aspects of pattern character:² dominance, scale, diversity, and continuity. The enjoyment or interpretation of the visual experience is the visual quality. The degree of visual character and quality is evaluated around three descriptive elements: vividness, intactness, and unity. None of these descriptive elements is alone equivalent to visual quality; all three must be high to substantiate high visual quality.

- **Vividness:** Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns (e.g., the vividness of the Grand Canyon). The view of the Grand Canyon would be rated a 6 (high) for vividness.
- **Intactness:** The visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes and natural settings (e.g., a two-lane road that meanders through the countryside). The view of a two-lane road meandering through the countryside would be rated a 6 (high) for intactness.
- **Unity:** The visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape (e.g., an English or Japanese garden). The view of an English or Japanese garden would be rated a 6 (high) for unity.

Visual changes to an existing setting could result in a positive or a negative perception of the proposed project depending on the viewer groups. Thus, viewer sensitivity is a combination of visual quality changes and viewer response to those changes. Viewer sensitivity to a project varies depending on familiarity with existing views, the sense of ownership of these views, and the activities viewers perform in relationship to those views. Visual perception is the act of seeing or recognizing an object and can be affected by physical conditions such as distance and speed. As an observer's distance increases, the ability to see the details of an object decreases. Similarly, as an observer's speed increases, the sharpness of lateral vision declines and the observer tends to focus along the line of travel. Thus, the physical location of the viewer group and the duration of its view would affect viewer exposure. All of these factors potentially affect perception and reaction to visual changes.

¹ Pattern elements are primary attributes of a landscape and include form, line, color, and texture.

² Pattern character is the visual relationships of pattern elements

4.1.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts related to aesthetics are based on *CEQA Guidelines* (2011). A project would have a significant impact on visual resources if it would result in any of the following:

- A substantial adverse effect on a scenic vista;¹
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
- Substantial degradation of the existing visual character or quality of the site and its surroundings and/or;
- A new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

4.1.5 Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.1.5.1 Scenic Vistas

Threshold	Would the proposed project have a substantial adverse effect on a scenic vista?
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A scenic vista can be categorized as either containing a panoramic view or a focal view. Panoramic views are typically associated with vantage points that provide a sweeping geographic orientation not commonly available (e.g., skylines, valleys, mountain ranges, or large bodies of water). Focal views are typically associated with views of natural landforms, public art/signs, and visually important structures, such as historic buildings.

Visual resources afforded to the City include the San Bernardino Mountains to the north, the Chino Hills, Santa Ana Mountains, and the Cleveland National Forest to the west and south, and hills to the east. The City also considers open space and agricultural areas visual resources as they provide visual relief from urbanized areas and provide views for motorists, pedestrians, and residents. City-designated significant vistas include:

- The Prado Basin views from Sierra del Oro, which encompass the basin on the south and canyon areas on the west;
- The view south to the Santa Ana Mountains from the I-15/SR-91 (Riverside) Freeway interchange;
- The southern view of the foothills from major north-south streets south of Ontario Avenue;
- The views from the higher elevations south of Ontario Avenue, which encompass panoramic views to the north and the San Gabriel Mountains; and
- Grand Boulevard, including the circle of palm trees visible from a variety of locations.

¹ The CEQA Guidelines do not indicate what a substantial adverse impact would be for an aesthetic resource. For purposes of discussion, the analysis presumes that a substantial adverse impact would consist of the physical modification or complete removal of the scenic vista.

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As identified in the City of Corona General Plan, one of the best views in the City is provided from Eagle Glen. Eagle Glen is located on the south side of the City, adjacent to the proposed project site. Eagle Glen Parkway runs along the southern perimeter and western slope of Eagle Glen.

The Specific Plan is located in the low-lying flat portion of Bedford Canyon as described above. Development associated with the proposed project would not occur within the higher elevations along the slopes located to the southwest of Eagle Glen Parkway. The Eagle Glen development is on average approximately 60 feet higher in elevation than the proposed project. The rural residential area located to the south of the project averages approximately 80 feet higher in elevation than the proposed project. Development standards identified in the Specific Plan establish restrictions on building heights. Within residential areas, building heights are not permitted to exceed 40 feet. Within the general commercial areas, building heights are not permitted to exceed 50 feet. Within the mixed-use portions of the proposed project, building heights are not permitted to exceed 50 feet; however, building heights up to 70 feet may be permitted subject to approval of a Conditional Use Permit by the Planning Commission within the Mixed-Use I area.

Implementation of the proposed project would not result in the obstruction of the City-designated scenic vistas identified above. Due to the higher elevation of the surrounding uses and I-15, the development of the proposed project within Bedford Canyon would be far below the elevation of the adjacent viewers and would not obstruct views beyond the canyon. Therefore, existing views afforded from the elevated Eagle Glen area would not be substantially affected. As described in the City's General Plan, development within the project area has been anticipated. Due to the flatness of the canyon area and the orientation of the roadway network that is at a higher elevation than the proposed project within both the Eagle Glen area and the Rural Residential area within Riverside County located to the south, scenic vistas would be maintained through view corridors established by the elevated roadway network. Because the proposed project is consistent with development envisioned in the General Plan, and because implementation of the proposed project would not affect City-designated scenic vistas, potential impacts to scenic vistas would be less than significant. No mitigation is required.

4.1.5.2 Scenic Resources and Scenic Highways

Threshold	Would the proposed project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
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As described in the General Plan, the City maintains a Scenic Highway Plan that is a composite of various networks and systems such as vistas, activity centers, corridors and pathways, edge areas, and entry and approach areas. It provides for the establishment, development, and protection of the City's highways and corridors for scenic purposes. City-designated scenic highways include:

- **Grand Boulevard**, which provides views of the City's historic core, particularly the large estates established on the irregularly shaped parcels along the edge of the circle, as well as associated landscaping and mature street vegetation;
- **Main Street**, from Third Street to the southern terminus, which also provides views of the historic core of the City, as well as views of the Santa Ana Mountains to the west and south, and the low foothills of the San Bernardino Mountains to the east;
- **Ontario Avenue**, from Mangular Avenue to State Street, which provides views of the Santa Ana Mountains to the west and the low foothills of the San Bernardino Mountains to the east;
- **Chase Drive**, from Mangular Avenue to State Street, which also provides views of the Santa Ana Mountains to the west and the low foothills of the San Bernardino Mountains to the east; and

- **Magnolia Avenue**, from Garretson and Ontario Avenues to Rimpau Avenue, which also provides views of the Santa Ana Mountains to the southwest, as well as views of the narrow pass between the San Bernardino Mountain foothills at the northwest end of the City, through which I-15 travels.

In addition to the City-designated scenic highways identified above, the segment of I-15 in the vicinity of the proposed project is classified by Caltrans as an Eligible State Scenic Highway, though it is not officially designated. However, because the elevation of the proposed project is below that of the I-15, motorists' views of the project site from the freeway are not obstructed. There are no officially designated State Scenic Highways in the vicinity of the proposed project.

The City-designated scenic highways identified above are not in the vicinity of the proposed project site. Views to motorists on the segment of I-15 in the vicinity of the proposed project would not be obstructed by the proposed project. While significant visual resources identified in Section 4.1.5.1 are visible from the proposed project site and surrounding roadways, none of these resources is visible from a designated scenic highway nor would they be obstructed by the proposed project. In the absence of scenic resources visible from designated scenic highways and because the project would not obstruct views from motorists on eligible scenic highways, no impacts would occur related to this issue. No mitigation is required.

As described in the City's General Plan EIR, open space and agricultural areas provide visual relief from urbanized areas and provide views for motorists, pedestrians, and residents. The General Plan EIR states that large open space and agricultural areas located in the southern portion of the City would remain with implementation of the proposed General Plan. At the same time, the General Plan designates the proposed project site as Agriculture – Future Urban Use, clearly acknowledging that the proposed project site is slated for development at some point in the future and is therefore not considered to be an aesthetic resource in its current undeveloped state. The General Plan EIR goes on to note that development of other undeveloped areas within the City would change the visual quality of the area, but also notes that vacant lands are considered to contain little aesthetic value. Future development of these areas would comply with General Plan policies regulating the design of new buildings and protecting the visual quality of the City. For these same reasons as cited from the General Plan EIR, although development of the proposed project would convert vacant lands to urban uses, the visual quality of the area would not be degraded, resulting in a less than significant impact and no mitigation is required.

4.1.5.3 Existing Visual Character and Surroundings

Threshold	Would the proposed project substantially degrade the existing visual character or quality of the site and its surroundings?
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The proposed project site is currently undeveloped and previously supported a citrus orchard. The orchard was removed in the recent past and all that remains is a fallow field that has previously undergone weed abatement. Currently, the site is mostly covered in overgrown native and non-native vegetation. The character of the proposed project site has been dynamic within the last few years. The existing underlying General Plan land use designation of the proposed project site is Agriculture – Future Urban Use. The existing underlying Zoning designation of the proposed project site is Agriculture – Future Urban Use. Implementation of the proposed project would result in the subsequent development of the site with residential, commercial, and business park uses. Visual impacts associated with changes to the general character of the project site (e.g., loss of open area), the components of the visual settings (e.g., landscaping and architectural elements), and the visual compatibility between proposed site uses and adjacent land uses would occur. The significance of visual impacts is inherently subjective as individuals respond differently to changes in the visual characteristics of an area. The project site is undeveloped and is surrounded by developed or

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developing properties including residential uses to the north, northwest, and south, commercial uses to the north and to the east across I-15. The proposed development would change the character of the project site from open agricultural space to a more urbanized setting similar to what is present within the Eagle Glen Specific Plan located to the northwest of the project site. The change in the character of the site would constitute an alteration of the existing visual character of the project site. However, as stated above, the General Plan designates the proposed project site as Agriculture – Future Urban Use, clearly acknowledging that the site is slated for development at some point in the future and is therefore not considered to be an aesthetic resource in its current undeveloped state.

The Specific Plan has been prepared to serve as an overall framework to conscientiously guide development of the proposed project. The Specific Plan serves as a regulatory document for development of the Arantine Hills site into a high-quality, mixed-use, master-planned community. This document will provide guidance to the City of Corona, builders, developers, architects, and designers in implementing the proposed project. The Specific Plan defines the character of the development through the definition of allowable uses, density, design guidelines, and infrastructure services as well as addresses the building layout design, architectural standards, and landscape architecture. These elements collectively address all of the key design features that form the project. The intent of the Specific Plan is to ensure an orderly development, achieve a high level of design quality, reflect features that are unique to the area, ensure compatibility among adjoining land uses, and unify all of the elements that form the project.

The proposed project is planned to incorporate design guidelines including architectural themes, wall and fence design criteria and materials finishes and colors including neutral to light earth tone color schemes accented by tile, wood, and other materials for structures. The combination of tile roofs, stucco finishes, stone, and alternating colors and/or materials along the building elevations will establish a mix of natural elements while maintaining visual interest. The project also establishes the development of 15.2 acres of developed parkland plus 36.6 acres of open space that will remain as permanent open space. These parks and open space areas will contribute towards the creation of a visually appealing master planned community, and would not degrade the existing visual character or quality of the site and its surroundings.

Although implementation of the proposed project would result in development that would alter the existing visual character of the site, the City acknowledges future development will occur on the site and the site is not considered to be an aesthetic resource in its current undeveloped state. Adherence to established and proposed City requirements for architectural elements, design features, landscape requirements (as specified in the Specific Plan) would ensure a high-quality, consistent, and compatible development that would not substantially degrade the visual character or quality of the site. Furthermore, implementation of the proposed project would not conflict with applicable policies of the City's General Plan as they relate to aesthetics. Therefore, impacts are considered less than significant. No mitigation is required.

4.1.5.4 Light and Glare

Threshold	Would the proposed project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?
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Currently, there are no significant sources of light or glare existing from within the project site. Existing sources of light and glare within the project area include exterior lighting from the nearby residential and commercial uses to the north/northeast across Eagle Glen Parkway, and vehicle headlights from motorists driving on adjacent roadways including I-15. Ambient nighttime lighting in the vicinity of the site is characteristic of those within residential areas with community commercial and of areas along major transportation corridors. Development of proposed project site with

residential, commercial, and industrial uses would introduce new sources of light in the form of parking lot lighting and lighting for signage and buildings.

The development of commercial and industrial uses associated with the proposed project would introduce new sources of light from the buildings, building signs, parking lot lighting, and vehicular traffic. Proposed commercial and industrial uses are strategically located near existing commercial uses within the Eagle Glen Specific Plan in the northern portion of the project site in the vicinity of I-15. It is anticipated that the exterior surfaces of the proposed commercial component would be finished with a combination of architectural coatings and other materials (e.g., brick, wood, or stone) similar to other commercial developments within the City. It is also anticipated that materials utilized for the proposed commercial uses would not contain large expanses of reflective metal or other material that would generate glare. Therefore, development of the commercial portion of the proposed project would not increase the amount of daytime light or glare in the project area. However, at night, lighting from commercial buildings, signs, and movement of vehicles with headlights in parking areas would create additional sources of light in the project area. While the proposed project would add new lighting sources to the project area, the number and type of lighting sources is not anticipated to substantially differ from that commonly utilized at existing commercial uses within the City, including the adjacent commercial uses north of the proposed project site within the Eagle Glen Specific Plan area. Nighttime lighting impacts from the proposed commercial uses to the areas south and southeast of the project site would not occur because views from these locations would be blocked because of project site's lower elevation.

In addition to the proposed commercial uses, development of the proposed project would include approximately 1,621 (or 1,806) residential units, consisting of a mix of low-, medium-, and high-density dwelling units, and 15.2 acres of neighborhood, special use, and mini parks. Development of future residential and park uses would necessitate the installation of outdoor lighting necessary for recreation maintenance, public safety, and security, particularly the medium- and high-density dwelling units. These sources of light would be in the form of residential lighting on the buildings, security lighting in the carports and in parks, garages and parking areas, and vehicle lights from project-related traffic. It is anticipated that the exterior surfaces of the proposed residential uses would be finished with a combination of architectural coatings (e.g., stucco) and other materials (e.g., brick, wood, or tile) similar to other existing residential uses in the City. At night, lighting of the internal space of the apartments and movement of vehicles with headlights on in parking areas would create additional sources of light in the project area. Light from residential interiors would result from the operation of indoor lighting and appliances. Light coming from these interior sources typically are small enough (e.g., light from a lamp or light from a television) and easily contained (e.g., closing of drapes and curtains or switching off of the light) that any such residential lighting would not exceed the intensity necessary to significantly affect adjacent uses. Light from vehicle movement in the proposed parking areas would be partially blocked by buffer walls and vegetation located between the project site and adjacent uses. Nighttime lighting impacts from the proposed residential uses to the areas south and southeast of the project site would not occur because views from these locations would be blocked because of project site's lower elevation.

The City of Corona has established standards for the design, placement, and operation of all existing and proposed public improvements such as lighting in its Municipal Code. All development in the City, which includes light generated from commercial buildings and parking lots, is required to adhere to lighting requirements contained in the City's Municipal Code. The City's Municipal Code states that all lighting shall be designed to direct light downward with minimal spillover onto adjacent residences, sensitive land uses, and open space.¹ The code requires that new development include light buffering and other related light shielding measures that are uniformly applied to all development in the City. As such, adherence to these measures would be required and enforceable through the review and approval (or non-approval) of the project plans.

¹ Chapter 17.84.070 of the City of Corona Municipal Code, City of Corona Municipal Code, March 16, 2011.

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During the scoping period of the proposed project, concerns were raised regarding the lighting of the proposed project in relation to the adjacent neighborhoods and the possibility that traffic signals associated with the proposed project would emit light that may become a nighttime annoyance. The nearest homes to the proposed project site are located to the north and west within the Eagle Glen Specific Plan. Additionally, there are homes located to the south of the proposed project on unincorporated Riverside County land. In the existing condition, homes adjacent to the northeastern portion of the project site are separated from the project by Eagle Glen Parkway as well as a sloped open space area leading down to the project site. Homes located to the northwest of the proposed project are separated by a similar open space sloped area leading down to the project site. Homes located to the south of the proposed project are separated by a similar open space sloped/hilly area leading down to the project site as well as intervening topography. Development of the project site would introduce into the area a new source of light and glare in the form of street lighting, parking lot lighting, outdoor security lighting for buildings, and headlights from additional vehicle traffic.

The existing conditions within the neighboring Eagle Glen Development are similar to that which will occur upon the completion of the proposed project. These homes are currently exposed to lights from adjacent homes, streetlights, traffic signals, and outdoor security lighting. As stated previously, homes located to the south and southeast are separated from the proposed project site by intervening topography and elevation differentials and new light sources that would be introduced within the project site would not result in lighting impacts to the residential uses located to the south. The proposed project is located at a lower elevation than the existing adjacent land uses and lighting would not shine up on adjacent properties. Furthermore, all lighting fixtures associated with implementation of the proposed project would be required to adhere to the City's lighting standards and would be required to direct light downward with minimal spillover onto adjacent residences, sensitive land uses, and open space. Therefore, impacts related to this issue are less than significant and no mitigation is required.

New traffic signal improvements would be added as a part of the proposed project at the future intersections of Street A/Eagle Glen Parkway and Street C/Eagle Glen Parkway. These intersection locations along Eagle Glen Parkway are currently lit by streetlights. The future traffic signals will be placed a similar distance from the residences as the existing street lighting. Traffic signals are not intended to provide on street lighting and are of an intensity that is much less than the typical street light. Traffic signals are also fitted with shielding to direct light toward a specific lane while blocking the view of the vehicles in lanes moving in other directions. By comparison, high pressure sodium street lighting required per the City of Corona Municipal Code that is currently in place produces approximately 9,500 lumens or greater. Typical LED traffic signal lights produce approximately 850 lumens. Due to the lower intensity of the lights used in the traffic signals, the use of shielding that is used on the traffic signals to prevent the light from spreading, and the presence of higher power lighting currently in the area of the proposed intersections, lighting impacts from the placement of new traffic control devices would be less than significant. No mitigation is required.

Exterior surfaces of proposed structures within the commercial, residential, and mixed-use planning areas would be finished with a combination of architectural coatings, trim, and/or other building materials such as stucco, wood, concrete and brushed metal. The proposed project is not expected to significantly increase the amount of daytime glare in the project area. All development in the City is required to adhere to lighting requirements contained in the City's Zoning Code. Chapter 17.84.070 of the City's Zoning Code states that all areas of exterior lighting shall be designed to direct light downward with minimal spillover onto adjacent residences, sensitive land uses and open space. The measures are uniformly applied to all development in the City. As such, adherence to these measures would be mandatory and enforceable through the review and approval (or non-approval) of the project plans. Adherence to the City's Zoning Code would ensure that any building or parking lighting would not significantly impact adjacent uses. Therefore, impacts associated with this issue are less than significant and no mitigation would be required.

4.1.6 Significant Impacts

All potential aesthetic impacts of the proposed project have been determined to be less than significant. Therefore, no significant impacts associated with aesthetic resources would occur.

4.1.7 Cumulative Impacts

The cumulative effect on scenic vistas from the proposed project would be less than significant as scenic vistas would not be affected from viewpoints surrounding the project and adjacent roads. Although the development of the proposed project would alter views of the canyon area, it would not block views of surrounding mountain ranges from current vantage points near the proposed site. Scenic vistas would not be obstructed from viewpoints afforded from the circulation network adjacent to the project, or at the end of vehicular rights-of-way. Compliance with the City's Municipal Code, General Plan standards, and proposed Specific Plan regulations would ensure that the proposed project in combination with other projects in the area would not result in significant impacts upon scenic vistas. As a result, the projects would create a less than significant cumulative impact on local scenic vistas.

Development of lands within the City would result in the cumulative conversion from open space to a more urbanized land use. However, this is a continuing development trend currently occurring within the southern portion of the City that has been anticipated in the City's General Plan. The proposed project, in conjunction with other cumulative projects would be developed in a manner consistent with existing development trends in the City. Cumulatively, more lighting would be introduced into the area by proposed, existing, and future development. As with past and currently proposed development, cumulative lighting-related impacts would be reduced through the adherence to applicable City lighting standards. No cumulatively significant lighting impact would result from implementation of the proposed project.

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4.2 AGRICULTURAL AND FOREST RESOURCES

This chapter discusses agricultural and forest resource impacts attributable to the proposed project. It describes existing agricultural resources, respective State farmland classifications for the project site, and existing forest resources. This chapter focuses on discussions involving applicable state, regional, and local policies regarding agricultural and forest resources and the conversion of farmland and forest to non-agricultural and non-forest uses. The analysis contained in this chapter is based in part on the following reference documents:

- *A Guide to the Farmland Mapping and Monitoring Program*, California Department of Conservation, Division of Land Resources Protection, 2004 Edition.
- *California Land Evaluation and Site Assessment Model, Instruction Manual*, California Department of Conservation, Office of Land Conservation, 1997.
- *City of Corona General Plan*, City of Corona, March 2004.
- *City of Corona General Plan Final Environmental Impact Report*, EIP Associates, certified April 2004.
- *City of Corona General Plan Background Technical Report*, EIP Associates, March 2004.
- *Riverside County Land Use Conversions, 1998–2008*, California Department of Conservation, Division of Land Resources Protection.
- *Riverside County 2009 Agricultural Production Report, 2009*.
- *Soil Survey Western Riverside County Area, California*, United States Department of Agriculture, November 1971.

The California Land Evaluation and Site Assessment (LESA) Model worksheets prepared for the various project sites are included as Appendix C to this EIR.

4.2.1 Existing Setting

4.2.1.1 Agricultural Resources

Approximately 601 acres within the City are currently utilized for agricultural production, including citrus and avocado cultivation. As identified in the City's General Plan, agriculture within the City has been replaced by urban and suburban development. Agricultural production within the City has declined in recent years, primarily due to the effects of urban expansion, the availability of affordable water resources, and economic considerations such as labor costs and taxes. Most of the designated farmland is located in the southern portion of the City, with scattered farmlands of local importance in the central portion of the City and a grouping of prime and unique farmland adjacent to the City's eastern boundary. Another farmland category includes grazing land which is land containing vegetation suitable for livestock grazing. This farmland resource category is the most prevalent in the City.¹ Most of the parcels designated by the Farmland Mapping and Monitoring Program (FMMP) are small, not contiguous, and not currently in production. Additionally, many of these parcels are either adjacent to, or completely surrounded by, urban development. Overall, build out of the General Plan could result in the conversion of up to 534 acres of Prime Farmland, 397 acres of Unique Farmland, and 30 acres of Farmland of Statewide Importance to urban uses, and this conversion was identified as a potentially significant impact in the General Plan Final EIR.

The project site has historically been utilized for citrus production since 1962. The project site was purchased by McMillan Farm Management in 1986 and agricultural activities continued until 2007. Table 4.2.A provides a summary of production and net sales from the agricultural production on the

¹ *City of Corona General Plan Technical Background Report*, page 4-80, EIP Associates, March 2004.

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project site over the course of the last 3 years that the site was in production. Based on the numbers provided, production from the project site was reduced during the 2005–2007 period by 5,007 bins or by 32.4 percent. Similarly, a reduction of 59.25 percent or \$1,058,058.73 in net sales of citrus produced on site occurred during this time period.

Table 4.2.A: On-site Agricultural Production and Sales

Year	Production	Drop in production from the previous year	Net Sales	Drop in Net sales from the previous year
2005	15,437 bins	—	\$1,785,604.24	—
2006	11,855 bins	12.02%	\$1,124,837.21	37.01%
2007	10,430 bins	23.20%	\$727,545.51	35.32%
Total Difference between 2005 and 2007	5,007 bins	32.4%	\$1,058,058.73	59.25%

Source: Email correspondence with Ellen Lesicko McMillan Farm Management, March 16, 2010.

Due to a decline in on-site citrus production, a decline in total revenue generated by the agricultural operations, and an increase in water rates, agricultural uses ceased on the project site in June 2007. In February 2008, all remaining citrus trees on the project site were removed due to fire hazard concerns. Table 4.2.B provides and Figure 4.2.1 illustrates the existing FMMP designations for the project site and land adjacent to the project site.

Table 4.2.B: Farmland Mapping and Monitoring Program Designations

Acres	On-site Designation(s)
54.14	Prime Farmland
118.34	Unique
47.07	Farmland of Local Importance
54.35	Other Land
Total: 273.88	

Source: Farmland Mapping and Monitoring Program, Riverside County 2004–2006.

As identified in Table 4.2.B, the majority of the site is designated as Unique Farmland with large portions of the site designated as Prime Farmland and Farmland of Local Importance.

Portions of the Specific Plan area are part of two agricultural preserves within the City. Figure 4.2.2 illustrates the portions of the Specific Plan area that are part of the Bedford Canyon Agricultural Preserve No. 1 (APN 282-030-003-6) and the Bedford Canyon Agricultural Preserve No. 2 (APNs 279-190-045-5, 279-240-018-5, 282-030-004-7, and 282-030-005-8). These parcels are subject to a Williamson Act non-renewal notice (i.e., cancellation) initiated in 2003. The parcel will be removed from the agricultural preserve classification when the non-renewal process is completed in 2013.

4.2.1.2 Forest Resources

Based on data from the Fire and Resource Assessment Program, Riverside County does not have land set aside for timber production.¹ In addition, no land is currently identified as suitable for timber sale production in Southern California. Therefore, there are currently no areas within the City

¹ Table 7 Timberland Production Zone (TPZ) acreage by Site Class in California as of 2000–2001, Timberland Site Class on Private Lands Zoned for Timber Production, Fire and Resource Assessment Program, Department of Forestry and Fire Protection, http://frap.cdf.ca.gov/publications/Timberland_Site_Class_on_Private_Lands_Zoned_for_Timber_Production.pdf.

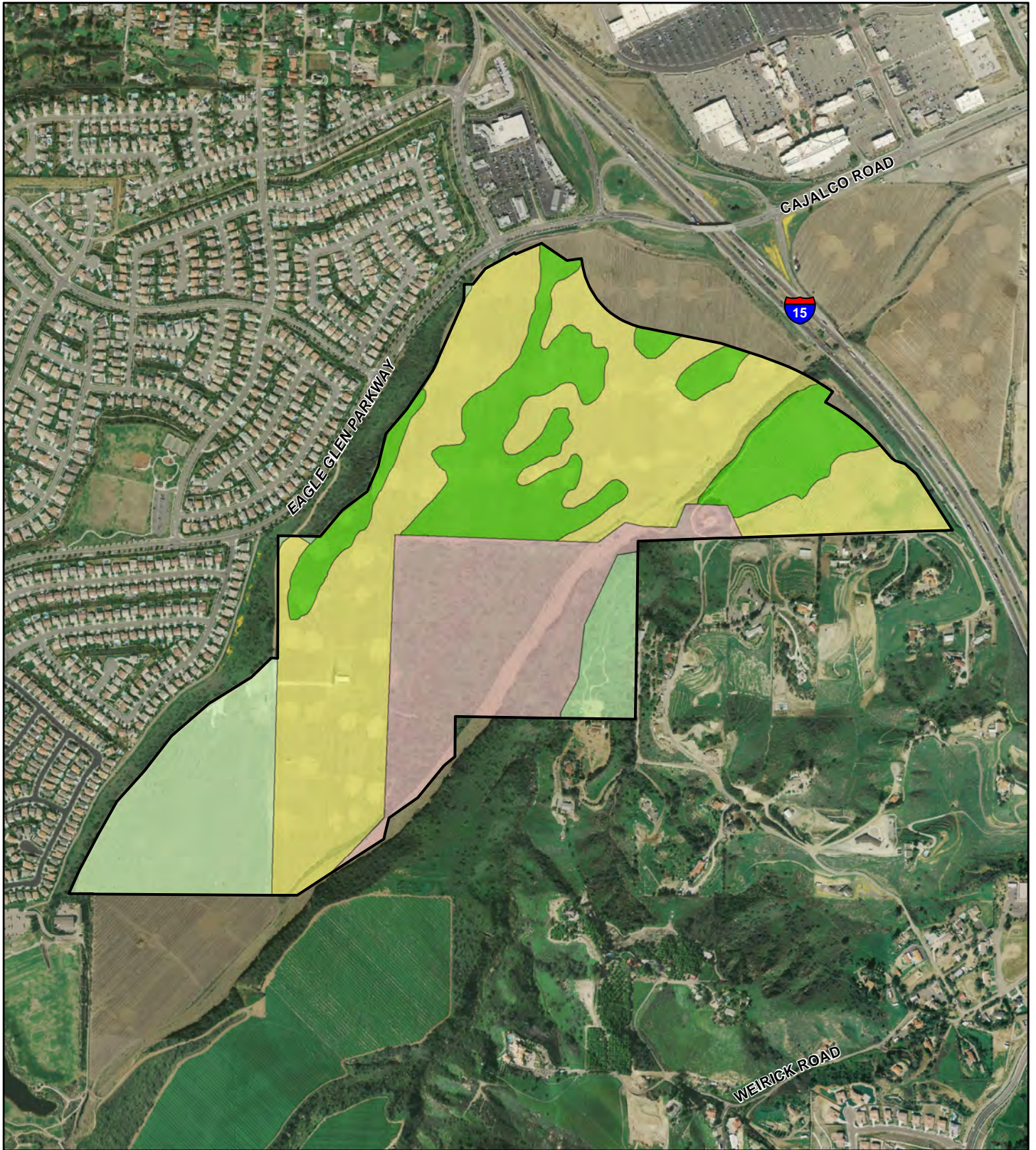
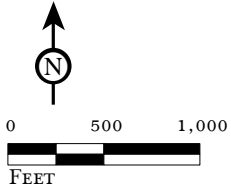


FIGURE 4.2.1

LSA



- Project Boundary
- State Farmland Designations**
- Farmland of Local Importance
- Prime Farmland
- Unique Farmland
- Other Land

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FMMP Designations

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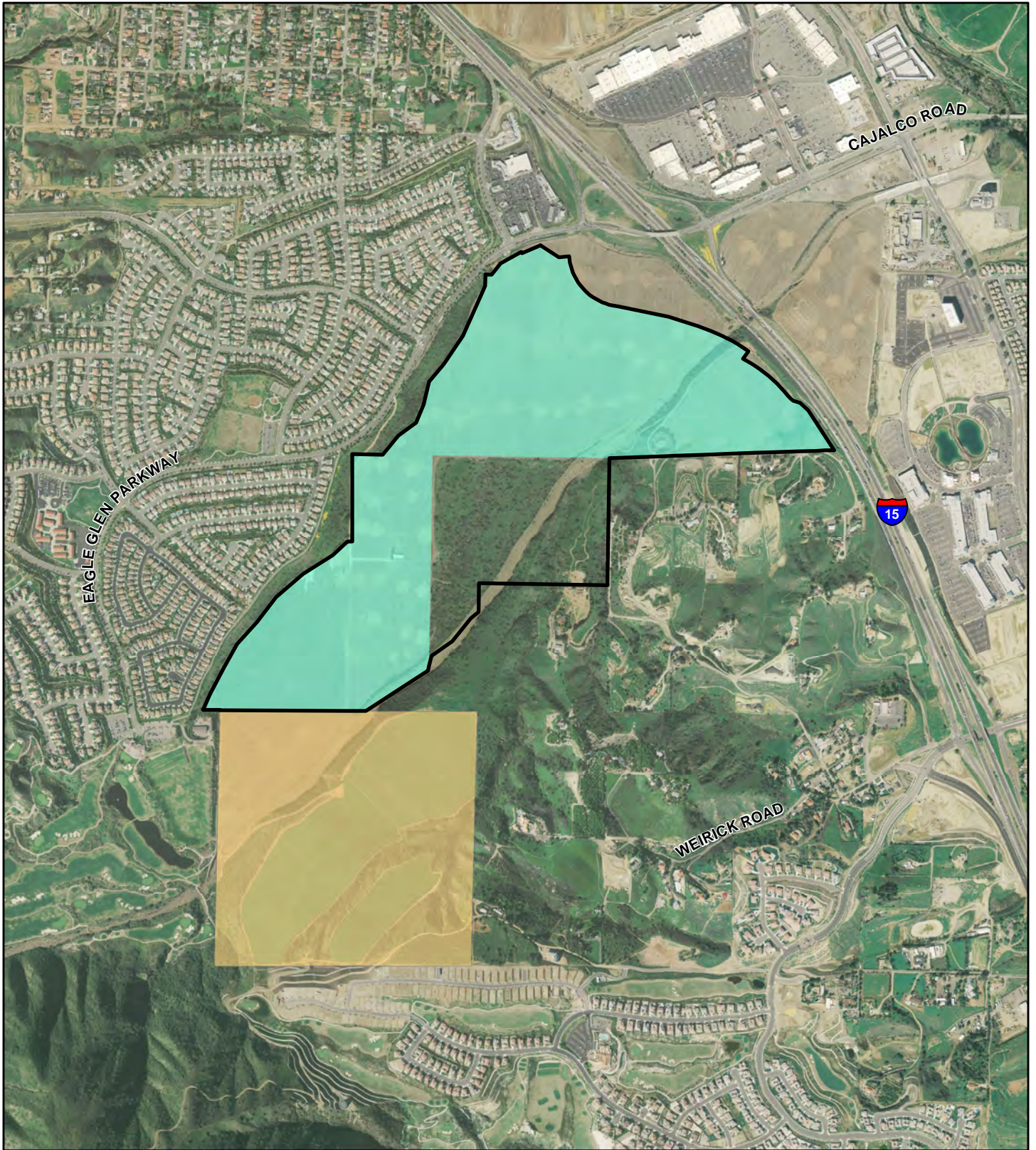
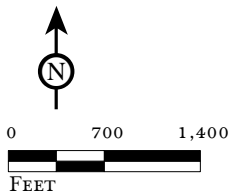


FIGURE 4.2.2

LSA



□ Project Boundary

Agricultural Preserves

■ Ag Preserve, Non-Renewal and Cancellation Request

■ Ag Preserve, Non-Renewal Request

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Agricultural Preserve Lands

SOURCE: AirPhotoUSA, 2008; Thomas Bros., 2009; County of Riverside, 2006/2010

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designated for timber production. Harvesting of trees may occur to meet wildlife, fuels, watershed, or other needs.¹

4.2.2 Policies and Regulations

The preservation of agricultural activities and soils has been an explicit goal of the United States Department of Agriculture (USDA) and California Department of Conservation (DOC). Agricultural soils are limited non-renewable resources that are usually confined to particular locations; however, not all agricultural activities occur on soils suitable for agriculture and not all soils highly suited for farming are used for crop production. Generally, policies implemented to preserve agriculture are aimed at either protection of agricultural areas or the protection of the soils most suitable for agricultural production.

4.2.2.1 Federal Regulations

Federal regulations, such as the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) and National Forest Management Act (NFMA) of 1976, authorize long-range planning by the United States Forest Service (USFS) to ensure the future supply of forest resources, as well as to provide for the management of renewable resources on national forest lands.

4.2.2.2 State Regulations

State Designated Farmland. The California Government Code (Section 65570) requires the collection and reporting of agricultural land use acreage and conversion by June 30 of each even-numbered year. Utilizing data from the USDA Natural Resource Conservation Service (NRCS) soil survey and current land use information, the DOC and the FMMP² compile important farmland maps for each county within the State. Farmland maps and statistics are produced biannually using a process that integrates aerial photo interpretation, field mapping, and a computerized mapping system. These maps delineate land use in eight mapping categories (and one overlay category) and represent an inventory of agricultural soil resources within each county. The categories of land delineated on these maps include:

- **Prime Farmland:** Land that has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.
- **Farmland of Statewide Importance:** Land that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.
- **Unique Farmland:** Land of lesser-quality soils used to produce specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Examples of Unique Farmland crops include oranges, olives, avocados, rice, grape, and cut flowers.
- **Farmland of Local Importance:** Land of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committees, e.g., dairies,

¹ *Vegetation Management Standards, Land Management Plan Part 3 Design Criteria for the Southern California National Forests, Angeles National Forest, Cleveland National Forest, Los Padres National Forest, San Bernardino National Forest*, United States Department of Agriculture Forest Service, September 2005.

² *A Guide to the Farmland Mapping and Monitoring Program*, California Department of Conservation, Division of Land Resources Protection, 2004 Edition.

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dry land farming, aquaculture, and uncultivated areas with soils qualifying for Prime Farmland and Farmland of Statewide Importance. Farmland of Local Importance in Riverside County is defined¹ as:

- Lands with soils that would be classified as Prime and Statewide Farmland but lack available irrigation water.
- Lands planted with dryland crops of barley, oats, and wheat.
- Lands producing major crops for Riverside County but that are not listed as Unique crops. These crops are identified as returning one million or more dollars on the 1980 Riverside County Agriculture Crop Report. Crops identified are permanent pasture (irrigated), summer squash, okra, eggplant, radishes, and watermelons.
- Dairylands, including corrals, pasture, milking facilities, and hay and manure storage areas if accompanied with permanent pasture or hayland of 10 acres or more.
- Lands identified by city or county ordinance as Agricultural Zones or Contracts, which includes Riverside City "Proposition R" lands.
- Lands planted to jojoba, which are under cultivation and are of producing age.
- **Grazing Land:** Land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock.
- **Urban and Built-Up Land:** Land used for residential, industrial, commercial, construction, institutional, public administrative purposes such as railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities also are included in this category.
- **Other Land:** Land not included in any of the other mapping categories. Common examples include low-density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres.
- **Water:** Water areas with an extent of at least 40 acres.
- **Land Committed to Nonagricultural Use:** This optional designation is an overlay to the standard farmland categories and represents existing farmland and grazing land and vacant areas that have a permanent commitment for development. Examples of Land Committed to Nonagricultural Use would include an area undergoing permanent infrastructure installation or for which bonds or assessments have been issued for public utilities. Such lands represent planning areas where there are commitments for future nonagricultural developments that are not reversible by a simple majority vote by a city council or board of supervisors.

California Land Conservation Act (Williamson Act). The California Land Conservation Act of 1965, also referred to as the Williamson Act, is a non-mandated State program administered by counties and cities for the preservation of agricultural land. This program enables local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use.

Participation in the program is voluntary on the part of both landowners and local governments. Participation is implemented through the establishment of Agricultural Preserves and the execution of Williamson Act contracts. Individual property owners enter into a contract that restricts or prohibits development of their properties to non-agricultural uses during the term of the contract in return for

¹ *Farmland of Local Importance, Local Definitions*, http://www.conservation.ca.gov/dlrp/fmmp/Documents/Local_definitions_00.pdf, website accessed February 16, 2011.

lower property taxes. Initially signed for a minimum ten-year period, the contracts are automatically renewed each year for a successive minimum ten-year period unless a notice of non-renewal is filed, or a contract cancellation is approved by the local government.

Forest Protection. State regulations, such as the Forest Taxation Reform Act of 1976 and the Z'berg-Nejedly Forest Practice Act of 1973–California Forest Practice Act, provide for the preservation of forest lands from encroachment by other incompatible land uses and provide for oversight of the management of forest practices and forest resources in California. As no forest or timber resources are located within the project site, no further discussion of these State regulations is warranted.

4.2.2.3 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that aim to reduce the loss or conversion of agricultural land. Table 4.2.C identifies goals and policies that apply to the proposed project.

Table 4.2.C: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies	Project Consistency
City of Corona General Plan Land Use Element	
<i>Goal 1.22: Maintenance of existing agricultural operations as an open space amenity of the City, while allowing for the possible of future development that would complement adjoining land uses.</i>	
Policy 1.22.1 Allow for the continued use of the McMillan property for agricultural uses, in accordance with the Land Use Plan’s designation and applicable design and development policies.	The proposed project would be consistent with these policies. Although implementation of the project would result in non-agricultural land development, the site has been planned for future development as indicated by the underlying General Plan land use designation of Agriculture - Possible Future Urban Use.
Policy 1.22.2 Allow for the consideration of the development of urban uses on the property that complement adjoining residential neighborhoods, commercial and industrial districts, and open spaces, with the type and density of uses determined through the formulation and processing of a Specific Plan.	
Policy 1.22.3 Require that any development on the site be designed to reflect its topographic setting and natural resources.	
Policy 1.22.4 Require that development be located and designed to assure adequate transitions with surrounding open spaces and natural areas.	
<i>Goal 1.4: Strategic growth that preserves existing viable residential neighborhoods and commercial and industrial districts and targets new development to remaining vacant parcels that are environmentally suitable and can be supported by infrastructure and services and reuses appropriate properties to enhance their economic vitality and community livability.</i>	
Policy 1.4.5 Allow for the continued production of agricultural lands as interim uses preceding urban development and/or as a long-term use.	The proposed project will be consistent with this policy as identified in Section 4.2.5.1.

4.2.3 Methodology

Important Farmland maps for Riverside County and the City were reviewed to determine whether the proposed project contains or consist of Prime, Unique, or Statewide Important farmland. Second, the analysis evaluates the current General Plan land use designations and zoning applicable to the site to

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determine the existence of any conflicts between the proposed project and any potential existing agricultural general plan and zoning designations applicable to the site.

To quantify a development project's potential impacts on agricultural resources, the DOC has developed the California Agriculture Land Evaluation and Site Assessment (LESA) Model, a method of rating the relative quality of land resources and potential impacts to agricultural resources. The LESA Model is intended to provide lead agencies with a methodology to identify potentially significant impacts that may result from agricultural land conversions.

The LESA Model uses six different factors (two based on soil resource quality and four based on on-site and adjacent land characteristics) to develop a weighted score that identifies the significance of potential impacts to agricultural resources. The Land Evaluation (LE) scoring utilizes two soil factors. The Land Capability Classification (LCC) indicates the suitability of soils for most kinds of crops, and the risk of damage when they are used in agriculture, while the Storie Index provides a numeric rating (0–100) of the relative degree of suitability or value of a given soil for intensive agriculture. The Site Assessment (SA) scoring considers the size of the site to be converted, water supply restrictions in drought and non-drought years, and the presence (or absence) of adjacent agricultural, habitat, or parkland uses.

By assessing and weighing a variety of soil, water, and land use characteristics, it is possible that the conversion of a large parcel containing poor soils and with limited access to water would not result in a significant impact, while the conversion of a much smaller well-watered parcel with quality soils could be considered significant. To ensure potential impacts to adjacent agricultural activities are appropriately considered, the LESA model requires an examination of land use on all parcels within a Zone of Influence (ZOI) that extends a minimum 0.25 mile from the boundary of the site. For any site evaluated using the LESA model, the factors are rated, weighed, and combined, resulting in a single numeric score that becomes the basis for determining a project's potential significance.¹

This EIR utilizes the LESA model as one of the analytical tools by which to assess the proposed project's impacts on agricultural conversion. Appendix G of the CEQA Guidelines states as follows:

“In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.”

Further, as stated above, the LESA model was specifically created by the DOC in order to provide “specific guidance concerning how agencies should address farmland conversion impacts.”² Because of its use of localized inputs as part of the model, the LESA model is generally considered the preferred methodological tool by which to assess the significance of a proposed project's impacts related to agricultural resources.

4.2.4 Thresholds of Significance

Appendix G of the *State CEQA Guidelines* recognizes the following thresholds related to agricultural and forest resources. Based on these significance thresholds, potential impacts to agricultural and forest resources could be considered significant if the proposed project:

¹ California Land Evaluation and Site Assessment Model, Instruction Manual, State of California Department of Conservation, Office of Land Conservation, 1997.

² California Agricultural Land Evaluation and Site Assessment Model, Instruction Manual, 1987, p. 3.

- Results in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflicts with existing zoning for agricultural use, or a Williamson Act contract.
- Conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined in Public Resources Code Section 4526).
- Results in the loss of forest land or conversion of forest land to non-forest use.
- Involves other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

4.2.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. For each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would result in a less than significant level.

4.2.5.1 Conflict with an Existing Agricultural Zone

Threshold	Would the proposed project conflict with existing zoning for agricultural use?
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The City’s General Plan currently designates the entire 276-acre project site as “Agriculture - Possible Future Urban Use.” This designation allows for existing agricultural uses and acts as a holding zone/interim designation until a property can be developed consistent with the City’s General Plan. Specifically, the “Agriculture” designation “... is intended to accommodate agricultural activities, such as citrus crops, and allow for the construction of housing and ancillary facilities.” Although the City’s General Plan does include an “Agriculture” designation, the General Plan also states that the purpose of the designation is to “... allow for the continued production of agricultural lands as interim uses preceding urban development and/or as a long-term use.”

The Specific Plan area is currently zoned as “Agricultural.” Adoption of the proposed Specific Plan will establish new zoning for the project site upon the Specific Plan becoming effective. The current zoning for the Specific Plan Area will be changed from “Agricultural” to “Low Density Residential,” “Medium Density Residential,” “High Density Residential,” “General Commercial,” “Mixed-Use I,” “Mixed-Use II,” “Park,” and “Open Space.” The proposed zone change will facilitate development that is consistent with the City’s General Plan. Because the proposed zone change and subsequent development of on-site uses would be consistent with the General Plan, no significant impact associated with the changing of the zoning of the Specific Plan area would occur. Therefore, no mitigation is required.

4.2.5.2 Conversion of Agricultural Lands to Non-Agricultural Uses

Threshold	Would the proposed project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?
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This EIR utilizes the LESA model as one of the analytical tools by which to assess the proposed project’s impacts on agricultural conversion. Appendix G of the CEQA Guidelines states: “In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997)

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prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.” Further, as stated above, the LESA model was specifically created by the DOC in order to provide “specific guidance concerning how agencies should address farmland conversion impacts.” Because of its use of localized input as part of the model, the LESA model is generally considered the preferred methodological tool by which to assess the significance of a proposed project’s impacts on agricultural resources.

To assess potential agricultural resource impacts that may result from development of the proposed project, the LESA model was completed for the project site. The results of the LESA analysis for the project site are provided in Table 4.2.D while Table 4.2.E identifies the LESA Model Significance Determination. The worksheets detailing the variables considered during the evaluation of the project site are included as Appendix C of this EIR.

Table 4.2.D: Land Evaluation and Site Assessment Scoring

Factor Name	Factor Rating (0–100 Points)	x	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
Land Evaluation					
1. Land Capability Classification	30.5	x	0.25	=	7.6
2. Storie Index Rating	26.2	x	0.25	=	6.5
Land Evaluation (LE) Subscore					14.2
Site Assessment					
1. Project Size	90.0	x	0.15	=	13.5
2. Water Resource Availability	90.8	x	0.15	=	13.6
3. Surrounding Agricultural Land	0.0	x	0.15	=	0.0
4. Protected Resource Lands	10.0	x	0.15	=	0.5
Site Assessment (SA) Subscore					27.6
TOTAL LESA SCORE (LE + SA)					41.8

Source: LSA Associates, Inc. March 2011.

Table 4.2.E: LESA Model Significance Determination

Total LESA Score	Scoring Decision
0–39 Points	Not considered significant
40–59 Points	Considered significant <i>only</i> if LE and SA subscores are each <i>greater</i> than or equal to 20 points
60–79 Points	Considered significant <i>unless</i> either LE or SA subscore is <i>less</i> than 20 points
80–100 Points	Considered significant

Source: California Land Evaluation and Site Assessment Model, Instruction Manual, State of California Department of Conservation, Office of Land Conservation, 1997.

As identified in Table 4.2.D, the proposed project’s LESA score is 41.8. Based on the scoring criteria provided in Table 4.2.E, this score is considered significant only if both the LE and SA subscores are each greater than or equal to 20 points. In this case, the LE subscore of 14.2 does not exceed the 20 point threshold. Since both the LE and SA score are not both greater than or equal to 20 points, potential impacts associated with the conversion of the project site to developed uses represent a less than significant impact on agricultural resources and no mitigation is required.

4.2.5.3 Conflict with an Existing Forest Zone or Loss/Conversion of Forest Lands to Non-Forest Uses

Threshold	Would the proposed project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined in Public Resources Code Section 4526)? Would the proposed project result in the loss of forest land or conversion of forest land to non-forest use?
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The project site is currently designated as “Agriculture – Possible Future Urban Use” and zoned as “Agricultural.” Since the project site does not have any designated forest land use and is currently zoned for agricultural uses, the rezoning of this site would not conflict with existing forest zoning, cause rezoning of forest land, or result in the loss or conversion of forest lands to non-forest uses. Therefore, no impacts associated with these issues would occur and no mitigation is required.

4.2.5.4 Termination of Williamson Act Contracts

Threshold	Would the proposed project conflict with a Williamson Act contract?
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The Williamson Act provides tax incentives for preserving agricultural lands and open space. Property owners enter into contracts for an initial term of 10 years or more. Each year the contract is automatically renewed unless notice of non-renewal is initiated by either the County or the property owner. While the property is under contract, non-agricultural development, not specifically listed as a compatible use on the contract, is not allowed unless the property is formally withdrawn from the contract, triggering additional tax assessments. Uses on the property are restricted to agriculture, open space, and compatible uses unless the property is formally withdrawn from the contract.

As previously identified and illustrated in Figure 4.2.2, portions of the Specific Plan area are currently within the Bedford Canyon Agricultural Preserve. One parcel of land totaling 36.65 acres (APN No. 282-030-003-6) is within the Bedford Canyon Agricultural Preserve No. 1. Four parcels of land totaling 180.73 acres (APN No. 279-190-0450-5, 279-240-018-5, 282-030-004-7, and 282-030-005-8) are within the Bedford Canyon Agricultural Preserve No. 2. The total amount of land currently under an existing Williamson Act contract is 217.38 acres of the proposed project’s 276 total acres.

A Notice of Non-Renewal to terminate the existing Williamson Act contract on the subject property was filed by the property owner in January 2003 and recorded in March 2003. The property owner expects to cancel the Williamson Act contract prior to expiration of the ten-year nonrenewal period, pursuant to the terms of the Williamson Act. The cancellation of this contract would reduce the total amount of land under Williamson Act contracts in the City and County.

The Williamson Act (Article 5, Section 51282) stipulates provisions for cancellation of contracts. Landowners may petition the City Council or Board of Supervisors for cancellation of all or portions of the contracted land. The decision-making body may grant tentative approval for cancellation of a contract only if the cancellation is consistent with the purposes of the Act *or* the cancellation is in the public interest. Due to the specific findings required a City Council or County Board of Supervisors, only a small fraction of the contract terminations in the State occurs as a result of cancellations. For the proposed cancellation, the manner in which each criterion stipulated in the Act is satisfied follows:

- The cancellation is for land on which a Notice of Non-Renewal has been served.
- The cancellation is not likely to result in the removal of adjacent lands from agricultural use.

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- The cancellation is for an alternative use, which is consistent with the applicable provisions of the City or County General Plan.
- The cancellation will not result in discontinuous patterns of urban development.
- There is no proximate non-contracted land, which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

For the proposed Specific Plan to occur on the project site, the applicant must submit an application to cancel the contract and the City must take action thereon at a public hearing. The applicant has submitted to the City an application to cancel the contract as it applies to the Arantine Hills Specific Plan. The application included a Notice of Non-Renewal for the contract only as it applies to the Williamson Act contracted land (totaling approximately 217.38 acres). The City filed a petition with the State Department of Conservation (DOC) for the cancelation of the Land Conservation Contracts (per the Williamson Act) on the applicable 217.38 acres. The DOC reviewed the petition, and on January 13, 2012, issued a letter to the City acknowledging its concurrence with the City’s stated cancellation findings required for City Council action on the cancelation request. Development inconsistent with the Williamson Act contract cannot occur prior to final cancellation of the contract. Tentative cancellation of the Land Conservation Contracts will be considered by the City Council as part of the project’s entitlement and subsequent to certification of this EIR. Certification of final cancelation occurs after the payment of any penalties assessed by the County Assessor.

Table 4.2.F provides a consistency summary as it pertains to each of the five findings under Section 51282.

Table 4.2.F: Williamson Act Findings

Finding	Project Compliance
The cancellation is for land on which a Notice of Non-Renewal has been served pursuant to Section 51245.	The Notice of Non-Renewal for Williamson Act contract lands on site was filed on January 25, 2003.
The cancellation is not likely to result in the removal of adjacent lands from agricultural use.	There are no adjacent lands that are currently in agricultural use.
The cancellation is for an alternative use, which is consistent with the applicable provisions of the City or County General Plan.	The current General Plan land use designation is “Agricultural – Possible Future Urban Use.” This land use designation provides for possible future urban use, which is consistent with the Specific Plan.
The cancellation will not result in discontinuous patterns of urban development.	Urban development surrounds three sides of the project site. The project would not result in discontinuous patterns of urban development.
That there is no proximate non-contracted land, which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.	There is no proximate non-contracted land, which is both available and suitable for the use to which it is proposed the contracted land be put. Please refer to Section 6.0 – Alternatives for discussion of alternative site location.

As identified in Table 4.2.F, the proposed project meets all five findings as listed under the Williamson Act. The process to cancel the existing Williamson Act contract has already commenced. For this reason, the project would not produce termination of a Williamson Act Contract, resulting in a less than significant impact and no mitigation is required.

4.2.6 Significant Impacts

The following were determined to have potentially significant impacts. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.2.6.1 Conversion of Prime, Unique, or Statewide Important Farmland

Impact 4.2.6.1: *The proposed land use actions and potential subsequent land development that may occur have the potential to result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.*

Threshold	Would the proposed project result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
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As discussed above, the DOC, as part of the FMMP process, publishes a Farmland Conversion Report every two years. This report documents land use conversion by acreage for each county in the State. The amount of Prime Farmland inventoried in Riverside County during the last countywide survey of farmland totaled 122,936 acres. The amount of Unique Farmland totaled 37,135 acres. The most recent data are for the 2006–2008 survey period, during which Riverside County experienced a net loss of 6,540 acres of Prime Farmland and 814 acres of Unique Farmland.¹

As previously stated, approximately 54.15 acres of the Specific Plan area are designated as Prime Farmland and 118.34 acres are designated as Unique Farmland. The conversion of the 54.15 acres of on-site Prime Farmland would be equivalent to 0.82 percent of the total loss of Prime Farmland in the County during this period. Similarly, the conversion of the 118.34 acres of on-site Unique Farmland would be equivalent to 14.5 percent of the total loss of Unique Farmland in the County during this period. Because Prime Farmland and Unique Farmland are considered to be a finite resource, its conversion to a non-agricultural use is a significant impact.

Demographic increases, coupled with the availability of developable land and the rising cost of water, increasingly exert pressure on the owners/operators of agricultural operations to sell and/or convert agricultural lands to non-agricultural uses. The DOC has identified potential “conservation tools” available to mitigate for the loss of agricultural land. These include the purchase of agricultural conservation easements; transfer of development rights; acquisition of farmland by the city or county; mitigation banking; the establishment of “urban limits,” greenbelts, and buffers; the payment of in-lieu fees sufficient to a purchase and maintain farmland conservation easements; and planning tools such as clustering development, use of density bonuses, and limiting “leapfrog” development.²

Various techniques and programs have been utilized in selected areas of the State to mitigate for the loss of Prime Farmland and/or to ensure the continued economic viability of agricultural operations. The City of Davis, as an example, requires the granting of a farmland conservation easement or other conservation mechanism for twice the amount of agricultural land being converted to a non-agricultural uses; or the payment of in-lieu fees based upon a two-to-one mitigation requirement.³ In its “Agricultural Lands Conversion Ordinance,” Yolo County, also as an example, requires a one-to-one replacement of converted agricultural lands, either through the granting of a conservation

¹ Table A-25 Riverside County 2006–2008 Land use Conversion, Farmland Mapping and Monitoring Program, California Department of Conservation Division of Land Resource Protection, http://redirect.conservation.ca.gov/dlrp/fmmp/pubs/2006-2008/conversion_tables/rivcon08.xls; website accessed March 21, 2011.

² Discussion Paper, Agricultural Land Conservation Tools, California Department of Conservation.

³ Chapter 40 (Right to Farm and Farmland Preservation), City of Davis Municipal Code.

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easement, or payment of in-lieu fees. Generally, mitigation lands are required to have similar soil quality, water supply adequacy, and should be in relative proximity to the lands being converted.¹

The DOC’s California Farmland Conservancy Program (CFCP) seeks to encourage the long-term, private stewardship of agricultural lands through the voluntary use of agricultural conservation easements. Implementation of conservation easements is typically achieved either through (1) the outright purchase of easements or (2) the donation of mitigation fees to a local, regional, or statewide organization whose purpose includes the acquisition and stewardship of conservation easements. Additional agricultural conservation easements have been funded by various entities without the use of CFCP funds. While the amount of CFCP grants varies depending on location, farmland type, and size, CFCP grants to conservancy agencies made to offset the cost of purchasing agricultural conservation easements has averaged approximately \$3,000 per acre statewide.²

However, there are no agricultural programs or mechanisms similar to those discussed above within the City or County of Riverside currently in place. At this point, there is no mechanism in place to collect fees associated with a mitigation bank or require agricultural easements as part of the environmental review of individual projects. For this reason, and consistent with the City’s General Plan EIR, there “is no feasible mitigation to reduce the proposed project’s impacts associated with the conversion of agricultural uses to nonagricultural uses to a less-than-significant level.”³

Mitigation Measures. There is no feasible mitigation available.

Level of Significance after Mitigation. Impacts associated with the conversion of Prime and Unique Farmland remain significant and unavoidable as identified in the City’s General Plan.

4.2.7 Cumulative Impacts

As identified in Table 4.2.G, the agricultural acreage inventoried in Riverside County by the FMMP has declined in each of the five past reporting cycles.

Table 4.2.G: Riverside County Agricultural Acreage Inventoried

	Reporting Period					
	2008	2006	2004	2002	2000	1998
Acres	545,100	556,151	582,497	596,369	609,590	636,337

Note: Though designated agricultural land, acreage may not necessarily be planted or otherwise used for agricultural uses.
Source: California Farmland Conversion Summary, California Department of Conservation, 2011.

While agricultural land is a finite resource, the City, through its designation of the sites for non-agricultural uses in its General Plan has previously considered that continuing development pressures in the City and region would result in the conversion of agricultural land in the City to non-agricultural uses. The adopted General Plan anticipated that land currently zoned for agricultural uses in the City would be converted to other uses at General Plan build out. The current trend and rate of urbanizing agricultural areas has significantly changed the role of agriculture within the City. As identified in the City’s General Plan EIR, continued urbanization of agricultural lands at current levels will likely result in a declining role for agriculture in the City’s economy resulting in a significant and unavoidable cumulative impact for agricultural resources.

¹ Yolo County General Plan Agricultural Element, November 2002.
² http://www.consrv.ca.gov/dlrp/cfcp/stories/easement_projects.htm, site accessed April 29, 2011.
³ City of Corona General Plan Environmental Impact Report, March 2004, page 10-2.

The General Plan recognizes that impacts to agricultural resources in the City and surrounding area are primarily related to the expansion of urban development and the unfavorable economic environment for many farming operations. As urban expansion encroaches into agricultural areas, remaining agricultural developments often become surrounded by urban activities. This situation further exacerbates the conversion of agricultural land to the presence of urban services extensions such as sewer and water, the associated increase in potential land values for urban uses (which often exceeds the agricultural dollar value), and the increased incidence of land use incompatibility. As farmers relocate, agricultural uses often change to more specialized and high unit value crops which can be grown in terrain considered less desirable in terms of urban development. The net result of this situation is that the amount of vacant land that can be converted to most agricultural uses is steadily diminishing.

As stated previously, the City maintains an interim General Plan designation for agricultural uses until such time agricultural land is converted to uses consistent with the General Plan. The cumulative effect of development in the region will continue to result in the conversion of agricultural lands to non-agricultural uses. Because agricultural land, including Prime Farmland, Williamson Act land, and land zoned for agricultural operations, is a finite resource, the conversion of 276 acres to urban uses, combined with planned and future development in the City and region, represents a significant cumulative impact to agricultural operations and resources that cannot be mitigated. Therefore, cumulative impacts associated with agricultural resources remain significant and unavoidable.

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4.3 AIR QUALITY

This section analyzes the potential air quality impacts of the proposed project with regard to the physical setting of the proposed project; regulatory framework for air quality; data on existing air quality; and air quality impacts. Modeled air quality levels are based upon vehicle data and project trip generation included in the *Traffic Impact Analysis*¹ prepared for the proposed project (Appendix L). Air pollutant emissions and related calculations, as documented in the proposed project's *Air Quality Impact Analysis*,² are contained in Appendix D of this EIR.

This evaluation was prepared in conformance with procedures and methodologies from the *CEQA Air Quality Handbook* of the South Coast Air Quality Management District (SCAQMD), published in April 1993. The SCAQMD is in the process of developing an *Air Quality Analysis Guidance Handbook*³ to replace the *CEQA Air Quality Handbook*.

4.3.1 Existing Setting

4.3.1.1 Climate and Meteorology

The project site is located in the southeastern portion of the City of Corona, in western Riverside County, California. Corona is located in the South Coast Air Basin (Basin), a geographic area that encompasses the coastal plain and connects broad inland valleys and low hills, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. This basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High, a large subtropical high pressure system, which holds air contaminants relatively near the ground.

Air quality in the project area is not only affected by various emission sources (mobile, industry, etc.), but also by atmospheric conditions such as wind speed, wind direction, temperature, humidity, and rainfall. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the Basin one of the worst air pollution problems in the nation.

Winds in the Basin are predominantly of relatively low velocities, averaging about 4.0 miles per hour (mph). These low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants, and these conditions tend to last for several days at a time.

During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are carbon monoxide (CO) and oxides of nitrogen (NO_x), because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

¹ *Arantine Hills Specific Plan Traffic Impact Analysis*, Urban Crossroads, Inc., May 31, 2011.

² *Arantine Hills Specific Plan Air Quality Impact Analysis*, Urban Crossroads, Inc., May 12, 2011.

³ South Coast Air Quality Management District, *Air Quality Analysis Guidance Handbook*, found at <http://www.aqmd.gov/ceqa/hdbk.html>, accessed on February 22, 2011.

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4.3.1.2 Regional Air Quality

Both the State of California and the Federal Government have established health-based ambient air quality standards (AAQS) for six air pollutants:

- Carbon monoxide (CO)
- Lead (Pb)
- Nitrogen dioxide (NO₂)
- Ozone (O₃)
- Particulate matter with a diameter of 10 microns or less (PM₁₀)
- Sulfur dioxide (SO₂)

Federal standards for 8-hour ozone and for fine particulate matter less than 2.5 microns in diameter (PM_{2.5}) have also been adopted. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety and are listed in Table 4.3.A.

In addition to setting out AAQS, the State has established a set of episode criteria for O₃, CO, NO₂, SO₂, and PM₁₀. These episode criteria refer to periods of short-term exposure to air pollutants that threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert will be declared when any one of the pollutant alert levels is reached at any monitoring site and meteorological conditions are such that the pollutant concentrations can be expected to remain at these levels for 12 or more hours or to increase; or, in the case of oxidants, the situation is likely to recur within the next 24 hours unless control actions are taken. At times, meteorological conditions are so adverse to pollutant dispersion that concentrations of ozone exceed the State air quality standard by as much as a factor of three. The California Air Resources Board (CARB) has defined episode levels of ozone air pollution as follows:

- **Health Advisory Levels** occur when hourly ozone concentrations equal or exceed 0.15 parts per million (ppm). At this level, residents are advised to avoid prolonged, vigorous outdoor exercise, and persons with respiratory or coronary disease should avoid exercise.
- **Stage 1 Episodes** occur when hourly ozone concentrations equal or exceed 0.20 ppm. At these times, persons with respiratory or coronary artery disease should be notified to take precautions against exposure and should stay indoors as much as possible. Schools are also notified to advise against strenuous physical activity for their students. To this end, schools are in regular communication with the SCAQMD.
- **Stage 2 Episodes** occur when hourly ozone concentrations equal or exceed 0.35 ppm. The SCAQMD requires industry to take prompt actions to reduce emissions at those times. No Stage 2 episodes occurred between 1989 and 1992.
- **Stage 3 Episodes** occur when hourly ozone concentrations equal or exceed 0.50 ppm. The last Stage 3 episode occurred in the Basin in 1974.

Pollutant alert levels:

- O₃: 392 micrograms per cubic meter (µg/m³) (0.20 ppm), 1-hour average.
- CO: 17 milligrams per cubic meter (mg/m³) (15 ppm), 8-hour average.
- NO₂: 1,130 µg/m³ (0.6 ppm) 1-hour average; 282 µg/m³ (0.15 ppm) 24-hour average.
- SO₂: 800 µg/m³ (0.3 ppm), 24-hour average.
- Particulates, measured as PM₁₀: 350 µg/m³, 24-hour average.

Health effects are progressively more severe as pollutant levels increase from Stage 1 to Stage 3. These health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. Among the pollutants, O₃ and particulate matter (PM_{2.5} and PM₁₀) are considered regional pollutants, while the others have more localized effects. Table 4.3.B lists the health effects of these criteria pollutants and their potential sources.

Table 4.3.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²			Footnotes
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷	
Ozone (O ₃)	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry	¹ California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; suspended particulate matter - PM ₁₀ , PM _{2.5} and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. ² National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM ₁₀ , the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m ³ is equal to or less than one. For PM _{2.5} , the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal policies. ³ Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas. ⁴ Any equivalent procedure which can be shown to the satisfaction of ARB to give equivalent results at or near the level of the air quality standard may be used. ⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. ⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. ⁷ Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA. ⁸ To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the EPA standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively. ⁹ On June 2, 2010, the U.S. EPA established a new 1-hour SO ₂ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99 th percentile of 1-hour daily maximum concentrations. EPA also proposed a new automated Federal Reference Method (FRM) using the ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated State monitoring networks. The EPA also revoked both the existing 24-hour SO ₂ standard of 0.14 ppm and the annual primary SO ₂ standard of 0.030 ppm, effective August 23, 2010. The secondary SO ₂ standard was not revised at that time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the new primary national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm. ¹⁰ The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants. ¹¹ National lead standard, rolling 3-month average: final rule signed October 15, 2008. °C = degrees Celsius EPA = United States Environmental Protection Agency µg/m ³ = micrograms per cubic meter mg/m ³ = milligrams per cubic meter ppm = parts per million
	8-Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)			
Respirable Particulate Matter (PM ₁₀)	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³		—			
Fine Particulate Matter (PM _{2.5})	24-Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15.0 µg/m ³			
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)	
	1-Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)			
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—			
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	53 ppb (100 µg/m ³) (see footnote 8)	Same as Primary Standard	Gas Phase Chemiluminescence	
	1-Hour	0.18 ppm (339 µg/m ³)		100 ppb (188 µg/m ³) (see footnote 8)	None		
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	—	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)	
	24-Hour	0.04 ppm (105 µg/m ³)		—	—		
	3-Hour	—		—	0.5 ppm (1300 µg/m ³)		
	1-Hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³) (see footnote 9)	—		
Lead ¹⁰	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	Same as Primary Standard	High-Volume Sampler and Atomic Absorption	
	Calendar Quarter	—		1.5 µg/m ³			
	Rolling 3-Month Average ⁹	—		0.15 µg/m ³			
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards			
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography				
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ⁹	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				

Source: California Air Resources Board, September 8, 2010.

Table 4.3.B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutants	Sources	Primary Effects
Ozone (O ₃)	<ul style="list-style-type: none"> Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight. 	<ul style="list-style-type: none"> Breathing difficulty. Lung tissue damage. Damage to rubber and some plastics.
Nitrogen Dioxide (NO ₂)	<ul style="list-style-type: none"> Motor vehicle exhaust. Heavy construction equipment exhaust. Farming equipment exhaust. Residential heating. 	<ul style="list-style-type: none"> Lung irritation and damage. Formation of acid rain.
Carbon Monoxide (CO)	<ul style="list-style-type: none"> Motor vehicle exhaust. Heavy construction equipment exhaust. Farming equipment exhaust. Residential heating. 	<ul style="list-style-type: none"> Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Suspended Particulate Matter (PM _{2.5} and PM ₁₀)	<ul style="list-style-type: none"> Motor vehicle exhaust (PM_{2.5}). Equipment and industrial sources (PM_{2.5}). Residential and agricultural burning (PM_{2.5} and PM₁₀). Atmospheric chemical reactions (PM_{2.5} and PM₁₀). Road dust (PM₁₀). Windblown dust (Agriculture [PM₁₀]) Construction (Fireplaces [PM₁₀]) 	<ul style="list-style-type: none"> Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.
Sulfur Dioxide (SO ₂)	<ul style="list-style-type: none"> Coal/oil- burning power plants. Industries, refineries, and diesel engines. 	<ul style="list-style-type: none"> Increased lung disease. Breathing problems for asthmatics. Formation of acid rain.
Lead (Pb)	<ul style="list-style-type: none"> Metal smelters. Resource recovery. Leaded gasoline. Deterioration of lead paint. 	<ul style="list-style-type: none"> Learning disabilities. Brain and kidney damage.

Source: California Air Resources Board 2009 (<http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm>).

Table 4.3.C: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O ₃ 1-hour	Nonattainment	N/A
O ₃ 8-hour	Nonattainment	Extreme Nonattainment
PM ₁₀	Nonattainment	Serious Nonattainment
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Nonattainment	Attainment/Maintenance
SO ₂	Attainment	Attainment
Pb	Attainment (except Los Angeles County)	Attainment (except Los Angeles County)
All others	Attainment/Unclassified	Attainment/Unclassified

Unclassified designation: a pollutant that is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
 Attainment designation: a pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a 3-year period.
 Nonattainment: a pollutant is designated nonattainment if there was at least one violation at any site in the area during a 3-year period.
 Source: California Air Resources Board website: www.arb.ca.gov/desig/desig.htm, 2010.

Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. Examples of this would be the motor vehicles at intersections, malls, and on highways. The California Clean Air Act (CCAA) provides the SCAQMD with the authority to manage transportation activities at indirect sources. The SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the CARB.

4.3.1.3 Air Pollution Constituents and Attainment Status

The CARB has many responsibilities with respect to air quality, including the following:

- Coordinates and oversees State and Federal air pollution control programs in California;
- Oversees activities of local air quality management agencies (e.g., the SCAQMD);
- Responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval; and
- Maintains air quality monitoring stations throughout the State in conjunction with local air districts.

Data collected at these stations are used by the CARB to classify air basins as “attainment” or “nonattainment” with respect to each pollutant and to monitor progress in attaining air quality standards. The State is divided geographically into 15 air basins for the purpose of managing the air resources of the State on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans. Table 4.3.C (previous page) identifies the attainment status for the criteria pollutants in the Basin.

4.3.1.4 Local Air Quality

The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Norco/Corona station. Data for PM₁₀ was obtained from this station. The next nearest station is the Metropolitan Riverside County station. Data for CO and PM_{2.5} was obtained from this station. Data for O₃ and NO₂ was obtained from the Riverside-Rubidoux station. The Metropolitan Riverside County and Riverside-Rubidoux station data were utilized in lieu of the Norco/Corona station data as it was not available from this station. Data for SO₂ has been omitted as attainment is regularly met for this pollutant within the Basin. These stations characterize the air quality representative of the ambient air quality in the project area.¹ The ambient air quality data in Table 4.3.D identify that CO and NO₂ levels are consistently below the relevant State and Federal standards in the project vicinity. O₃, PM₁₀, and PM_{2.5} levels all exceed State and/or Federal standards regularly.

Table 4.3.D: Ambient Air Quality Monitored at Norco/Corona, Metropolitan Riverside County, and Riverside-Rubidoux Stations

Pollutant	Standard	2007	2008	2009
Carbon Monoxide (CO) from Metropolitan Riverside County Station				
Maximum 1-hr concentration (ppm)		4	7	3
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hr concentration (ppm)		2.1	2.0	1.8

¹ Air quality data, 2006–2008; EPA and CARB websites.

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Table 4.3.D: Ambient Air Quality Monitored at Norco/Corona, Metropolitan Riverside County, and Riverside-Rubidoux Stations

Pollutant	Standard	2007	2008	2009
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal: ≥ 9.0 ppm	0	0	0
Ozone (O₃) from Riverside–Rubidoux Station				
Maximum 1-hr concentration (ppm)		0.131	0.146	0.116
Number of days exceeded:	State: > 0.09 ppm	31	54	25
	Maximum 8-hr concentration (ppm)	0.111	0.11	0.10
Number of days exceeded:	State: > 0.07 ppm	69	88	57
	Federal: > 0.075 ppm	46	64	35
Inhalable Particulates (PM₁₀) from Norco/Corona Station				
Maximum 24-hr concentration ($\mu\text{g}/\text{m}^3$)		93	86	79
Number of days exceeded:	State: > 50 $\mu\text{g}/\text{m}^3$	10	9	7
	Federal: > 150 $\mu\text{g}/\text{m}^3$	0	0	0
Ultra-Fine Particulates (PM_{2.5}) from Metropolitan Riverside County Station				
Maximum 24-hr concentration ($\mu\text{g}/\text{m}^3$)		68.6	43.0	42.2
Number of days exceeded:	Federal: $> 35^{\text{A}}$ $\mu\text{g}/\text{m}^3$	8	4	2
	Annual arithmetic mean ($\mu\text{g}/\text{m}^3$)	18.1	13.4	13.4
Nitrogen Dioxide (NO₂) from Riverside-Rubidoux Station				
Maximum 1-hr concentration (ppm)		0.07	0.09	0.08
Number of days exceeded:	State: $> 0.18^{\text{B}}$ ppm	0	0	0
	Annual arithmetic mean concentration (ppm)	0.0206	0.0192	0.0171

^A The exceedances of the federal 8-hour O₃ standard are based on the old 0.08 ppm standard.

^B CARB has revised the NO₂ 1-hour State standard from 0.25 ppm to 0.18 ppm, effective May 20, 2008..

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

CARB = California Air Resources Board

EPA = United States Environmental Protection Agency

ppm = parts per million

Source: South Coast AQMD (www.aqmd.gov).

4.3.1.5 Sensitive Land Uses in the Project Vicinity

Sensitive receptors include residences, schools, medical offices, convalescent facilities, and similar uses that are sensitive to air pollutants. The nearest existing sensitive receptors in the vicinity of the proposed project site are homes located to the south of the proposed project site approximately 151 feet away. Homes located to the north and west within the Eagle Glen Specific Plan are approximately 200 feet away. It is important to note that homes located to the north, north and west, and south of the proposed project site are at a substantially higher elevation than the proposed project site. On average, these homes are approximately 60 feet higher in elevation than the proposed project site.

4.3.1.6 Existing Project Area Emissions

With the exception of a single unoccupied temporary trailer and limited surface improvements, the project site is currently vacant, and therefore does not generate emissions. Existing air quality conditions at the proposed project site reflect ambient monitored conditions as presented in previously referenced Table 4.3.D.

4.3.1.7 Existing CO Concentration Levels

The existing CO concentration for intersections within the project vicinity was derived from SCAQMD's future projection for Year 2010 through 2020 at the nearest available monitoring station (Metropolitan Riverside County) that monitors CO. The 1-hour background CO concentration for the proposed project area is assumed to be 5.1 ppm. The 8-hour background CO concentration is estimated to be 3.0 ppm.

4.3.2 Policies and Regulations

4.3.2.1 Federal Regulations

Clean Air Act. Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

The EPA established new national air quality standards for ground-level O₃ and PM_{2.5} in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O₃ and particulate matter, was unconstitutional as an improper delegation of legislative authority to the EPA. On February 27, 2001, the U.S. Supreme Court upheld the way that the government sets air quality standards under the CAA. The Court unanimously rejected industry arguments that the EPA must consider financial cost as well as health benefits in writing standards. The Justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for O₃ and soot in 1997. Nevertheless, the Court threw out the EPA's policy for implementing new O₃ rules, stating that the EPA ignored a section of the law that restricts its authority to enforce such rules.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the eight-hour ground-level O₃ standard. The EPA issued the proposed rule implementing the eight-hour O₃ standard in April 2003. The EPA completed final eight-hour nonattainment status on April 15, 2004. The EPA issued the final PM_{2.5} implementation rule in fall 2004. The EPA issued final designations on December 14, 2004.

Effective January 22, 2010, the EPA strengthened the standard for NO₂ by setting a new 1-hour standard at the level of 100 parts per billion (ppb). This standard defines the maximum allowable concentration anywhere in an area and will protect against adverse health effects associated with short-term exposure to NO₂. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb.

Additionally, effective June 2, 2010, the EPA revised the primary standard for SO₂ by establishing a new 1-hour standard at a level of 75 ppb. The EPA revoked the two existing primary standards of 140 ppb evaluated over 24-hours, and 30 ppb evaluated over an entire year as they would not provide additional public health protection given a 1-hour standard at 75 ppb. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

4.3.2.2 State Regulations

Mulford-Carrell Act. The State began to set California Ambient Air Quality Standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

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Originally, there were no attainment deadlines for CAAQS; however, the CCAA of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the State to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

4.3.2.3 Regional Regulations

Lewis Air Quality Management Act. The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the State. The Federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the Federal standards in nonattainment areas of the state.

The CARB is responsible for incorporating air quality management plans for local air basins into an SIP for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan (AQMP). The SCAQMD and the SCAG are responsible for formulating and implementing the AQMP, which has a 20-year horizon for the Basin. The SCAQMD and SCAG must update the AQMP every three years. The current regional air quality plan is the Final 2007 AQMP adopted by the SCAQMD on June 1, 2007.

The Final 2007 AQMP proposes attainment demonstration of the Federal $PM_{2.5}$ standards through a more focused control of sulfur oxides (SO_x), directly-emitted $PM_{2.5}$, and nitrogen oxides (NO_x) supplemented with volatile organic compounds (VOC) by 2015. The 8-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NO_x and VOC reductions to meet the standard by 2024 assuming a bump-up¹ is obtained.

The Final 2007 AQMP proposes policies and measures currently contemplated by responsible agencies to achieve Federal standards for healthful air quality in the Basin and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin. This Final Plan also addresses several Federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. This Final Plan builds upon the approaches taken in the 2003 AQMP for the Basin for the attainment of the Federal ozone air quality standard.² The Basin is currently a Federal and State nonattainment area for PM_{10} , $PM_{2.5}$, and ozone.

4.3.3.4 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies related to air quality and are identified in Table 4.3.E. The following policies are applicable to the proposed project.

¹ A "bump-up" is a voluntary reclassification of a nonattainment area to a higher classification allowing for an extension of an attainment deadline.

² *Final 2007 Air Quality Management Plan*, South Coast Air Quality Management District, June 1, 2007.

Table 4.3.E: General Plan Policies Consistency with the Proposed Project

Policies	Project Consistency
City of Corona General Plan Air Quality Element	
<i>Goal 10.18: Improve air quality conditions within the Corona Planning Area by controlling point sources, reducing vehicle trips, and striving to achieve attainment of ozone, nitrogen dioxide, carbon monoxide, and sulfate standards as enforced by the South Coast Air Quality Management District.</i>	
Policy 10.18.2: Continue to cooperate with the South Coast Air Quality Management District, and other local authorities in the Basin, in implementing air emission reduction programs and techniques.	The proposed project would be consistent with this policy as identified in Sections 4.3.5 and 4.3.6, and associated mitigation measures identified.
Policy 10.18.3: Incorporate the provisions of the South Coast Air Quality Management District Management Plans as conditions of approval for all new development and re-development projects.	The measures identified in the Draft EIR are consistent with the City's policy to improve air quality.
<i>Goal 10.19: Reduce vehicle trip generation within Corona and its Planning Area through transit, shuttle, carpool and cycling facilities.</i>	
Policy 10.19.2: Require developers of major commercial centers and employment center projects, having 100 or greater employees to include transit amenities, access points, and availability of designated parking spaces for van and carpools, as part of the design of development.	The project would be consistent with this policy as discussed in Section 4.4.6.1.
Policy 10.19.4: Require new commercial and industrial development and redevelopment projects of sufficient scale and number of employees to provide adequate facilities for bicycles, employees, such as bicycle racks located close to front entranceways of buildings, and shower facilities with lockers.	The Specific Plan provides residential uses in proximity to commercial and mixed-use development. An interconnected system of sidewalks and bikeways encourages walking and biking between homes, shops, and employment to help reduce vehicle trips and trip distances.
<i>Goal 10.20: Reduce criteria air pollutant emissions through more efficient land use planning and construction practices.</i>	
Policy 10.20.1: Support mixed-use commercial-residential development in accordance with the Land Use Element, and as an opportunity to improve the City of Corona's current jobs/housing ratio and work-live balance.	The project would include the development of mixed-use areas, which would contribute to the improvement of the current jobs/ratio and work-live balance.
Policy 10.20.4: Continue to create local employment opportunities by maintaining an adequate supply of designated commercial and industrial land supply, in accordance with the Land Use Element.	The project is a mixed-use community and includes the development of commercial and industrial uses that would contribute to the creation of local employment opportunities.
Policy 10.20.5: Continue to target residential development within, and proximate to, existing, and planned activity centers and transportation corridors in accordance with the Land Use Element.	The Specific Plan provides residential uses in proximity to commercial and mixed-use development. An interconnected system of sidewalks and bikeways encourages walking and biking between homes, shops, and employment to help reduce vehicle trips and trip distances. In addition the project site is adjacent to the I-15 corridor which provides access to employment centers in Corona, Ontario and Riverside.

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Table 4.3.E: General Plan Policies Consistency with the Proposed Project

Policies	Project Consistency
<p>Policy 10.20.6: Require that large-scale master-planned residential communities incorporate pedestrian and cycling paths/trails that link with adjacent neighborhoods, schools, areas of shopping and employment, community centers, other places of activity, and transit access points.</p>	<p>The Specific Plan provides residential uses in proximity to commercial and mixed-use development. An interconnected system of sidewalks and bikeways encourages walking and biking between homes, shops, and employment to help reduce vehicle trips and trip distances.</p>
<p>Policy 10.20.7: Provide effective utility of pedestrian and cycling paths/trails and place strong limitations of intrusions into these pedestrian rights-of-way.</p>	<p>The Specific Plan provides residential uses in proximity to commercial and mixed-use development. Public recreational amenities identified in the Specific Plan include four conveniently located neighborhood parks, as well as on-street bike lanes, a Class I multi-purpose trail, and pathways and sidewalks for walking and cycling. An interconnected system of sidewalks and bikeways encourages walking and biking between homes, shops, and employment to help reduce vehicle trips and trip distances.</p>
<p>Policy 10.20.8: Reduce particulate emission from paved and unpaved roads, parking lots, and road and building construction, as required by the Southern California Air Quality Management District. Methods include but are not limited to</p> <ul style="list-style-type: none"> • Maintaining construction equipment engines in good condition and in proper tune per manufacturer’s specification for the duration of construction. • Turning off construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, when not in use for more than five minutes. • Encourage contractors to utilize alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) and low-emission diesel construction equipment to the extent that the equipment is readily available and cost effective. • Using the electricity infrastructure surrounding construction sites rather than electrical generators powered by internal combustion engines to the extent feasible. • Implement dust control measures consistent with South Coast Air Quality Management District Rule 403-Fugitive Dust during the construction phases of new project development. • Applying water and/or approved nontoxic 	<p>The project would be consistent with this policy as discussed in Section 4.3.5.1.</p>

Table 4.3.E: General Plan Policies Consistency with the Proposed Project

Policies	Project Consistency
<p>chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).</p> <ul style="list-style-type: none"> • Replacing ground cover in disturbed areas as quickly as possible. • Enclosing, covering, watering twice daily, or applying approved chemical soil binders to exposed piles with 5 percent or greater silt content. • Watering active grading sites at least twice daily. • Suspending all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period. • Covering or maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code, in all trucks hauling dirt, sand, soil, or other loose materials. • Sweeping streets adjacent to construction sites at the end of the day. • Installing wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip. • Applying water three times daily or chemical soil stabilizers according to manufacturers' specifications to all non-paved parking or staging areas or unpaved road surfaces. • Posting and enforcing traffic speed limits of 15 miles per hour or less on all unpaved roads. 	
<i>Goal 10.21: Reduce air quality degradation through energy conservation.</i>	
<p>Policy 10.21.1: Reduce the amount of energy consumed by commercial and residential uses, as recommended by the Southern California Air Quality Management District.</p>	The project would be consistent with this policy as discussed in Section 4.3.6.4.
<p>Policy 10.21.2: Continue to require the use and installation of energy conservation features in all new construction projects and wherever feasible, retrofitting in existing and re-development projects.</p>	The project would be consistent with this policy as discussed in Section 4.3.6.4.
<p>Policy 10.21.3: Encourage energy audits including installation of energy conservation measures for all commercial, industrial, and institutional projects.</p>	The project would be consistent with this policy as discussed in Section 4.3.6.4.

4.3.3 Methodology

The *Air Quality Impact Analysis*¹ (AQIA) evaluated the air quality impacts associated with the development of the proposed project. Evaluation of air quality impacts associated with the proposed project includes the following:

- Determine the short-term construction air quality impacts based on SCAQMD emissions thresholds;
- Determine the long-term air quality impacts, including vehicular traffic, on both on-site and off-site air quality sensitive uses based on SCAQMD emissions thresholds; and
- Determine the required mitigation measures to reduce short-term and long-term on-site air quality impacts from all sources.

Air quality in the project area would be affected by long-term air pollutant emissions from stationary sources and mobile sources related to the proposed project. This analysis is based on the project being developed in two phases, consistent with the traffic analysis performed for the project (e.g., completion dates of 2014 for project Phase I and 2019 for the remaining three project Phases). On February 3, 2011, the SCAQMD released the California Emissions Estimator Model (CalEEMod). The purpose of this new model is to more accurately calculate air quality and greenhouse gas (GHG) emissions from direct and indirect sources and quantify applicable air quality and GHG reduction achieved from mitigation measures. The latest version of CalEEMod was utilized to predict these project-related air quality impacts.

Construction-related emissions are expected from construction activities such as rough grading, infrastructure construction, asphalt paving, building construction, architectural coatings, and construction workers commuting. The analysis assumes that the proposed project would commence construction no earlier than 2011. This estimate represents the “worst-case” scenario as construction equipment emissions would decrease with time due to technological advancements. Construction emissions for construction worker vehicles traveling to and from the project site, in addition to vendor trips (construction materials delivered to the project site) were also accounted for in the analysis. Localized air quality in the project area would be affected by both heavy-duty construction equipment usage on site as well as local traffic due to the equipment delivery and construction worker commuting. The SCAQMD CEQA methodology² was used to analyze the criteria pollutant emissions from these activities.

Air quality in the project area would be affected by long-term air pollutant emissions from stationary sources and mobile sources related to the proposed project. The CalEEMod model was used to predict these project-related long-term impacts. Localized air quality impacts (i.e., CO concentrations [CO hot spots]) in the project area would be affected by increased traffic flow due to the proposed project. The Caltrans CALINE4 model and the CARB EMFAC 2007 model were used to assess the project's impact on the local CO concentrations.

SCAQMD has developed Local Significance Threshold (LST) methodology that can be used to determine whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State AAQS and are developed based on the ambient concentrations of that pollutant for each source receptor area. SCAQMD's current guidelines, *Final Localized Significance Threshold Methodology* (June 2003), were adhered to in the assessment of air quality impacts for the proposed project. The LST mass rate look-up tables were used to determine whether the daily emissions for the proposed construction activities could result in significant localized air quality impacts. The emissions of concern from construction activities are

¹ *Arantine Hills Specific Plan Air Quality Impact Analysis*, Urban Crossroads, Inc., May 12, 2011.

² *CEQA Air Quality Handbook*, April 1993.

NO_x, CO, PM₁₀, and PM_{2.5} combustion emissions from construction equipment and fugitive PM₁₀ dust from construction site preparation activities.

4.3.4 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, air quality impacts would occur if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

In addition to the Federal and State AAQS, there are daily emissions thresholds for construction and operation of a proposed project in the Basin. The Basin is administered by the SCAQMD, and guidelines and emissions thresholds established by the SCAQMD in its *CEQA Air Quality Handbook*¹ are used in this analysis. It should be noted that the emissions thresholds were established based on the attainment status of the air basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

4.3.4.1 Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions have been established by the SCAQMD for the Basin:

- 75 pounds per day of reactive organic compounds (ROC).
- 100 pounds per day of NO_x.
- 550 pounds per day of CO.
- 150 pounds per day of PM₁₀.
- 150 pounds per day of SO_x.
- 55 pounds per day of PM_{2.5}.

Projects in the Basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under CEQA.

4.3.4.2 Thresholds for Operational Emissions

Projects with operation-related emissions that exceed any of the emission thresholds listed below are considered significant under the SCAQMD guidelines.

¹ Ibid.

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- 55 pounds per day of ROC.
- 55 pounds per day of NO_x.
- 550 pounds per day of CO.
- 150 pounds per day of PM₁₀.
- 150 pounds per day of SO_x.
- 55 pounds per day of PM_{2.5}.

4.3.4.3 Air Pollutant Standards for CO with Localized Effects

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards (previously referenced Table 4.3.A). If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase one-hour CO concentrations by 1.0 ppm¹ or more or eight-hour CO concentrations by 0.45 ppm or more. The Basin meets State and Federal attainment standards for CO; therefore, the proposed project would have a significant CO impact if project emissions result in an exceedance of State or Federal one-hour or eight-hour standard. The following emission concentration standards for CO, based on the SCAQMD *CEQA Air Quality Handbook* (1993), apply to the proposed project:

- California State one-hour CO standard of 20.0 ppm.
- California State eight-hour CO standard of 9.0 ppm.

4.3.4.4 Localized Significance Thresholds

LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The use of LSTs by local government is voluntary, to be implemented at the discretion of the local agencies.

The emissions analyzed under the LST methodology are NO₂, CO, PM₁₀, and PM_{2.5}. For attainment pollutants, NO₂ and CO, the LSTs are derived using an air quality dispersion model to estimate the emissions per day that would cause or contribute to a violation of any ambient air quality standard for a particular SRA. LSTs for NO₂ and CO are derived by adding the incremental emission impacts from the project activity to the peak background NO₂ and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. The most stringent standard for NO₂ is the 1-hour State standard of 25 parts per hundred million and for CO, it is the 1-hour and 8-hour State standards of 9 ppm and 20 ppm, respectively. For PM₁₀ and PM_{2.5}, for which the Basin is in nonattainment, the operational LST is derived using an air quality dispersion model to estimate the emissions necessary to make an existing violation in the specific SRA worse, using the allowable change in concentration thresholds approved by the SCAQMD. For PM₁₀ and PM_{2.5}, the allowable change in concentration thresholds is 2.5 µg/m³.²

According to the SRA/City table on the SCAQMD LST web site,³ the appropriate SRA is the Norco/Corona Area (SRA 22). Following the SCAQMD LST methodology, for sites larger than 5

¹ ppm = parts per million.

² µg/m³ = micrograms per cubic meter

³ www.aqmd.gov/ceqa/handbook/LST/LST.html.

acres, dispersion modeling needs to be conducted. In order to determine if dispersion modeling is required, the proposed project's construction emissions were compared to LSTs for a five acre site as a conservative measure. Table 4.3.F presents the results of comparing project construction activity to the five acre LSTs; as shown emissions of PM₁₀ and PM_{2.5} exceed localized thresholds for construction activity, however CO and NO_x emissions are within acceptable limits. As such, dispersion modeling is required to determine PM₁₀ and PM_{2.5} impacts only. CO and NO_x localized impacts will be less than significant since they are below the stringent LST standards for a five-acre project.

Table 4.3.F: Localized Significance Construction Summary (Without Mitigation)

Activity	NO _x (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
2011 (Site preparation/Grading)	217.05	118.83	44.34	24.28
2012	98.86	148.22	25.22	5.93
2013	88.98	137.62	24.78	5.49
2014	81.67	128.32	24.36	5.07
2015	74.42	119.47	23.64	4.68
2016	67.88	113.36	23.64	4.35
2017	62.15	106.40	23.31	4.02
2018	57.00	100.25	23.01	3.07
2019	52.51	95.08	22.74	2.80
Maximum Daily Emissions	217.35	148.22	44.34	24.28
SCAQMD Localized Threshold	285	2,304	33.83	10.33
Exceeds Threshold?	No	No	Yes	Yes

Source: Urban Crossroads, Inc., May 2011.

For purposes of this analysis LSTs have been evaluated only for construction of the proposed project and would not apply to emissions during operational activity as localized concentration cannot be properly quantified during operations due to the variable locations of mobile sources, which make up the largest source of criteria air pollutants under operational activity of the proposed project.

Construction thresholds for a 5-acre site:

- 285 lbs/day of NO_x at 151 feet (46 meters);
- 2,304 lbs/day of CO at 151 feet (46 meters);
- 33.83 lbs/day of PM₁₀ at 151 feet (46 meters); and
- 10.33 lbs/day of PM_{2.5} at 151 feet (46 meters).

4.3.5 Less than Significant Impacts

The following impacts were determined to be less than significant. For each of the following issues either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards and policies would reduce potential impacts to a less than significant level.

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4.3.5.1 Air Quality Plan Management Plan Consistency

Threshold	Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?
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The current regional air quality management plan is the *Final 2007 Air Quality Management Plan* adopted by the SCAQMD on June 1, 2007. The Final 2007 AQMP proposes attainment demonstration of the Federal PM_{2.5} standards through a more focused control of SO_x, directly-emitted PM_{2.5}, and NO_x supplemented with VOC by 2015. The 8-hour ozone control strategy builds upon the PM_{2.5} strategy, augmented with additional NO_x and VOC reductions to meet the standard by 2024 assuming a bump-up to the “extreme” nonattainment classification for ozone in the Basin is obtained; attainment demonstration can rely on emission reductions from measures that anticipate the development of new technologies or improvement of existing control technologies.

The Final 2007 AQMP proposes policies and measures currently contemplated by responsible agencies to achieve Federal standards for healthful air quality in the Basin and those portions of the SSAB that are under SCAQMD jurisdiction. This AQMP also addresses several Federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. This AQMP builds upon the approaches taken in the 2003 AQMP for the Basin for the attainment of the Federal ozone air quality standard.¹ The Basin is currently a Federal and State nonattainment area for PM₁₀, PM_{2.5}, and ozone.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD’s *CEQA Air Quality Handbook*² and are described below.

- Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

As described in the AQIA, the proposed project may temporarily exceed the short-term construction standards for localized PM₁₀ and PM_{2.5} emissions before implementation of dust attenuation. However, with implementation of dust attenuation measures as required by SCAQMD Rule 403 and implementation of **Mitigation Measures 4.3.6.12A** through **4.3.6.1C**, PM₁₀ and PM_{2.5} emissions will not exceed the established threshold and a less than significant impact would occur (see Sections 4.3.5.2 and 4.3.6.1). However, construction emissions of NO_x would remain above the thresholds, resulting in a significant and unavoidable impact.

For operational activities, the proposed project will exceed the regional operational thresholds established by the SCAQMD, and in so doing has the potential to violate the State standards. Operational emissions will be generated in excess of the SCAQMD’s regional threshold criteria even with implementation of **Mitigation Measures 4.3.6.4A** and **4.3.6.4B**. However, these emissions are accounted for in the AQMP since the future urban land uses associated with the prior iteration of the proposed project (1,185 total residential dwelling units with 392 dwelling units age restricted; 628,000 square feet of commercial building area) were provided to the SCAG as part of the RTP. Therefore the proposed project is consistent with the first criterion.

- Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP in 2011 or increments based on the years of project build-out phase.

¹ *Final 2007 Air Quality Management Plan*, South Coast Air Quality Management District, June 1, 2007.

² *CEQA Air Quality Handbook*, South Coast Air Quality Management District, November 1993.

To assess the environmental impacts as a result of new development accurately, environmental pollution and population growth are projected by the SCAQMD in the AQMP for future scenarios. The AQMP projections are based, in part, on the growth forecasts and General Plans from cities and counties located in the Basin. As the Growth Management Chapter of the SCAG's Regional Comprehensive Plan and Guide (RCPG) forms the basis of the land use and transportation control portions of the AQMP, projects that are consistent with the projections of employment and population forecasts identified in the Growth Management Chapter are considered consistent with the AQMP growth projections. A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. It fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans. Projects that propose general plan amendments and changes of zone may increase the intensity of use and/or result in higher traffic volumes, thereby resulting in increased stationary area source emissions and/or vehicle source emissions when compared to the AQMP assumptions.

Implementation of the proposed project would require a General Plan Amendment and Zone Change that would change the General Plan and zoning designations of the project site from Agriculture – Future Urban Uses to Low-, Medium-, and High-Density Residential, General Commercial, Mixed Use I and II, Parks, and Open Space. However, the growth forecasts contained in the RTP are based on the future land use assumptions for the proposed project site as provided to the SCAG during its coordination with the City. These same data are used by the SCAQMD in its development of the regional AQMP. For this reason, the proposed project is consistent with the AQMP; therefore, no significant impact would occur and no mitigation measures are required.

4.3.5.2 Fugitive Dust Emissions

Threshold	<p>Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation?</p> <p>For construction operations, the applicable daily thresholds are:</p> <ul style="list-style-type: none"> - 75 pounds per day of ROC; - 100 pounds per day of NO_x; - 550 pounds per day of CO; - 150 pounds per day of PM₁₀; - 150 pounds per day of SO_x; and - 55 pounds per day of PM_{2.5}.
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Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, and cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. Fugitive dust emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. The proposed project will be required to comply with SCAQMD Rules 402 and 403 to control fugitive dust. There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM₁₀ emissions from construction.

Projected emissions resulting from grading and construction activities for the proposed project are identified in Table 4.3.G, which identifies the estimated maximum daily construction emissions over the course of project construction. This analysis assumes a worst-case construction scenario (i.e., construction will begin no earlier than 2011).

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Table 4.3.G: Maximum Daily Unmitigated Emissions from Overall Construction

Year	Pollutant Emissions (lbs/day)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
2011	122.26	26.62	217.35	0.20	44.92	24.32
2012	148.22	62.68	98.86	0.26	25.22	5.93
2013	137.62	61.22	88.98	0.26	24.78	5.49
2014	128.32	59.91	81.67	0.26	24.36	5.07
2015	119.47	42.60	74.42	0.26	23.64	4.68
2016	113.36	41.64	67.88	0.26	23.64	4.35
2017	106.40	40.67	62.15	0.26	23.31	4.02
2018	100.25	39.79	57.00	0.26	23.01	3.07
2019	95.08	39.05	52.51	0.26	22.74	2.80
Maximum Daily Emissions	148.22	62.68	217.35	0.26	44.92	24.32
SCAQMD Threshold	550	75	100	150	150	55
Exceeds Threshold?	No	No	Yes	No	No	No

CO = carbon monoxide
CO₂ = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size
VOC = volatile organic compounds
SO_x = sulfur oxides
SCAQMD = South Coast Air Quality Management District

Source: Urban Crossroads, Inc., May 2011.

As identified in Table 4.3.G, fugitive dust emissions (i.e., PM₁₀ and PM_{2.5}) during the anticipated peak construction day for the proposed project would not exceed SCAQMD daily construction thresholds. The values presented in table 4.3.G represent emissions that would occur without mitigation and without the benefit of SCAQMD standard air pollution reduction measures.

The proposed project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires implementation of dust-suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component). Compliance with these rules would reduce impacts on nearby sensitive receptors. The applicable Rule 403 measures are as follows:

- All clearing, grading, earthmoving, or excavation activities shall cease when winds exceed 25 miles per hour per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the project are watered at least three times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and project site areas are reduced to 15 miles per hour or less to reduce fugitive dust haul road emissions.

As evidenced in Table 4.3.G, with adherence to applicable dust suppression techniques identified above, the proposed project would not exceed SCAQMD thresholds for fugitive dust. Because the

construction of the proposed project would not exceed SCAQMD thresholds for PM₁₀ and PM_{2.5}, a less than significant impact would occur and no mitigation is required.

4.3.5.3 Odors

Threshold	Would the proposed project create objectionable odors affecting a substantial number of people?
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SCAQMD Rule 402 dictates that air discharged from any source shall not cause injury, nuisance, or annoyance to the health, safety, or comfort of the public. With the exception of short-term construction-related odors (e.g., equipment exhaust and asphalt odors), the proposed uses that would be developed on the proposed site do not include uses that are generally considered to generate offensive odors (e.g., agricultural uses, wastewater treatment plants, or landfills). While the application of architectural coatings and installation of asphalt may generate odors, these odors are temporary and not likely to be noticeable beyond the project boundaries. SCAQMD Rules 1108 and 1113 identify standards regarding the application of asphalt and architectural coatings, respectively. Adherence to applicable provisions of these rules is standard for all development within the Basin. In addition, conditions for the design of waste storage areas on the proposed site would be established through the permit process to ensure enclosures are appropriately designed and maintained to prevent the proliferation of odors. Solid waste generated by the proposed on-site uses will be collected by a contracted waste hauler, ensuring that any odors resulting from on-site uses would be adequately managed. Therefore, impacts associated with this issue would be less than significant and no mitigation is required.

4.3.5.4 Long-Term Microscale (CO Hot Spot) Emissions

Threshold	Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation? For CO, the applicable thresholds are: <ul style="list-style-type: none">- California State one-hour CO standard of 20.0 ppm; and- California State eight-hour CO standard of 9.0 ppm.
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Vehicular trips associated with the implementation of the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase in local areas as a result of the proposed project. The primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthful levels affecting local sensitive receptors (residents, schoolchildren, etc).

High CO concentrations are typically associated with roadways or intersections operating at unacceptable levels of service or with very high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate project vicinity are not available. Ambient CO levels monitored at the Metropolitan Riverside County Station, the closest station with monitored CO data, showed a highest recorded 1-hour concentration of 5.1 ppm (State standard is 20 ppm) and a highest 8-hour concentration of 3.0 ppm (State standard is 9 ppm).

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The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. Based on the Traffic Impact Analysis,¹ CO hotspot analyses were conducted for future cumulative conditions. The impact on local CO levels was assessed with the CARB-approved CALINE4 air quality model, which allows microscale CO concentrations to be estimated along roadway corridors or near intersections. This model is designed to identify localized concentrations of CO, often termed “hot spots.” A brief discussion of input to the CALINE4 model follows. The analysis was performed for the worst-case wind angle and wind speed condition and is based upon the following assumptions:

- Selected modeling locations represent the highest volumes for the a.m. and p.m. peak hours.
- The calculations assume a meteorological condition of almost no wind (0.5 m/second), a suburban topographical condition between the source and receptor, and a mixing height of 1,000 m, representing a worst-case scenario for CO concentrations.
- CO concentrations are calculated for the 1-hour averaging period and then compared to the 1-hour standards. CO 8-hour averages are extrapolated using techniques outlined in the SCAQMD *CEQA Air Quality Handbook* (updated April 1993) and compared to the 8-hour standards; a persistence factor of 0.7 was used to predict the 8-hour concentration.
- Concentrations are given in parts per million at each of the receptor locations.

Tables 4.3.H and 4.3.I provide the future year 2014 and the future year 2019 CO concentration levels (with project) for intersections with the highest traffic volumes based on the traffic study prepared for the proposed project. It bears noting that CO concentrations are lower in 2019 in comparison to 2014. Although traffic volumes increase from 2014 to 2019, vehicular emission factors for 2019 are significantly lower than the vehicular emission factors for 2014. The main reason is the annual turnover of the vehicle fleet in which new vehicles with new emission controls replace older vehicles. Both of these factors are inherent in the air pollution emission forecasts. Appendix D provides the specific assumptions used in developing these CO concentration levels and the model printouts.

Table 4.3.H: Future Year (2014) CO Concentrations With the Project

Intersection	AM/PM With Project 1-Hour CO Concentration (ppm)	With Project 8- Hour Average CO Concentration (ppm)	Project Related Increase 1-hr (AM/PM)/8-hr (ppm)	Exceeds State Standards	
				1-Hr	8-Hr
I-15 Southbound Ramps and Cajalco Road	6.00/6.30	3.91	(0.90/1.20)/ 0.91	No	No
I-15 Northbound Ramps and Cajalco Road	6.10/6.20	3.84	(1.00/1.10)/ 0.84	No	No
Temescal Canyon and Cajalco Road	6.40/6.00	3.98	(1.30/0.90)/ 0.98	No	No

Includes ambient one-hour concentration of 5.1 ppm and ambient eight-hour concentration of 3.0 ppm. Measured at the Metropolitan Riverside County Monitoring Station in Riverside County.

CO = carbon monoxide

Hr = hour

ppm = parts per million

Source: Urban Crossroads, Inc., May 31, 2011.

¹ Arantine Hills Specific Plan Traffic Impact Analysis, Urban Crossroads, Inc., May 31, 2011.

Table 4.3.I: Future Year (2019) CO Concentrations With the Project

Intersection	With Project 1-Hour CO Concentration (ppm)	With Project 8- Hour Average CO Concentration (ppm)	Project Related Increase 1-hr(AM/PM)/8-hr (ppm)	Exceeds State Standards	
				1-Hr	8-Hr
I-15 Southbound Ramps and Cajalco Road	5.90/6.30	3.91	(0.80/1.20)/ 0.91	No	No
I-15 Northbound Ramps and Cajalco Road	5.90/6.20	3.84	(0.80/1.10)/ 0.84	No	No
Temescal Canyon and Cajalco Road	6.00/5.70	3.70	(0.90/0.60)/ 0.70	No	No

Includes ambient one-hour concentration of 5.1 ppm and ambient eight-hour concentration of 3.0 ppm. Measured at the Metropolitan Riverside County Monitoring Station in Riverside County.

CO = carbon monoxide

Hr = hour

ppm = parts per million

Source: Urban Crossroads, Inc., May 31, 2011.

As identified in Tables 4.3.H and 4.3.I, under the future conditions with the project, the intersections analyzed for the daily peak hour would experience 1-hour and 8-hour CO concentrations below the Federal and State standards. The proposed project would contribute at most a 1.3 ppm increase and a 0.90 ppm increase to the 1-hour and 8-hour CO concentrations, respectively. Because exceedance of the State or Federal 1-hour and 8-hour concentrations would not occur, no CO hot spots would result from the potential future development of the proposed project. Therefore, no impacts associated with this issue would occur and no mitigation is required.

4.3.6 Significant Impacts

The following impacts were determined to be potentially significant. To the extent feasible, mitigation measures have been recommended to reduce the significance of the identified impacts. However, even with the implementation of mitigation, some impacts cannot be reduced to less than significant and result in a significant and unavoidable impact.

4.3.6.1 Construction Equipment Exhaust Emissions

Impact 4.3.6.1: *Construction of the proposed project has the potential to exceed applicable daily thresholds that may affect sensitive receptors.*

Threshold	<p>Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?</p> <p>For construction operations, the applicable daily thresholds are:</p> <ul style="list-style-type: none"> - 75 pounds per day of ROC; - 100 pounds per day of NO_x; - 550 pounds per day of CO; - 150 pounds per day of PM₁₀; - 150 pounds per day of SO_x; and - 55 pounds per day of PM_{2.5}.
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Grading and other construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from

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the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions during these construction activities will vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Activity during peak grading days typically generates a greater amount of air pollutants than other project construction activity.

While the details of the future construction schedule are not known, it is expected that project construction would occur in four phases: 1) rough grading, which includes mass site grading; 2) infrastructure construction, which includes underground construction, curb, gutter, sidewalk, subgrade preparation, drop rock, and paving activities; 3) asphalt paving; and 4) building construction and painting. Appendix D includes details of the emission factors and other assumptions.

Projected emissions resulting from grading and construction activities for the proposed project are identified in previously referenced Table 4.3.G, which identifies the estimated maximum daily construction emissions over the course of project construction. This analysis assumes a worst-case construction scenario (i.e., construction will begin no earlier than 2011).

As identified in previously referenced Table 4.3.G, construction equipment exhaust emissions during the anticipated peak construction day for the proposed project would exceed SCAQMD daily construction thresholds for NO_x . This is a significant impact requiring mitigation. The following mitigation measures have been identified to reduce NO_x emission impacts.

Mitigation Measures. The following measures have been identified to reduce potential construction exhaust emission impacts associated with NO_x :

- 4.3.6.1A** Prior to the issuance of a grading permit, the project developer shall require by contract specifications that contractors shall place construction equipment staging areas at least 200 feet away from sensitive receptors. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.
- 4.3.6.1B** Prior to the issuance of a grading permit, the project developer shall require by contract specifications that contractors shall utilize power sources (e.g., power poles) or clean-fuel generators. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.
- 4.3.6.1C** Prior to the issuance of a grading permit, the project developer shall require by contract specifications that contractors shall utilize California Air Resources Board (CARB) Tier II Certified equipment or better during the rough/mass grading phase for the following pieces of equipment: rubber-tired dozers and scrapers. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.

Level of Significance After Mitigation. The selection of a 200-foot buffer between project construction equipment and sensitive receptors represents a best management practice to reduce localized dust impacts to receptors, since dust settles out in close proximity to the source of grading. The implementation of CARB Tier 2 Certified or better equipment would reduce PM_{10} and $\text{PM}_{2.5}$ emissions that would otherwise result from off-road equipment in use (e.g., dozers, motor graders, loaders, and excavators); however, emissions of these criteria pollutants do not exceed established SCAQMD thresholds during construction. It is not possible to quantify the reduction in the amount of NO_x emissions that may occur. During project construction, it is not known specifically what type of on-site equipment will be used (e.g., gasoline- or diesel-powered) therefore, no additional reduction in NO_x emissions was taken. No other feasible mitigation measures have been identified to reduce the

construction emissions of NO_x to a less than significant level. Project-related construction emissions of NO_x will continue to exceed thresholds. In the absence of feasible mitigation to reduce the proposed project's emission of NO_x to below SCAQMD thresholds, potential air quality impacts resulting from exhaust from construction equipment will remain significant and unavoidable. See Table 4.3.J.

Table 4.3.J: Maximum Daily Mitigated Emissions from Overall Construction

Year	Pollutant Emissions (lbs/day)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
2011	122.26	26.62	217.35	0.20	24.61	16.25
2012	148.22	62.68	98.86	0.26	25.22	5.93
2013	137.62	61.22	88.98	0.26	24.78	5.49
2014	128.32	59.91	81.67	0.26	24.36	5.07
2015	119.47	42.60	74.42	0.26	23.64	4.68
2016	113.36	41.64	67.88	0.26	23.64	4.35
2017	106.40	40.67	62.15	0.26	23.31	4.02
2018	100.25	39.79	57.00	0.26	23.01	3.07
2019	95.08	39.05	52.51	0.26	22.74	2.80
Maximum Daily Emissions	148.22	62.68	217.35	0.26	25.22	16.25
SCAQMD Threshold	550	75	100	150	150	55
Exceeds Threshold?	No	No	Yes	No	No	No

CO = carbon monoxide
CO₂ = carbon dioxide
lbs/day = pounds per day
NO_x = nitrogen oxides
PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size
VOC = volatile organic compounds
SO_x = sulfur oxides
SCAQMD = South Coast Air Quality Management District

Source: Urban Crossroads, Inc., May 2011.

4.3.6.2 Localized Construction Emissions

Impact 4.3.6.2: *Construction of the proposed project has the potential to exceed applicable localized significance thresholds that may affect sensitive receptors.*

Threshold	<p>Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation; or expose sensitive receptors to pollutants?</p> <p>For short-term construction, the applicable localized daily thresholds at 50 meters are:</p> <ul style="list-style-type: none"> - 2,304 pounds per day of CO; - 285 pounds per day of NO_x; - 33.83 pounds per day of PM₁₀; and - 10.33 pounds per day of PM_{2.5}.
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The SCAQMD has developed an LST methodology that can be used to determine whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standard. These emission levels have been developed based on the ambient concentrations of that pollutant for each source receptor area. The emissions of concern from construction activities are NO_x and CO combustion emissions from construction equipment and fugitive PM₁₀ and PM_{2.5} dust from construction site preparation activities.

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For the proposed project, the appropriate Source Receptor Area (SRA) is the Norco/Corona area (SRA 22). This analysis is based upon the maximum acreage disturbed during the peak construction activity (i.e., site preparation/mass grading). The maximum acreage disturbed during the peak construction activity is 7.5 acres. In order to estimate localized pollutant concentrations resulting from project construction, the SCAQMD-approved Industrial Source Complex – Short Term (ISCST3) dispersion model was utilized. Refer to Appendix D for the detailed modeling approach utilized in this analysis. As previously identified, emissions of PM₁₀ and PM_{2.5} exceed localized thresholds for construction activity; however, CO and NO_x emissions are within acceptable limits. As such, dispersion modeling is required to determine PM₁₀ and PM_{2.5} impacts only.

Table 4.3.K summarizes the results of the modeled PM₁₀ and PM_{2.5} localized emissions during peak construction activity. Results indicate that emissions of PM₁₀ would exceed localized thresholds for construction activity. This is a significant impact requiring mitigation.

Table 4.3.K: Modeled Localized Construction Impacts (Without Mitigation)

	PM ₁₀	PM _{2.5}
Modeled Peak Emissions	11.25 µg/m ³	6.54 µg/m ³
SCAQMD Threshold	10.4 µg/m ³	10.4 µg/m ³
Significant?	YES	NO

Source: Urban Crossroads, Inc., May 2011.

Mitigation Measures. Previously identified **Mitigation Measures 4.3.6.1A** through **4.3.6.1C** would reduce short-term localized construction emissions of PM₁₀ and PM_{2.5}.

Level of Significance after Mitigation. The implementation of CARB Tier 2 Certified or better equipment would reduce PM₁₀ and PM_{2.5} emissions that would otherwise result from off-road equipment in use (e.g., dozers, motor graders, loaders, and excavators). Implementation of these mitigation measures would reduce PM₁₀ and PM_{2.5} emissions by an estimated 50 percent. Table 4.3.L summarizes the reduction in emissions with implementation of the identified mitigation measures.

Table 4.3.L: Modeled Localized Construction Impacts (With Mitigation)

	PM ₁₀	PM _{2.5}
Modeled Peak Emissions	6.40 µg/m ³	4.38 µg/m ³
SCAQMD Threshold	10.4 µg/m ³	10.4 µg/m ³
Significant?	NO	NO

Source: Urban Crossroads, Inc., May 2011.

As summarized in Table 4.3.L, PM₁₀ emissions are reduced to below SCAQMD LST thresholds with implementation of mitigation. Adherence to **Mitigation Measures 4.3.6.1A** through **4.3.6.21** would reduce short-term localized construction emissions of PM₁₀ and PM_{2.5} to a less than significant level.

4.3.6.3 Architectural Coatings

Impact 4.3.6.3: *Construction of the proposed project has the potential to exceed applicable significance thresholds for VOC emissions during application of architectural coatings during construction.*

Threshold	Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation?
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For construction operations, the applicable daily thresholds are:

- 75 pounds per day of ROC;
- 100 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM₁₀;
- 150 pounds per day of SO_x; and
- 55 pounds per day of PM_{2.5}.

Architectural coatings contain volatile organic compounds (VOC) that are similar to ROC and are part of the O₃ precursors. The application of architectural surface coatings (painting) generates VOC emissions when organic solvents in the coating evaporate as the coating dries. At this stage of project planning, no detailed architectural coatings information is available. Compliance with the SCAQMD Rule 1113 on the use of architectural coatings is required. The purpose of SCAQMD Rule 1113 is to limit the VOC content of architectural coatings used in the Basin or to allow the averaging of such coatings, as specified, so their actual emissions do not exceed the allowable emissions if all the averaged coatings had complied with the specified limits. An estimate was made using the project description information and the SCAQMD CalEEMod model. The model predicts a maximum VOC emissions rate of 62.68 lbs/day (previously referenced Table 4.3.G). This level is below the SCAQMD daily threshold of 75 pounds per day. Short-term impacts to air quality from architectural coating application would not exceed the SCAQMD emission threshold assuming compliance with SCAQMD Rule 1113.

Emissions associated with architectural coatings could be reduced by using precoated/natural-colored building materials, using water-based or low-VOC coating, and using coating transfer or spray equipment with high transfer efficiency consistent with Rule 1113. For example, standard coating application actions currently utilized with the Basin consist of using a high-volume, low-pressure (HVLP) spray method operated at air pressure between 0.1 and 10 pounds per square inch gauge (psig), with 65 percent transfer efficiency. Manual applications such as paintbrush, hand roller, trowel, spatula, dauber, rag, or sponge have 100 percent transfer efficiency. The use of an HVLP spray method would increase the transfer efficiency from 25 to 65 percent. Consistent with SCAQMD Rule 1113, the project applicant shall use "Zero-Volatile Organic Compounds" paints (no more than 150 grams grams/liter of VOC) and/or HPLV applications.

As shown in previously referenced Table 4.3.G, VOC emissions were determined to be less than the SCAQMD significance threshold. However, the City has no assurance that Rule 1113 measures, such as use of HVLP sprayers, will be utilized during the application of architectural coatings. This is a significant impact requiring mitigation.

Mitigation Measure. Mitigation identified to reduce the level of emissions of VOC during construction activities is identified below.

4.3.6.3A Prior to the issuance of each building permit, the project applicant shall require by contract specifications that architectural coatings require the use of either HVLP spraying equipment or manual application techniques to apply architectural coatings. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City.

Level of Significance After Mitigation. The construction emissions estimates summarized in Table 4.3.G have incorporated the HVLP spray method during the construction phase. With implementation

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of **Mitigation Measure 4.3.6.3A**, project-related short-term construction emissions of VOC would be reduced to a less than significant level.

4.3.6.4 Long-Term Operational Emissions

Impact 4.3.6.4: *Implementation of the proposed project may have the potential to exceed applicable daily thresholds for operational activities.*

Threshold	<p>Would the proposed project violate any AAQS or contribute to an existing or projected air quality violation?</p> <p>For long-term operations, the applicable daily thresholds are:</p> <ul style="list-style-type: none"> - 55 pounds of ROC; - 55 pounds of NO_x; - 550 pounds of CO; - 150 pounds of PM₁₀; - 55 pounds of PM_{2.5}; and - 150 pounds of SO_x.
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Long-term air pollutant emission impacts that would result from the proposed project are those associated with stationary sources and mobile sources involving any project-related change (e.g., emissions from landscape maintenance activities and other facility maintenance operations and the use of motor vehicles by project-generated traffic). The analysis assesses the mobile source emissions generated by vehicles driving to and from the proposed land uses, as well as area source emissions generated by project maintenance operations.

Projected emissions resulting from operational activities of the proposed project are identified in Table 4.3.M. The values presented in table 4.3.M represent emissions that would occur without mitigation and without the benefit of project design features.

As identified in Table 4.3.M, operational emissions for the proposed project would exceed SCAQMD daily operational thresholds for CO, VOC, NO_x, and PM₁₀. Therefore, project-related long-term air quality impacts for CO, ROG, NO_x, and PM₁₀ would be significant and mitigation measures are required.

Table 4.3.M: Summary of Operational Emissions (Without Mitigation)

Source	Pollutant Emissions, lbs/day					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Phase I (2014)						
Area Source Emissions ¹	77.69	32.72	0.92	0	1.63	1.61
Energy Source Emissions ²	3.09	0.84	7.16	0.05	0.58	0.58
Mobile Emissions ³	538.85	51.00	130.04	0.84	95.15	8.22
Maximum Daily Emissions	619.63	84.56	138.12	0.89	97.36	10.48
SCAQMD Thresholds	550	55	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Phase I & II (2019)						
Area Source Emissions ¹	136.16	65.96	1.57	0.01	2.92	2.89
Energy Source Emissions ²	5.65	1.51	12.95	0.08	1.05	1.05
Mobile Emissions ³	1,148.32	120.94	281.17	2.48	272.73	16.26

Table 4.3.M: Summary of Operational Emissions (Without Mitigation)

Source	Pollutant Emissions, lbs/day					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Maximum Daily Emissions	1,290.13	188.41	295.69	2.57	276.70	20.20
SCAQMD Thresholds	550	55	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	No

Notes:

1 = Includes emissions of landscape maintenance equipment, consumer products, and architectural coatings emissions.

2 = Includes emissions of natural gas consumption.

3 = Includes emissions of vehicle emissions and fugitive dust related to vehicular traffic.

CO = carbon monoxide

PM₁₀ = particulate matter less than 10 microns in size

lbs/day = pounds per day

VOC = volatile organic compounds

NO_x = nitrogen oxides

SO_x = sulfur oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

Source: Urban Crossroads, Inc., May 2011.

Mitigation Measures. The following measures have been identified to reduce operational emissions of CO, VOC, NO_x, and PM₁₀:

4.3.6.4A

Prior to issuance of each building permit associated with the Specific Plan, building and site plan designs shall ensure that the project's energy efficiencies surpass applicable 2008 California Title 24, Part 6 Energy Efficiency Standards by a minimum of 20 percent. Verification of increased energy efficiencies shall be documented in Title 24 Compliance Reports provided by the Applicant, and reviewed and approved by the City. Any combination of the following design features may be used to fulfill this requirement provided that the total increase in energy efficiency meets or exceeds 20 percent:

- Exceed 2008 California Title 24 Energy Efficiency performance standards for water heating and space heating and cooling.
- Increase in insulation such that heat transfer and thermal bridging is minimized.
- Limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption.
- Incorporate dual-paned or other energy efficient windows.
- Incorporate energy efficient space heating and cooling equipment.
- Install interior and exterior energy efficient lighting which exceeds the 2008 California Title 24 Energy Efficiency performance standards including but not limited to automatic devices to turn off lights when they are not needed.
- To the extent that they are compatible with landscaping guidelines established by the City, include shade-producing trees, particularly those that shade paved surfaces such as streets and parking lots and buildings, within the project site.
- Use light and off-white colors in the paint and surface color palette for project buildings to reflect heat away.
- All buildings shall be designed to accommodate renewable energy sources, such as photovoltaic solar electricity systems, appropriate to their architectural design.

4.3.6.4B

Prior to issuance of each building permit associated with the Specific Plan, the following design features shall be implemented to reduce energy demand associated with potable water conveyance:

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- Landscaping palette emphasizing drought-tolerant plants;
- Use of water-efficient irrigation techniques; and,
- U.S. EPA Certified WaterSense labeled for equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads.

Table 4.3.N: Summary of Operational Emissions (With Mitigation)

Source	Pollutant Emissions, lbs/day					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Phase I (2014)						
Area Source Emissions ¹	77.69	32.72	0.92	0	1.63	1.61
Energy Source Emissions ²	2.55	0.69	5.92	0.04	0.48	0.48
Mobile Emissions ³	534.41	50.70	129.03	0.83	94.20	8.21
Maximum Daily Emissions	614.65	84.11	135.87	0.87	96.31	10.30
SCAQMD Thresholds	550	55	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Phase I & II (2019)						
Area Source Emissions ¹	136.16	65.96	1.57	0.01	2.92	2.89
Energy Source Emissions ²	4.68	1.25	10.71	0.07	0.86	0.86
Mobile Emissions ³	1,139.12	120.28	279.38	2.45	270.01	16.11
Maximum Daily Emissions	1,279.96	187.49	291.66	2.53	273.79	19.86
SCAQMD Thresholds	550	55	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	No

Notes:

1 = Includes emissions of landscape maintenance equipment, consumer products, and architectural coatings emissions.

2 = Includes emissions of natural gas consumption.

3 = Includes emissions of vehicle emissions and fugitive dust related to vehicular traffic.

CO = carbon monoxide

lbs/day = pounds per day

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

Source: Urban Crossroads, Inc., May 2011.

PM₁₀ = particulate matter less than 10 microns in size

VOC = volatile organic compounds

SO_x = sulfur oxides

Level of Significance after Mitigation. As identified in Table 4.3.N, operational emissions of CO, VOC, NO_x, and PM₁₀ cannot be effectively reduced to a level below SCAQMD thresholds. Despite implementation of mitigation measures, emissions of CO, VOC, NO_x, and PM₁₀ would still exceed SCAQMD significance thresholds resulting in a significant and unavoidable operational air quality impact.

It is important to note that Sections 5 and 7.5 of the Specific Plan includes programs and strategies that will result in physical design features that will act to reduce operational-source air pollutant emissions. These programs and strategies are consistent with **Mitigation Measures 4.3.6.4A** and **4.3.6.4B**.

Programmed Circulation Plans. At a program level, the Specific Plan includes Pedestrian Circulation (see Specific Plan Section 5.1.4 and Exhibit 5.6) and Bicycle Circulation (see Specific Plan Section 5.1.5 and Exhibit 5.7) Plans intended to provide for alternative modes of travel by providing other transportation options. These alternatives modes of travel will reduce vehicle related air pollutant emissions resulting in a healthier environment.

Sustainable Design Strategies. At a strategic level, the Specific Plan also includes Sustainable Design Strategies (see Specific Plan Section 7.5) addressing site planning, energy efficiency, materials efficiency, water efficiency, occupant health and safety, and landscape design. These strategies will reduce operational source air pollutant emissions and include the following:

Site Planning

- A. Provide physical linkages between land uses that promote walking and bicycling, and provide alternatives to automobile use.
- B. Encourage compact development that concentrates residential areas close to other land uses such as parks, retail, and employment centers.
- C. Include a range of housing types and/or densities within Arantine Hills.
- D. Create an interconnected street network within the Specific Plan area that facilitates movement of vehicles, cyclists, and pedestrians.
- E. Incorporate “green” practices in developing buildings and infrastructure.
- F. Encourage design of landscape areas that capture and direct stormwater runoff, particularly in open space, parks, and trails.
- G. Stabilize slopes to limit erosion as part of the Stormwater Management Plan and erosion control plan.
- H. Minimize the amount of paved areas for roads, parking, and patios, particularly in residential areas where feasible, or consider using porous or permeable pavement.

Energy Efficiency

Most buildings can reach energy efficiency levels that exceed California Title 24 standards, yet most only strive to meet the standard. It is reasonable to strive for energy reduction in excess of that required by Title 24 standards. Where feasible and appropriate, the following strategies are encouraged, but not required:

- A. Passive design strategies can dramatically affect building energy performance. These measures include building shape and orientation, passive solar design, and the use of natural lighting.
- B. Develop strategies to provide natural lighting to reduce reliance on artificial lighting.
- C. Incorporate the use of Low-E windows or use EnergyStar windows.
- D. Install high-efficiency lighting systems with advanced lighting controls. For non-residential buildings, include motion sensors tied to dimmable lighting controls. Task lighting reduces general overhead light levels.
- E. Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider utilizing light colors for roofing and wall finish materials; install high R-value wall and ceiling insulation.
- F. Individual developments within Arantine Hills are encouraged to implement some of the strategies of the EnergyStar program, which is an energy performance rating system developed by the U.S. Department of Energy and the Environmental Protection Agency. The program certifies products and buildings that meet strict energy-efficiency guidelines. Involvement in the EnergyStar program will be completely optional at the discretion of each individual developer/builder.
- G. For retail, commercial, office, research and development, and light industrial uses, promote the use of light-colored roofing with a high solar reflectance in order to reduce the heat island effect from roofs.
- H. In retail, commercial and office developments, provide a limited number of preferred parking spaces for hybrid vehicles, fuel cell vehicles, electric vehicles and other fuel efficient vehicles.

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Materials Efficiency

- A. Select sustainable construction materials and products by evaluating characteristics such as reused and recycled content, zero or low off gassing of harmful air emissions, zero or low toxicity, sustainably harvested materials, high recyclability, durability, longevity, and local production. Such products promote resource conservation and efficiency. Using recycled-content products also helps develop markets for recycled materials that are being diverted from California's landfills, as mandated by the Integrated Waste Management Act.
- B. Encourage the use of low VOC paints and wallpapers.
- C. Encourage the use of low VOC Green Label carpet.
- D. Use dimensional planning and other material efficiency strategies. These strategies reduce the amount of building materials needed and cut construction costs. For example, consider designing rooms on four foot multiples to conform to standard-sized wallboard and plywood sheets.
- E. Consider using recycle base, crushed concrete base, recycle content asphalt, shredded tires in base and asphalt in roads, parking areas and drive aisles, if feasible and economically viable. Re-using materials keeps materials out of landfills and costs less.
- F. Design with adequate space to facilitate recycling collection and to incorporate a solid waste management program that prevents waste generation.
- G. Establish a construction waste recycling program with a local waste management company, with a goal of recycling no less than 50 percent of the construction waste generated by construction of the Arantine Hills community. Excavated soil and land-clearing debris does not contribute to this requirement.
- H. The waste disposal company shall be responsible for providing each home with recycle bin(s) to facilitate recycling. The bin(s) should be portable and easily moved.
- I. Encourage the use of building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project.
- J. Encourage the use of rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) into new homes. Examples of materials that could achieve this goal include, but are not limited to, bamboo, wool, cotton insulation, agrifiber, linoleum, wheatboard, strawboard and cork.

Water Efficiency

- A. Minimize wastewater by using ultra low-flush toilets, low-flow shower heads, and other water conserving fixtures.
- B. Use recirculating systems for centralized hot water distribution.
- C. Promote the use of tankless water heaters for residential, mixed-use, retail, commercial and office development within the Arantine Hills community.
- D. Use a smart irrigation controller that automatically adjusts the frequency and/or duration of irrigation events in response to changing weather conditions for all landscaped areas.
- E. Use micro-irrigation (which excludes sprinklers and high-pressure sprayers) to supply water in non-turf areas where applicable.
- F. Use state-of-the-art irrigation controllers and self-closing nozzles on hoses.
- G. Use recycled water to irrigate landscape areas throughout the project. The non-potable irrigation system shall be designed to meet all applicable standards of the California Regional Water Quality Control Board, California Department of Health, Riverside County Health Department, City of Corona Department of Water and Power, and Corona Municipal Code.

- H. Use separate valves for separate water-use planting areas, so that plants with similar water needs are irrigated by the same valve.

Occupant Health and Safety

- A. Choose construction materials and interior finish products with zero or low emissions to improve indoor air quality.
- B. Provide adequate ventilation and a high-efficiency, in-duct filtration system for commercial, office, research and development, and light industrial uses. Heating and cooling systems that ensure adequate ventilation and proper filtration can have a dramatic and positive impact on indoor air quality.
- C. Prevent indoor microbial contamination through selection of materials resistant to microbial growth.
- D. Provide effective drainage from the roof and surrounding landscape.
- E. Install adequate ventilation in bathrooms.
- F. Design non-residential building systems to control humidity.
- G. Establish criteria for the delivery and storage of absorptive materials, and the ventilation of spaces once the materials are installed to prevent mold.

Landscape Design

- A. Use low or medium water use and native plant materials where appropriate. Minimize turf areas throughout the community in order to promote water conservation. Limit the use of turf to areas which experience high functional use and are needed to accommodate outdoor activities such as sports, picnicking, etc. These areas could include parks, sports fields and other play areas. Only use warm-season turf varieties which are suited to the climate.
- B. Provide plant materials that are well suited to the solar orientation and shading of homes.
- C. Group plants according to water use, slope aspect and sun/shade requirements. Irrigate each hydrozone on a separate valve using high-efficiency irrigation techniques.
- D. Use organic wood or shredded bark mulch and soil amendments to retain soil moisture.
- E. Incorporate locally native vegetation into the plant palette for Arantine Hills.
- F. Encourage the use of colored hardscape materials to reduce glare and/or reflect heat in outdoor plazas and gathering areas.
- G. Use low-growing, low to medium water use plant material in parkways instead of turf.
- H. Provide shade trees in paved areas and adjacent to buildings in order to increase natural cooling and conserve energy.

As stated previously, the design strategies listed above from Section 7.5 of the Arantine Hills Specific Plan will be implemented through the design of the specific individual projects that will ensue from the Specific Plan and these programs and strategies are consistent with **Mitigation Measures 4.3.6.4A** and **4.3.6.4B**. Although these design strategies will reduce the air pollution emissions generated by the project, the benefit of the air pollution emissions reduction from the design strategies is difficult to quantify and therefore is not reflected in the emissions values contained in Table 4.3.N.

4.3.7 Cumulative Impacts

4.3.7.1 Short-Term Air Quality Impacts

The cumulative area for air quality impacts is the Basin. The implementation of the project would contribute criteria pollutants to the area during project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction would result in substantial short-term increases in air pollutants. However, each project would be required to comply with the SCAQMD's standard construction measures. Therefore, cumulative impacts associated with this issue would be less than significant.

4.3.7.2 CO Hot Spot Impacts

As indicated in Section 4.3.5.4, no significant CO hot spot impacts would occur. It is anticipated that CO emissions in the future will decrease with advances in technology. As previously identified, background concentrations in future years are anticipated to continue to decrease as the concerted effort to improve regional air quality progresses. Therefore, CO concentrations in the future years would generally be lower than existing conditions. Based on the analysis, because no CO hot spot impacts would occur, it is reasonable to assume that a less than significant cumulative CO impact would occur.

4.3.7.3 Long-Term Regional Air Quality Impacts

Previously identified Tables 4.3.M and 4.3.N indicate that the long-term operation of the project would contribute to long-term regional air pollutants despite implementation of mitigation measures. The Basin is in nonattainment for NO_x, PM₁₀, PM_{2.5}, and ozone at the present time; therefore, the operation of the proposed project would exacerbate nonattainment of air quality standards within the Basin and contribute to adverse cumulative air quality impacts. Implementation of the proposed project would unavoidably contribute to significant long-term cumulative air quality impacts.

4.4 BIOLOGICAL RESOURCES

This section discusses the potential impacts of development of the proposed project on biological resources. Information to evaluate and analyze the proposed project's impacts to biological resources is derived from the following references and studies:

- *General Biological Report*, Glen Lukos Associates, November 9, 2010 (EIR Appendix E-1), which includes;
- *Results of Nesting Season Focused Burrowing Owl (Athene cunicularia) Surveys for the 301-Acre Arantine Hills Project Study Area, City of Corona, Riverside County, California*, Glenn Lukos Associates, August 11, 2010.
- *Jurisdictional Delineation of the 274.8-Acre Arantine Hills Project Site, Located in the City of Corona, Riverside County, California*, Glen Lukos Associates, October 14, 2010.
- *Biological and Streambed/Jurisdictional Update; 276-Acre Project Footprint, Arantine Hills Specific Plan Project*, City of Corona, Riverside County, California.

In addition, the analysis contained in this section is based on the following reference documents:

- *Conservation Element*, City of Corona General Plan, adopted March 17, 2004.

For the purposes of this analysis, biological resources include the plants, wildlife, and habitat that occur, or have the potential to occur within the project's Biological Study Area (BSA). The BSA encompasses approximately 301 acres and includes the proposed project's approximately 276-acre footprint, in addition to a 150-meter buffer (to the maximum extent possible). The biological resource studies are based on surveys conducted from March to July 2010. A supplemental memo report was also prepared for the project providing acreages for the 276-acre project footprint.

4.4.1 Existing Setting

4.4.1.1 Topography and Soils

The proposed project site is located near the foothills of the Santa Ana Mountains and the natural topography is slightly sloping from the foothills southwest of the site towards Lake Mathews northeast of the site. As the site formerly supported a citrus orchard, the majority of the site is now a flat, fallow field that is disked on a regular basis. There is a canyon feature located along the eastern site boundary, Bedford Canyon, which supports primarily native habitats. Several drainages traverse the site and flow in a northeasterly direction toward Temescal Creek, which is located less than 0.5 mile northeast of the BSA. Elevations on site range from approximately 940 to 1,200 feet AMSL.

The soils on the proposed project site consist of Arbuckle gravelly loam, 8 to 15 percent slopes (AID), Cortina cobbly loamy sand, 2 to 8 percent slopes (CmC), Soper cobbly loam, 25 to 50 percent slopes, eroded (SuF2), Terrace escarpments (TeG), Arbuckle gravelly loam, 2 to 8 percent slopes (AIC), and Garretson gravelly very fine sandy loam, 2 to 8 percent slopes (GdC).

4.4.1.2 Vegetation

Vegetation throughout the proposed project site is composed primarily of ruderal vegetation dominated by non-native species such as species such as Russian thistle (*Salsola tragus*), tumbling pigweed (*Amaranthus albus*), tocalote (*Centaurea melitensis*), and shortpod mustard (*Hirschfeldia incana*). Less common vegetation communities within the BSA include disturbed/developed, nonnative grassland, ornamental/exotic, Riversidean sage scrub (RSS), disturbed RSS, encelia-dominated scrub, RSS/chaparral, mule fat scrub, willow trees, and unvegetated streambed. Dominant

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RSS species include California sagebrush (*Artemisia californica*), California encelia (*Encelia californica*), brittlebush (*Encelia farinosa*), and white sage (*Salvia apiana*). Dominant riparian species include mule fat (*Baccharis salicifolia*) and arroyo willow (*Salix lasiolepis*). Vegetation communities are depicted on an aerial photograph in Figure 4.4.1. Table 4.4.A provides a summary of vegetation communities and acreages occurring within the 276-acre project area.

Table 4.4.A: Acreages of Vegetation Communities within the Project Area

Vegetation/Land Use Type	Area (Acres)	Percentage of Total
Native Habitats		
Disturbed Riversidean sage Scrub	5.76	2.09
Encelia Dominated Scrub	1.94	0.70
Mule Fat Scrub	0.35	0.13
Riversidean Sage Scrub	11.82	4.28
Riversidean Sage Scrub/Chaparral	31.36	11.36
Unvegetated Streambed	3.76	1.36
Willow Trees	0.14	0.05
Total Native Habitats	55.13	19.98%
Non-Native Habitats		
Disturbed/Developed	10.47	3.79
Non-Native Grassland	4.43	1.61
Ornamental/Exotic	3.50	1.27
Ruderal Vegetation	202.44	73.35
Concrete Channel with Sediment and Riparian Habitat	0.01	0.00
Total Non-Native Habitats	220.85	80.02%
Total Vegetation/Land Use Acreage	275.98	100%

4.4.1.3 Wildlife

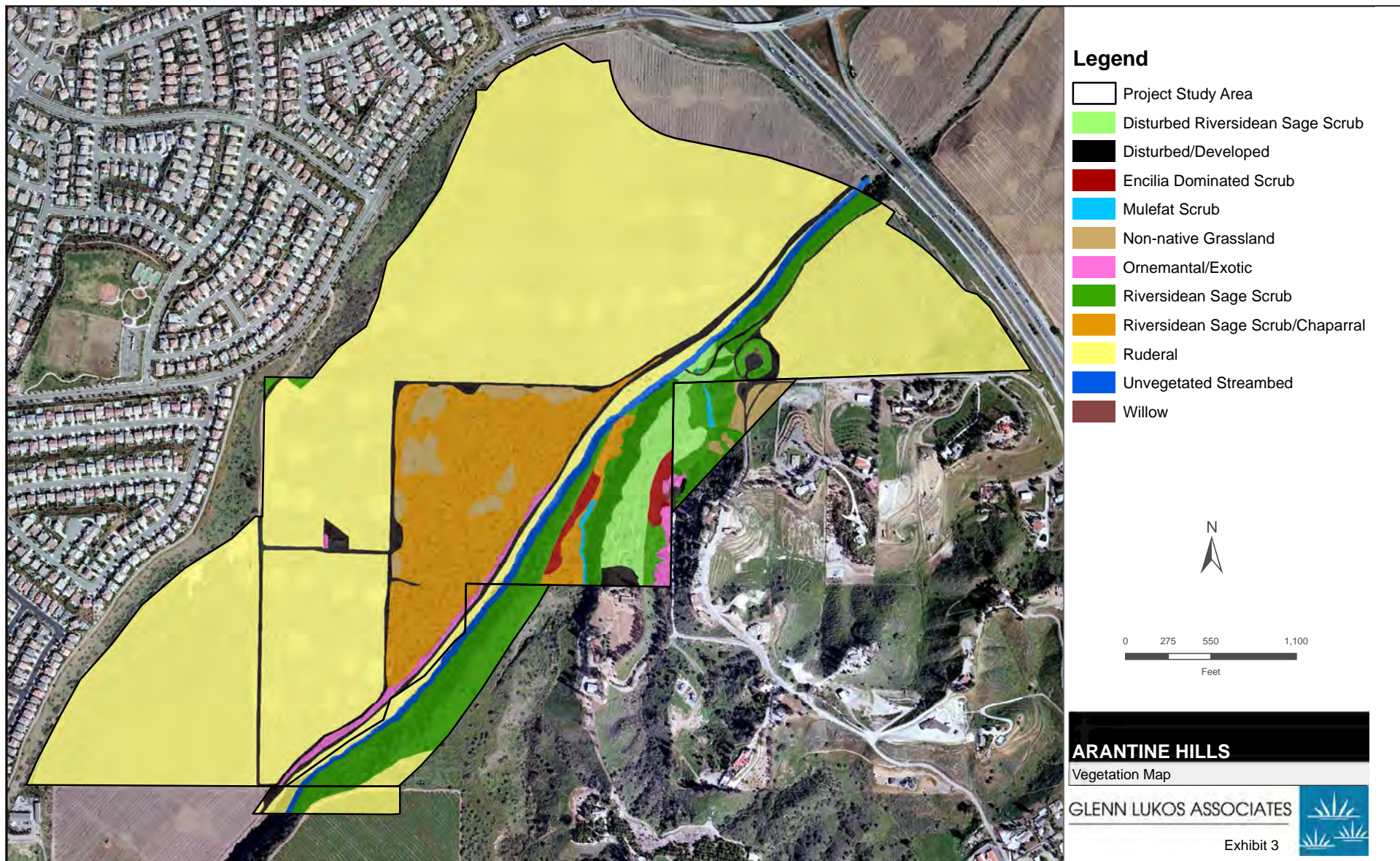
Common wildlife species observed within the proposed project site and on adjacent lands include western fence lizard (*Sceloporus occidentalis*), California quail (*Callipepla californica*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos*), common raven (*Corvus corax*), desert cottontail (*Sylvilagus audubonii*), and ground squirrel (*Spermophilus* sp.), among others.

4.4.1.4 Special-Status Biological Resources

Legal protection for sensitive species varies widely, from the comprehensive protection extended to listed threatened/endangered species to no legal status at present. The California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), local agencies, and special interest groups, such as the California Native Plant Society (CNPS), publish watch-lists of declining species. Also, recently published findings and preliminary results of ongoing research provide a basis for consideration of species that are candidates for state and/or federal listing.

The presence or likelihood of presence of sensitive species is based on the following criteria (in descending order, from species determined to be present to those considered potentially present):

- Direct observation of the species or its sign in the study area or immediate vicinity during surveys conducted for this study or reported in previous biological studies;



LSA

FIGURE 4-4-1

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Vegetation Coverage

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- Sighting by other qualified observers;
- Record reported by the California Natural Diversity Data Base (CNDDDB) published by CDFG; and
- Presence or location of specific species lists provided by private groups (e.g., CNPS).

Special-Status Wildlife. Sixty-two (62) special-status wildlife species were identified with the potential to occur in the larger project vicinity. Due to lack of suitable habitat elements within the BSA, forty-three (43) of the special-status wildlife species were determined to be absent from the BSA. Of the remaining nineteen (19) special-status wildlife species with a potential to occur within the BSA, twelve (12) have a low or moderate potential to occur within the Riversidean alluvial fan sage scrub habitat but were not observed during surveys. Ten of these species are Covered Species under the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and potential impacts to these are mitigated for by participation in the MSHCP. The remaining two species are rosy boa (*Charina trivirgata*) and western mastiff bat (*Eumops perotis californicus*). The rosy boa is not afforded any special protection other than through the MSHCP. The western mastiff bat is a State Species of Special Concern.

Seven special-status wildlife species were observed during the surveys, including:

- Bobcat (*Lynx rufus*)
- California horned lark (*Eremophila alpestris actia*)
- Coastal western whiptail (*Aspidoscelis tigris multiscutatus*);
- Cooper's hawk (*Accipiter cooperi*);
- Northern harrier (*Circus cyaneus*);
- San Diego desert woodrat (*Neotoma lepida intermedia*); and
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*).

Special-Status Plants. Seventy (70) special-status plant species were identified with the potential to occur in the larger project vicinity. Sixty-nine (69) of these species were determined to be absent from the proposed project site based on lack of suitable habitat or absence during focused surveys conducted in 2008 and 2010. The one special-status plant species identified on-site is Coulter's matilija poppy (*Romneya coulteri*), a CNPS List 4.2 species.

None of the special-status species observed during the surveys are protected under the Federal or California Endangered Species Acts (FESA and CESA, respectively). All of the special-status species observed during the surveys, are covered under the take and incidental take provisions of the MSHCP and potential impacts to these are mitigated for by participation in the MSHCP.

4.4.1.5 On-site Drainages

A jurisdictional delineation conducted for the proposed project site identified five drainage features. These include Bedford Canyon Wash, three tributaries to Bedford Canyon Wash and one earthen ditch. All drainages on site are ephemeral, and most are unvegetated. These drainages are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) and/or CDFG. The site also contains an isolated remnant agricultural pond. This pond was used historically for agricultural irrigation. It is lined with asphalt or tar and also has accumulated sediment, which holds water and supports an isolated stand of willow trees. Since this pond is isolated and man-made, it is not subject to the jurisdiction of USACE or CDFG.

4.4.2 Existing Policies and Regulations

4.4.2.1 Federal Regulations

Federal Endangered Species Act (FESA). The FESA was promulgated to protect any species of plant or animal that is endangered or threatened with extinction. Section 9 of the FESA prohibits “take” of federally threatened or endangered wildlife. Take, as defined under the FESA, means to harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct (16 USC 1532[19]). Section 9 prohibits the removal and reduction of endangered plants from lands under federal jurisdiction, and the removal, cutting, digging, damage, or destruction of endangered plants on any other area in “knowing violation of State law or regulation.” Section 7 of the FESA (16 USC 1531 et seq.) requires federal agencies to enter into formal consultation with the USFWS on proposed federal actions (actions authorized, funded, or carried out by federal agencies) which may adversely effect currently listed (threatened or endangered) species or destroy or adversely modify designated critical habitat. Because they may become listed during the design or construction phases of a project, the USFWS recommends candidate species also be considered during the consultation process. Section 7 also requires federal agencies to confer with the USFWS if the agency determines that its action is likely to jeopardize the continued existence of any proposed species or result in the destruction or significant modification of proposed critical habitat. Even if there is no federal agency involvement in the proposed activity or project, Section 9 of the FESA (16 USC 1538) prohibits take of a federally listed endangered species of fish or wildlife except pursuant to a permit and Habitat Conservation Plan (HCP) approved under Section 10(a) of the FESA (16 USC 1539). The FESA prohibitions and requirements are different, however, for endangered species of plants. Section 9 prohibits the take of endangered plants only from areas under federal jurisdiction, or if such take would violate state law. In the absence of federal agency involvement, no HCP is required for the take of listed plant species from private land.

The proposed project site is located on private land. For listed plants located on private land, formal consultation with the USFWS is required when a project has a federal “nexus” (i.e., a federal permit is required or federal funding is involved). In the absence of a federal nexus, a project does not require a permit under the FESA for impacts to listed plants on private lands.

Clean Water Act (CWA). The USACE regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or may be indirect (through a nexus identified in USACE regulations). The USACE typically regulates as non-wetland waters of the U.S. any body of water displaying an OHWM. In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met.

The CDFG, through provisions of the California Fish and Game Code (Sections 1601–1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFG.

4.4.2.2 State Regulations

California Endangered Species Act (CESA). The State of California has promulgated the California Endangered Species Act. CESA is similar to FESA in that its intent is to protect species of fish, wildlife, and plants that are in danger of, or threatened with, extinction because their habitats are threatened with destruction, adverse modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors.

Take as defined under CESA means hunt, pursue, capture, or kill, or attempt to hunt, pursue, capture, or kill. Under certain conditions, CESA has provisions for take through a 2081 Permit or a 2081 Memorandum of Understanding. The impacts of the authorized take must be minimized and fully mitigated. No permit may be issued if the issuance of the permit would jeopardize the continued existence of the species.

California Environmental Quality Act. Section 15380(b) of the *CEQA Guidelines* provides that a species not listed on the federal or state lists of protected species may be considered rare or endangered if the species can be shown to meet specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFG.

Migratory Bird Treaty Act and California Fish and Game Code Section 3503. Section 3503 of the California Fish and Game Code prohibits the destruction of bird nests except as otherwise provided for in the Code. The Migratory Bird Treaty Act (MBTA) similarly protects the nests of migratory birds. These regulations apply to the individual nests of these species, but do not regulate impacts to the species' habitats.

4.4.2.3 Local Regulations

Western Riverside County Multiple Species Habitat Conservation Plan. The continued loss of habitat to new development and the cumbersome process of environmental review and habitat mitigation on a project-by-project basis led to preparation of the MSHCP. The MSHCP area encompasses an area stretching from the San Jacinto Mountains to the Orange County border. The MSHCP is a multijurisdictional effort that provides a regional conservation solution to species and habitat issues that have historically threatened to stall infrastructure and land use development. The MSHCP's underlying goal is to protect multiple species by preserving a variety of habitat and providing linkages between different habitat areas and other undeveloped lands that would ensure long-term survival of 146 species of plants and animals. As long as adherence to the policies and requirements of the MSHCP is maintained, participants in the MSHCP, which include the County of Riverside and fourteen cities in western Riverside County (including the City of Corona), are allowed to authorize "incidental take" of plant and wildlife species of concern.

Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP). The USFWS issued a permit to the Riverside County Habitat Conservation Agency on May 3, 1996, to incidentally take the Stephens' kangaroo rat (*Dipodomys stephensi*). The 30-year plan is designed to acquire and permanently conserve, maintain, and fund the conservation, preservation, restoration, and enhancement of Stephens' kangaroo rat occupied habitat. The SKR HCP covers approximately 534,000 acres within the member jurisdictions (including the City of Corona), and includes an estimated 30,000 acres of occupied Stephens' kangaroo rat habitat. The SKR HCP requires members to preserve and manage

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15,000 acres of occupied Stephens' kangaroo rat habitat in 7 Core Reserves encompassing over 41,000 acres. Currently 12,460 acres of occupied habitat exist within the Core Reserves.

4.4.2.4 City of Corona General Plan Policies

Table 4.4 B lists the specific policies outlined in the City's General Plan Conservation Element related to biological resources.

Table 4.4.B: City of Corona General Plan Policies Related to Biological Resources

Goals, Objectives, Policies	
City of Corona General Plan Land Use Element	
Goal 10.4	Ensure that floodplain and riparian area resources are managed and maintained.
Goal 10.5	Ensure that wetland resources are managed and maintained.
Goal 10.6	Protect, enhance, and sustain significant plant and wildlife species and habitat, which exist in Corona and its Planning Area for the long term benefit of the natural environment, and Corona residents and visitors.
	Policy 10.6.1: Implement programs that rehabilitate and enhance the biological value, diversity, and integrity of the City's natural resources through such means as vegetation restoration, control of alien plants and animal species, landscape buffering, and natural watercourse channel restoration.
	Policy 10.6.4: Participate and enroll in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) to conserve biological diversity through protection of natural communities.
	Policy 10.6.5: Preserve the wildlife habitat of significant natural open space areas including expanding habitat ranges, movement corridors, and nesting sites by setting aside lands between open space areas to serve as biological linkages. This network of biological habitat linkages may include the use of riparian corridors, open space dedications, development of parks and/or natural resources, or greenbelts. Any proposed recreational use of those areas such as trails shall be designed to strictly avoid damaging sensitive habitat area.
Goal 10.7	Ensure that biological resources are not impacted during or as a result of construction and development activity.
	Policy 10.7.1 Require that construction activities be conducted in a manner to minimize adverse impacts on natural resources through the use of Best Management Practices, as established and updated by the City of Corona.
Goal 10.9	Protect natural and biological resources within riparian corridors and wetlands.
	Policy 10.9.2: Prohibit development and grading that alters the biological integrity of riparian corridors, unless no feasible alternative exists or the damaged habitat is replaced with habitat of equivalent value. Development that is permitted with riparian corridors shall be based on field evidence and interpretation of physical and biological data that shall include the following:
	<ul style="list-style-type: none"> • The nature and extent of the vegetation, or in the case of disturbed sites, the potential vegetation.

4.4.3 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, the effects of the proposed project on vegetation and wildlife resources are considered to be significant if the proposed project would:

- Have a substantial adverse effect, either directly or indirectly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or the USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native or resident migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

4.4.4 Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.4.4.1 Sensitive Natural Communities

Threshold	Would the proposed project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or the USFWS?
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The project study area comprises approximately 301 acres consisting of the BSA, which includes the proposed project's approximately 276-acre footprint in addition to a 150-meter buffer surrounding the project area. Within the project footprint area, 36.6 acres are identified for proposed post-construction permanent open space areas. The permanent open space areas include habitat associated with Bedford Canyon Wash and the adjacent hillside on the southeastern edge of the study area. Table 4.4.C provides a summary of vegetation/land use types in the project study area proposed for development and permanent open space.

Table 4.4.C: Vegetation Types with Proposed Impacts and Conservation Areas

Vegetation/Land Use Type	Proposed Impact Area (Acres)	Proposed Permanent Open Space Area (Acres)
Native Habitats		
Disturbed Riversidean Sage Scrub	0.17	5.59
Encelia Dominated Scrub	0.00	1.94
Mule Fat Scrub	0.00	0.35
Riversidean Sage Scrub	1.04	10.78
Riversidean Sage Scrub/Chaparral	28.58	2.78
Unvegetated Streambed	0.13	3.63
Willow Trees	0.04	0.10
Total Native Habitats	29.96	25.17
Non-Native Habitats		
Disturbed/Developed	9.09	2.06

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Table 4.4.C: Vegetation Types with Proposed Impacts and Conservation Areas

Vegetation/Land Use Type	Proposed Impact Area (Acres)	Proposed Permanent Open Space Area (Acres)
Non-Native Grassland	4.43	1.62
Ornamental/Exotic	1.85	1.08
Ruderal Vegetation	201.95	5.47
Total Non-Native Habitats	209.50	11.34
Total Vegetation/Land Use Acreage	239.46	36.6

The proposed project site does not contain any special-status vegetation types as identified by the CNDDDB; however, the proposed project would result in permanent impacts to approximately 29.96 acres of native vegetation types including disturbed Riversidean sage scrub, Riversidean sage scrub, Riversidean sage scrub/chaparral, unvegetated streambed, and willow trees. An additional 1.46 acres of unvegetated streambed within Bedford Canyon Wash will be temporarily impacted and restored after construction. Impacts to unvegetated streambed are discussed in Section 4.4.5.3, below.

The proposed project has been designed to reduce impacts to native habitat, and 25.17 acres of native habitat within the project site are proposed for permanent open space. Impacts to sage scrub communities are covered and mitigated for through participation in the MSHCP. Since the project is participating in the MSHCP, impacts to Disturbed Riversidean Sage Scrub, Riversidean Sage Scrub, and Riversidean Sage Scrub/Chaparral habitats will not be significant.

The Willow Trees vegetation community is associated with a small man-made pond in the eastern portion of the study area. The pond was constructed with an asphalt or tar lining for agricultural irrigation uses. The impenetrable artificial lining, along with sediment that has accumulated in the pond, supports the willow trees. This community is considered artificially created; therefore, impacts to this vegetation community will not be significant.

Pursuant to the terms of the MSHCP and Implementing Agreement with the USFWS and the CDFG, compliance with provisions of the MSHCP provides full mitigation under CEQA, FESA, and CESA for impacts to the species and habitats covered by the MSHCP. Therefore, impacts associated with compatibility of the project to the adopted provisions of the MSHCP would be reduced to a less than significant level and no additional mitigation is required.

4.4.4.2 Habitat Fragmentation/Wildlife Movement

Threshold	Would the proposed project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
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Habitat fragmentation occurs when a single, contiguous habitat area is divided into two or more areas, or where an action isolates the two or more new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or to/from one habitat type to another. Habitat fragmentation may occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning. Wildlife movement includes seasonal migration along corridors, as well as daily movements for foraging. Examples of migration corridors may include areas of unobstructed movement for deer, riparian corridors providing cover for migrating birds, routes between breeding waters and upland habitat for amphibians, and between roosting and feeding areas for birds.

The proposed development site and surrounding areas have been previously disturbed and diminished in quality either through past agricultural uses or the development of residential and commercial uses. The site is isolated from nearby open space by surrounding development. Bedford Wash provides for wildlife movement from the Santa Ana Mountains west of the BSA to Temescal Creek east of the BSA. This wildlife movement corridor will be widened and maintained in a semi-natural condition as an earthen bottomed channel as part of project design. Bedford Wash will also be modified at the culvert adjacent to I-15 as part of a future Caltrans transportation improvement project. Due to the disturbed condition of the development sites and adjacent areas, development of the proposed project will not result in significant habitat fragmentation or substantially affect established wildlife corridors or wildlife movement. As no significant habitat fragmentation would result from the development of the proposed uses, no mitigation is required.

4.4.4.3 Adopted Habitat Conservation Plans

Threshold	Would the proposed project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?
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While the project is located within the MSHCP, it is not located in an MSHCP criteria cell or Special Linkage Area.¹ The proposed project site is also not located within an MSHCP mammal or amphibian survey area, or a Criteria Area Plant Species Survey Area (CAPSSA). Portions of the proposed project site are located within a Narrow Endemic Plant Species Survey Area (NEPSSA; Survey Area Number 7) and the western burrowing owl (*Athene cunicularia*) survey area. None of the MSHCP Narrow Endemic Plant Species were detected within the proposed project site. No burrowing owls were observed within the proposed project site or within a 150-meter buffer area.

Section 6.1.2 of the MSHCP provides for the protection of species associated with riparian/riverine areas that are found within a proposed development project. Since the proposed project is within the MSHCP boundaries but not in an MSHCP Criteria Area, the project must avoid all mapped riparian/riverine areas if feasible. Further discussion regarding impacts to riparian/riverine areas is included as part of the discussion of impacts in Section 4.4.5.3: Jurisdictional Waters, Wetlands, and/or Riparian Areas, below.

Although the project site is not within any conservation area delineated in the MSHCP, the project is still subject to provisions of the MSHCP. In particular, the project proponent will be required to provide payment of mitigation fees and adhere to the requirements established in the MSHCP. The City has adopted a Local Development Mitigation Fee to assist in the acquisition and maintenance of natural ecosystems. Participation in the MSHCP facilitates economic development within the City by providing a streamlined regulatory process from which development can proceed in an orderly manner and protects the existing character of the City and the region through the implementation of a system of reserves, which will provide for permanent open space, community edges, and habitat conservation for species covered by the MSHCP. The current MSHCP mitigation fees are identified in Table 4.4.D.

Table 4.4.D: MSHCP Mitigation Fees (as of July 1, 2008)

Fee Category	MSHCP Mitigation Fee
Residential density less than 8.0 dwelling units per acre	\$1,938 per dwelling unit
Residential density equal to and greater than 8.0 and less than or equal to 14.0 dwelling units per acre	\$1,241 per dwelling unit

¹ *Western Riverside County Multiple Species Habitat Conservation Plan, Volume I, Part I*, Dudek & Associates, June 17, 2003.

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Table 4.4.D: MSHCP Mitigation Fees (as of July 1, 2008)

Fee Category	MSHCP Mitigation Fee
Residential density greater than 14.0 dwelling units per acre	\$1,008 per dwelling unit
Commercial	\$6,597 per acre
Industrial	\$6,597 per acre

Pursuant to the terms of the MSHCP and Implementing Agreement with the USFWS and the CDFG, compliance with provisions of the MSHCP provides full mitigation under CEQA, FESA, and CESA for impacts to the species and habitats covered by the MSHCP. The project is adopting and implementing all MSHCP measures and paying all applicable fees and, therefore, it is not in conflict with the MSHCP. Therefore, impacts associated with compatibility of the project to the adopted provisions of the MSHCP would be reduced to a less than significant level and no mitigation is required.

4.4.5 Significant Impacts

4.4.5.1 Endangered and Threatened Species

Threshold	Would the proposed project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered or threatened in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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Of the 70 special-status plant species and sixty-two special-status animal species known to occur in the project vicinity (including the *Corona South*, *Santiago Peak*, *Alberhill*, *Corona North*, *Riverside West*, and *Lake Mathews*, *California* quadrangles) sixteen plant and seventeen animal species have been designated as endangered or threatened by state and/or federal authorities (Table 4.4.E).

Table 4.4.E: Endangered/Threatened Species

Species	Status Designation	Potential for Occurrence
Plants		
Braunton's milk-vetch <i>Astragalus brauntonii</i>	Federal: Endangered State: None	Absent
California Orcutt grass <i>Orcuttia californica</i>	Federal: Endangered State: Endangered	Absent
Mojave tarplant <i>Deinandra mohavensis</i>	Federal: None State: Endangered	Absent
Spreading navarretia <i>Navarretia fossalis</i>	Federal: Threatened State: None	Absent
Munz's onion <i>Allium munzii</i>	Federal: Endangered State: Threatened	Absent
Nevin's barberry <i>Berberis nevinii</i>	Federal: Endangered State: Endangered	Absent
Parish's meadowfoam <i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Federal: None State: Endangered	Absent
San Diego ambrosia <i>Ambrosia pumila</i>	Federal: Endangered State: None	Absent
San Diego button celery <i>Eryngium aristulatum</i> var. <i>parishii</i>	Federal: Endangered State: Endangered	Absent
San Fernando Valley spineflower <i>Chorizanthe parryi</i> var. <i>fernandina</i>	Federal: Candidate State: Endangered	Absent

Table 4.4.E: Endangered/Threatened Species

Species	Status Designation	Potential for Occurrence
San Jacinto Valley crownscale <i>Atriplex coronate</i> var. <i>notatior</i>	Federal: Endangered State: None	Absent
Santa Ana River woollystar <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Federal: Endangered State: Endangered	Absent
Santa Monica dudleya <i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Federal: Threatened State: None	Absent
Slender-horned spineflower <i>Dodeahema leptoceras</i>	Federal: Endangered State: Endangered	Absent
Thread-leaved brodiaea <i>Brodiaea filifolia</i>	Federal: Threatened State: Endangered	Absent
Vale Lake ceanothus <i>Ceanothus ophiochilus</i>	Federal: Threatened State: Endangered	Absent
Animals		
Arroyo toad <i>Anaxyrus californica</i>	Federal: Endangered State: Species of Special Concern	Absent
Bald eagle (nesting & wintering) <i>Haliaeetus leucocephalus</i>	Federal: Delisted 2007 State: Endangered/Fully Protected	Absent
California red-legged frog <i>Rana draytonii</i>	Federal: Threatened State: Species of Special Concern	Absent
Coastal California gnatcatcher <i>Poliophtila californica californica</i>	Federal: Threatened State: Species of Special Concern	Low: Riversidean sage scrub provides suitable habitat
Delhi Sands flower-loving fly <i>Rhaphiomidas terminates abdominalis</i>	Federal: Endangered State: None	Absent
Least Bell's vireo <i>Vireo bellii pusillus</i>	Federal: Endangered State: Endangered	Absent
Peregrine falcon <i>Falco peregrinus anatum</i>	Federal: Delisted State: Endangered/Fully Protected	Absent
Riverside fairy shrimp <i>Streptocephalus wootoni</i>	Federal: Endangered State: None	Absent
San Bernardino kangaroo rat <i>Dipodomys merriamae parvus</i>	Federal: Endangered State: Species of Special Concern	Absent
San Diego fairy shrimp <i>Branchinecta sandiegonensis</i>	Federal: Endangered State: None	Absent
Santa Ana sucker <i>Catostomus santanae</i>	Federal: Threatened State: Species of Special Concern	Absent
Sierra Madre yellow-legged frog <i>Rana muscosa</i>	Federal: Endangered State: Species of Special Concern	Absent
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Federal: Endangered State: Endangered	Absent
Stephens' kangaroo rat <i>Dipodomys stephensi</i>	Federal: Endangered State: Threatened	Absent
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Federal: Threatened State: None	Absent
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	Federal: Threatened State: Species of Special Concern	Absent
Western yellow-billed cuckoo <i>Coccyzus americanus</i>	Federal: Endangered State: Species of Special Concern	Absent

The determination of absence for the referenced species was based on the lack of suitable habitat in the BSA or the results of focused biological resource surveys. Coastal California gnatcatcher is the

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only endangered or threatened species with a potential to occur in the BSA. This species was not detected during site visits, however suitable habitat occurs in the Riversidean sage scrub communities. The coastal California gnatcatcher is designated as a Covered Species Adequately Conserved under the MSHCP with no additional conservation requirements. However, vegetation clearing of occupied habitat within Public/Quasi Public lands and Criteria Area between March 1 and August 15 is prohibited. Measures to ensure compliance with this requirement are included as **Mitigation Measure 4.4.5.1A**, below.

No other endangered or threatened species have been located or are expected to occur within the limits of the BSA. Therefore, with implementation of Mitigation Measure 4.4.5.1A, no significant impact related to this issue would occur.

Mitigation Measure. The following measure has been identified to reduce the significance of potential impacts to Endangered and Threatened Species:

4.4.5.1A If habitat suitable to support the coastal California gnatcatcher is to be removed between March 1 and August 15, focused surveys shall first be conducted to determine if the habitat is occupied by gnatcatcher. If gnatcatchers are present and are determined to be nesting, the occupied areas will be avoided until after August 15.

4.4.5.2 Non-listed Special-Status Species

Threshold	Would the proposed project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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Wildlife. Nineteen (19) of the special-status wildlife species identified within the project vicinity have the potential to occur within the proposed project site. Seven of these species were observed during site surveys, including:

- Bobcat (*Lynx rufus*)
- California horned lark (*Eremophila alpestris actia*)
- Coastal western whiptail (*Aspidoscelis tigris multiscutatus*);
- Cooper's hawk (*Accipiter cooperi*);
- Northern harrier (*Circus cyaneus*);
- San Diego desert woodrat (*Neotoma lepida intermedia*); and
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

All of the special-status species observed during site surveys are covered under the take and incidental take provisions of the MSHCP and potential impacts to these are mitigated for by participation in the MSHCP.

Twelve (12) of the special-status wildlife species identified within the project vicinity have a low or moderate potential to occur within the Riversidean alluvial fan sage scrub habitat but were not observed during surveys. Ten of these species are Covered Species under the MSHCP and potential impacts to these are mitigated for by participation in the MSHCP. The remaining two species are the rosy boa (*Charina trivirgata*) and western mastiff bat (*Eumops perotis californicus*).

Rosy Boa: The rosy boa is not afforded any special protection other than through the MSCHP. The rosy boa is not afforded any special protection because the number of individuals of the species and the quantity of its habitat are at adequate levels to ensure its survival. There are 65.47 acres of suitable habitat to support this species occurring within the proposed project site. 31.15 acres of habitat associated with Disturbed Riversidean Sage Scrub, Riversidean Sage Scrub, and Riversidean Sage Scrub/Chaparral habitat will be developed and will result in a loss of 31.15 acres of habitat for the rosy boa. Because the number of individuals of the rosy boa and the quantity of its habitat are at adequate levels to ensure survival of the species, the loss of 31.15 acres of its habitat is considered a less than significant impact and no mitigation is required. The remaining 34.32 acres of suitable rosy boa habitat are a part of the permanent open space area and will not be affected.

Western Mastiff Bat: The western mastiff bat is a State Species of Special Concern. Potential project impacts to this species include a loss of foraging habitat, but suitable roosting habitat associated with cliff faces located along Bedford Canyon Wash will not be impacted by the proposed project.

Burrowing Owl: The project site is located within the MSHCP Burrowing Owl Survey Area. Due to the presence of suitable burrowing owl habitat throughout the proposed project site, focused surveys for burrowing owl were conducted within the proposed project site and a 150-meter buffer area in 2009 and 2010. These focused owl surveys were directed toward determining owl presence and/or utilization of previously identified burrows. The study area was investigated methodically during each event and the route used to survey the habitat was arranged to ensure complete coverage. Binoculars were also utilized to aid in detecting and identifying bird species and potential burrow sites.

The focused burrowing owl survey determined that no burrowing owls, potential burrowing owl burrows, or diagnostic signs (i.e., whitewash, pellets, bones, or feathers) of burrowing owl were observed within the proposed project site or the 150-meter buffer area.

While no burrowing owls were identified within the project's proposed area of disturbance, because suitable habitat is present within the study area for the burrowing owl and because the species is highly mobile, a potential for impacts to this species to occupy the site prior to development exists resulting in a potentially significant impact requiring mitigation. Measures to ensure compliance with this requirement are included as **Mitigation Measure 4.4.5.2A**, below.

Nesting Birds. The proposed project will remove vegetation suitable for nesting migratory birds, including raptors. Impacts to nesting migratory birds are prohibited under the MBTA and California Fish and Game Code. Because suitable habitat to support nesting migratory birds is present within the study area, a potential this species to occupy the site prior to development exists resulting in a potentially significant impact requiring mitigation. Measures to ensure compliance with this requirement are included as **Mitigation Measure 4.4.5.2B** below.

Special-Status Plants. Sixteen special-status plant species are reported to have the potential to appear within the project area. The BSA was assessed in the field for its potential to support common and special-status species based on habitat suitability comparisons with reported occupied habitats. Throughout the focused plant surveys, one special status species, Coulter's matilija poppy, was observed within the site boundaries. Approximately 75 individuals of Coulter's matilija poppy were observed within the remnant alluvial scrub habitats and cliff faces located in the project site. Approximately 25 individuals were observed throughout and above the cliff areas located on the southern side of the Bedford Canyon Wash, and approximately 50 individuals were observed within the remnant alluvial scrub. Coulter's matilija poppy is designated by the CNPS as a list 4.2 plant, which means it is "limited in distribution or infrequent throughout a broad area in California, and their vulnerability or susceptibility to threat appears relatively low at this time." CNPS also described Coulter's matilija poppy as fairly threatened in California with a moderate degree/immediacy of threat.

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Coulter's matilija poppy is designated as an MSHCP Riparian/Riverine species listed in Section 6.1.2: Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools as well as a Group 1 species with the following specific conservation objectives to be achieved before being considered adequately conserved under the MSHCP:

- **Objective 1:** Include within the MSHCP Conservation Area 65,350 acres of chaparral and 5,300 acres of coastal sage scrub below 1,200 feet AMSL on Forest Service and Public/Quasi-Public Lands within the Santa Ana Mountains Bioregion.
- **Objective 2:** Within the MSHCP Conservation Area, confirm 30 localities (locality in this sense is not smaller than one quarter section).

There are no MSHCP species specific survey requirements for Coulter's matilija poppy; however, Coulter's matilija poppy receives protection under Section 6.1.2 of the MSHCP. Coulter's matilija poppy is not a fully covered species under the MSHCP and the MSHCP will not afford complete coverage for take of the Coulter's matilija poppy until Objectives 1 and 2, above, are met.

As the proposed project site is not located on Forest Service and/or Public/Quasi Public Lands Objective 1 does not apply and, since there are not species-specific survey requirements, the localities described in Objective 2 are expected to be accrued within designated MSHCP Criteria Areas. In addition Coulter's matilija poppy or the land it inhabits on site does not represent more than one quarter section. As such, in combination with the proposed project site being located outside of any MSHCP criteria areas, it is believed by the biologists conducting the site surveys that the MSHCP would not be interested in conservation of the proposed project site to fulfill Objective 2. Because the number of individuals of the Coulter's matilija poppy and the quantity of its habitat outside of the project area are at adequate levels to ensure survival of the species, the loss of approximately 75 individuals is considered a less than significant impact and no mitigation is required.

Mitigation Measures. The following measures have been identified to reduce the significance of potential impacts to special status bird species:

- 4.4.5.2A** Pre-construction presence/absence surveys for burrowing owl within the survey area where suitable habitat is present shall be conducted by a qualified biologist (as determined per the City of Corona) within 30 days prior to the commencement of ground disturbing activities.

If active burrowing owl burrows are detected during the breeding season, all work within 300 feet of any active burrow will be halted until that nesting effort is finished. The on-site biologist will review and verify compliance with these boundaries and will verify the nesting effort has finished. Work can resume when no other active burrowing owl burrows nests are found.

If active burrowing owl burrows are detected outside the breeding season, then passive and/or active relocation may be approved following consultation with CDFG and/or USFWS. The installation of one-way doors may be installed as part of a passive relocation program. Burrowing owl burrows shall be excavated with hand tools by a qualified biologist when determined to be unoccupied, and back filled to ensure that animals do not re-enter the holes/dens.

Upon completion of the survey and any follow-up construction avoidance management, a report shall be prepared and submitted to the City for mitigation monitoring compliance record keeping.

- 4.4.5.2B** The removal of potential nesting bird habitat will be conducted outside of the nesting season (February 1 to August 31) to the extent feasible. If grading or site disturbance is

to occur between February 1 and August 31, a nesting bird survey shall be conducted by a qualified biologist (per the City of Corona) within no more than 72 hours of scheduled vegetation removal, to determine the presence of nests or nesting birds. If active nests are identified, the biologist will establish buffers around the vegetation (500 feet for raptors, 200 feet for non raptors). All work within these buffers will be halted until the nesting effort is finished (i.e. the juveniles are surviving independent from the nest). The on-site biologist will review and verify compliance with these nesting boundaries and will verify the nesting effort has finished. Work can resume when no other active nests are found. Upon completion of the survey and any follow-up construction avoidance management, a report shall be prepared and submitted to the City for mitigation monitoring compliance record keeping. If vegetation clearing is not completed within 72 hours of a negative survey, the nesting survey must be repeated to confirm the absence of nesting birds.

Level of Significance after Mitigation. Implementation of the above-listed mitigation measures would reduce impacts to special-status species, including burrowing owl and migratory bird species, to a less than significant level.

4.4.5.3 Jurisdictional Waters, Wetlands, and/or Riparian Areas

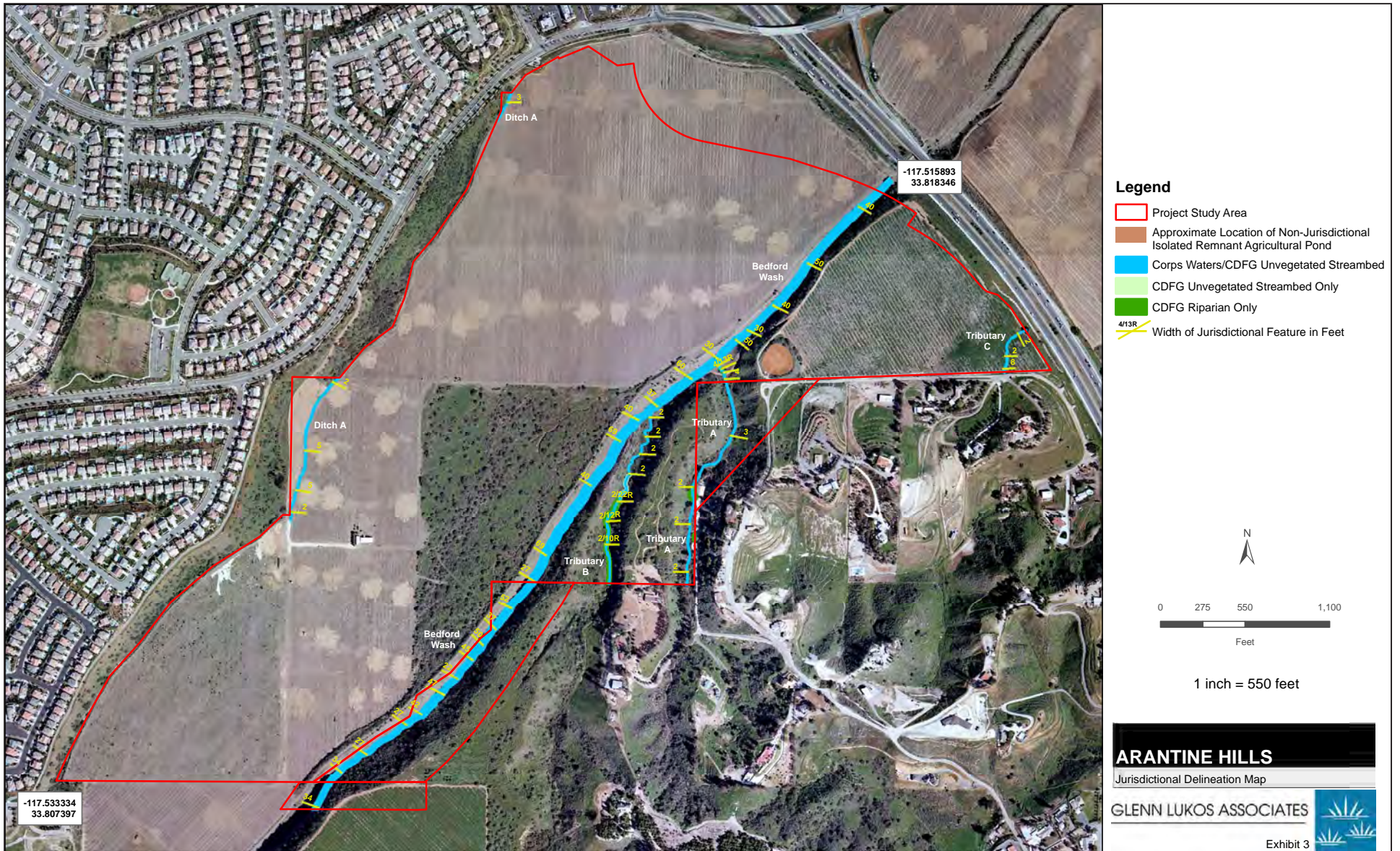
Thresholds	<p>Would the proposed project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? and/or</p> <p>Would the proposed project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFG or USFWS?</p>
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A jurisdictional delineation of the proposed project site was conducted in 2009 and 2010. The results of the delineation indicate the proposed project site contains five drainage features, including Bedford Canyon Wash, three tributaries to Bedford Canyon Wash, and one earthen ditch. All drainages on site are ephemeral. The site also contains an isolated remnant agricultural pond. This pond was used historically for agricultural irrigation. It is lined with asphalt or tar and also has accumulated sediment, which hold water and support an isolated stand of willow trees. Since this pond is isolated and man-made, it is not subject to the jurisdiction of USACE or CDFG. The locations of the drainage features located within the project are detailed in Figure 4.4.2. Acreages of jurisdictional drainage features within the proposed project site are summarized in Table 4.4.F.

Table 4.4.F: Drainage Features and Acreages of USACE and CDFG Jurisdiction

Drainage Feature	Acres of Potential USACE Jurisdiction	Acres of Potential CDFG Jurisdiction		
	Non-Wetland Waters	Unvegetated Streambed	Riparian Habitat	Total CDFG Jurisdiction
Bedford Wash	3.76	3.75	0.01	3.76
Tributary A	0.04	0.04	0.12	0.16
Tributary B	0.06	0.08	0.33	0.41
Tributary C	0.03	0.03	0.00	0.03
Ditch A	0.17	0.17	0.01	0.18
Total Potential Jurisdictional Acreage	4.06	4.07	0.47	4.54

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FIGURE 4-4-2

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Jurisdictional Areas

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Bedford Wash: Bedford Wash is a shallow, cobble- and silt lined channel that enters the proposed project site at the southeastern corner and meanders on-and offsite in a northeasterly direction for approximately 5,659 feet (3,620 feet of which are within the proposed project site). Bedford Wash exhibits evidence of disturbance likely linked to past agricultural activities in surrounding areas, including an artificially constructed elevated berm intended to protect adjacent agricultural groves. The Ordinary High Water Mark (OHWM) identified for Bedford Wash ranges from 27 feet to 69 feet wide and supports evidence of water marks, debris wrack, and changes in soil characteristics within the streambed.

Bedford Wash supports areas of upland vegetation including Riversidean Sage Scrub, scattered mule fat and a small area near the confluence with Tributary A with salt cedar (*Tamarix chinensis*, FAC) and giant reed (*Arundo donax*, FACW). No hydric soils or wetland areas were identified within Bedford Wash.

Tributary A: Tributary A is an ephemeral channel with a substrate of sand, silt, and cobble. It flows south to north through a steep canyon before entering the project site in the south-central portion of the site and extends for approximately 1,605 feet before its confluence with Bedford Wash. USACE jurisdictional areas within Tributary A total 0.10 acre.

Tributary A supports primarily upland vegetation with a small patch of native riparian vegetation consisting of mule fat (FACW) and Mexican elderberry (*Sambucus mexicana*, FAC). No hydric soils or wetland areas were identified within Tributary A.

Tributary B: Tributary B is an ephemeral channel with a substrate of sand, silt and cobble. It flows south to north through a steep canyon before entering the BSA in the south-central portion. It extends for approximately 1,325 feet within the project site before its confluence with Bedford Wash. The OHWM averages two feet and supports evidence of water marks, debris wrack, and changes in soil characteristics within the streambed.

Tributary B primarily supports areas of upland vegetation with small areas of native riparian vegetation consisting of mule fat and Mexican elderberry. No hydric soils or wetland areas were identified within Tributary B.

Tributary C: Tributary C is an ephemeral channel with a substrate of sand, silt and cobble. It enters the BSA at the southeastern corner and traverses the site for approximately 348 before flowing into the storm drain system, which ultimately discharges to Temescal Creek. The OHWM varies from two to eight feet in width and shows evidence of water marks, debris wrack, and changes in soil characteristics within the streambed.

Tributary C supports only upland vegetation. No hydric soils or wetland areas were identified within Tributary C.

Ditch A: Ditch A is an ephemeral ditch with a substrate of sand and silt. It enters the project site in the southeastern portion and flows northeasterly along the eastern boundary of the project site for approximately 1,017 feet before meandering off-site and returning on-site for another 203 feet before its confluence with a concrete v-ditch that ultimately discharges to Temescal Creek.

Ditch A supports upland vegetation. No hydric soils or wetland areas were identified within Ditch A.

USACE Jurisdiction Subject to Section 401 of the Clean Water Act. The proposed project site is located within the Sana Ana River watershed. Waters within the study area are conveyed via Bedford Wash to Temescal Creek, which subsequently conveys flows to the Santa Ana River, which is tributary to the Pacific Ocean. Since runoff from the site eventually reaches the Pacific Ocean, a

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traditional navigable water (TNW), the USACE has jurisdiction over drainages on-site through Sections 401-404 of the Clean Water Act.

The development of the proposed project would necessitate the removal of some of the existing on-site USACE jurisdictional areas. The proposed project would permanently impact approximately 0.33 acre and temporarily impact approximately 1.46 acres of USACE jurisdictional non-wetland waters. No USACE jurisdictional wetlands would be impacted.

Acres of proposed impacts to USACE jurisdictional drainage are summarized in Table 4.4.G.

Table 4.4.G: Acres of Proposed Impacts to USACE and CDFG Jurisdictional Areas

Drainage Feature	Acres of Potential USACE Jurisdiction	Acres of Potential CDFG Jurisdiction		
	Non-Wetland Waters	Unvegetated Streambed	Riparian Habitat	Total CDFG Jurisdiction
Permanent Impacts				
Bedford Wash	0.13	0.13	0.00	0.13
Tributary A	0.00	0.00	0.00	0.00
Tributary B	0.00	0.00	0.00	0.00
Tributary C	0.03	0.03	0.00	0.03
Ditch A	0.17	0.17	0.01	0.18
Total Permanent Impacts	0.33	0.33	0.01	0.34
Temporary Impacts				
Bedford Wash	1.46	1.46	<0.01	1.46
Total Temporary Impacts	1.46	1.46	<0.01	1.46

Impacts to USACE jurisdictional areas would result in a potentially significant impact requiring mitigation. Measures to address impacts to potential USACE jurisdictional areas are included as **Mitigation Measure 4.4.5.1A and 4.4.5.1B**, below.

California Department of Fish and Game Jurisdiction, Sec. 1600. Development of the proposed project would necessitate the removal of some of the existing on-site CDFG jurisdictional areas. The proposed project would permanently impact approximately 0.34 acre and temporarily impact approximately 1.46 acres of CDFG jurisdictional areas. Less than 0.01 acre of temporarily impacted areas would be to vegetated riparian habitat. All remaining impacts to CDFG jurisdictional areas would be to unvegetated streambeds.

Impacts to CDFG jurisdictional areas would result in a potentially significant impact requiring mitigation. Loss of CDFG jurisdictional streambed and riparian habitat would be a potentially significant impact requiring mitigation. Measures to address proposed impacts to potential CDFG jurisdictional areas are included as **Mitigation Measures 4.4.5.3A, 4.4.5.3B, and 4.4.5.3C**, below.

MSHCP Riparian/Riverine Areas. The MSHCP defines Riparian/Riverine areas as natural "...lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year." The MSHCP further asserts, "...areas demonstrating characteristics as described above which are artificially created are not

included” in the above-referenced definitions. The proposed project will result in permanent impacts to 0.41 acre of unvegetated streambed and temporary impacts to 1.46 acres of unvegetated streambed and less than 0.01 acre of vegetated riparian habitat associated with a streambed. Unvegetated streambed and vegetated riparian habitat meet the definition of MSHCP riparian/riverine areas. The riparian/riverine areas within the proposed project site do not provide suitable habitat for any riparian/riverine or vernal pool species identified in Section 6.1.2 of the MSHCP.¹ Therefore, impacts to MSHCP Riparian/Riverine species are considered to be less than significant and no mitigation is required.

Impacts to MSHCP Riparian/Riverine areas would result in a potentially significant impact requiring mitigation. Measures to address proposed impacts to areas identified as riparian/riverine under Section 6.1.2 of the MSHCP are included as **Mitigation Measures 4.4.5.2 and 4.4.5.3** below.

Unvegetated riverine resources within the project site provide hydrologic functions within the overall watershed as they convey water from upland areas into Bedford Wash and downstream to Temescal Creek. With implementation of the Arantine Hills Specific Plan drainage plan, the proposed project will maintain hydrologic flows across the project site into receiving waters including Bedford Wash and Temescal Creek. The drainage plan will be designed to match pre-project hydrology and flow rates.

Mitigation Measures. The following mitigation measures have been identified to reduce the significance of potential impacts to jurisdictional waters and riparian/riverine areas:

4.4.5.3A Prior to the issuance of grading permits for the affected areas, the project applicant shall provide evidence to the City that a Section 404 Permit from the USACE, a Section 401 Permit from the RWQCB, and a Section 1602 Streambed Alteration Agreement from the CDFG have been obtained for impacts to jurisdictional waters in the project site.

Compensation to mitigate for the permanent loss of 0.41 acre of USACE and CDFG jurisdictional areas would be mitigated at a minimum 1:1 ratio through participation in a USACE and/or CDFG-approved mitigation bank and/or in lieu fee program, as discussed in Mitigation Measure 4.4.5.3C, or other manner approved by the USACE and CDFG through the permitting process.

4.4.5.3B Prior to the issuance of grading permits for the affected areas, a Determination of Biological Superior or Equivalent Preservation (DBESP) shall be submitted to the Riverside Conservation Authority (RCA) identifying potential impacts to riparian/riverine areas, discussing why avoidance of impacts to riparian/riverine areas was not feasible, and identifying compensation for the loss of riparian/riverine areas. Due to the programmatic nature of this study, it is anticipated that project-specific measures will be identified in a DBESP that will be prepared for each applicable project within the Arantine Hills Specific Plan area at the time it is submitted to the City for approval.

4.4.5.3C Compensation to mitigate for the permanent loss of 0.41 acre of USACE and CDFG jurisdictional and MSHCP riparian/riverine resources on site the following shall be implemented:

¹ MSHCP Riparian/Riverine species include Amphibians (arroyo toad, mountain yellow-legged frog, California red-legged frog); Birds (bald eagle, least Bell’s vireo, peregrine falcon, southwestern willow flycatcher, western yellow-billed cuckoo); Fish (Santa Ana sucker); Invertebrates – Crustaceans: (Riverside fairy shrimp, vernal pool fairy shrimp); Plants (Brand’s phacelia, California Orcutt grass, California black walnut, Coulter’s matilija poppy, Engelmann oak, Fish’s milkwort, graceful tarplant, lemon lily, Mojave tarplant, mud nama, ocellated Humboldt lily, Orcutt’s brodiaea, Parish’s meadowfoam, prostrate navarretia, San Diego button-celery, San Jacinto Valley crownscale, San Miguel savory, Santa Ana River woolly-star, slender-horned spine flower, smooth tarplant, spreading navarretia, thread-leaved brodiaea, vernal barley).

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The applicant shall pay a one-time in-lieu fee to a USACE and/or CDFG approved mitigation bank and/or in lieu fee program, such as the Santa Ana Watershed Association (SAWA) In-Lieu Fee Wetland Creation Program or the Riverside County Regional Park and Open Space District Santa Ana River Mitigation Bank (SARMB), for the purchase of no less than 0.82 acre (2:1 ratio) of vegetated riparian and/or wetland habitat creation. Participation in the mitigation bank or in-lieu fee program shall ensure that conservation is in perpetuity.

Prior to issuance of a grading permit, the applicant must provide the City with written documentation indicating that this mitigation requirement has been fulfilled to the City's satisfaction.

- 4.4.5.3D** Following the completion of grading, 1.46 acres of USACE and CDFG jurisdictional areas that will be temporarily impacted shall be restored using native vegetation and soils to pre-project conditions following completion of grading.

Level of Significance after Mitigation. To obtain authorization to disturb regulated aquatic resources, a permit applicant must identify the jurisdictional waters present, avoid the protected resources where possible, minimize the unavoidable impacts, and then provide compensatory mitigation for any remaining impacts. The first step of mitigation is to avoid impacts to wetlands or streams. When impacts cannot be avoided, the second step is to minimize impacts as much as possible. The last step of mitigation is compensation. A Section 404 authorization contains requirements and conditions specific to the proposed construction project. To maintain USACE authorization for disturbance to Waters of the United States, the project applicant is required to fully adhere to the conditions detailed in the 404 permit. Failure to abide by permit conditions may result in an enforcement action against the permit applicant, which may include a cease and desist order to stop all project work and fines of up to \$25,000 per day until compliance is met.¹

Applicants receiving a Section 404 permit from the USACE are required to obtain a Section 401 water quality certification from the RWQCB. Issuance of a certification means that the RWQCB anticipates that the applicant's project will comply with state water quality standards and other aquatic resource protection requirements. Conditions of the Section 401 Certification become conditions of the federal permit.

Authorization of a Streambed Alteration Agreement under Section 1602 of California Fish and Game Code requires the following: 1) the project applicant provides written notification regarding the activity in the manner prescribed by the department; 2) The CDFG determines the notification is complete; 3) the project applicant pays the applicable fees; and 4) as appropriate, the project applicant incorporates into the project reasonable measures necessary to protect the affected resource, and conducts activities in accordance with the provisions of the agreement.² To maintain CDFG authorization for alteration of the affected resources, the project applicant is required to fully adhere to the conditions detailed in the Section 1602 permit.

As part of the permit process, the project applicant will consult with the USACE, CDFG, and RWQCB to ensure impacts to jurisdictional areas are appropriately mitigated. **Mitigation Measures 4.4.5.3A and 4.4.5.3B** require the project applicant to acquire the necessary permits, while **Mitigation Measure 4.4.5.3C** will compensate for the loss of jurisdictional resources. The amount, extent, and/or location of mitigation will be identified through the consultation process. It is assumed that the regulatory agencies will identify mitigation that fully compensates for the project-specific impact to jurisdictional resources that may result from the development of the proposed project. As

¹ 10.40 Wetlands and Section 404 Permits – Introduction, http://www.erl.dot.state.ia.us/Oct_2008/CM/content/10-40.htm, site accessed February 6, 2009.

² California Fish and Game Code, Section 1602, <http://law.onecle.com/california/fish/1602.html>, site accessed February 6, 2009.

compensatory mitigation will be identified through the permit process, and because adherence to the provisions of the permit is required to maintain permit authorization, it is reasonable to conclude that the mitigation identified will reduce impacts to jurisdictional resources to a less than significant level.

With the implementation of proposed **Mitigation Measures 4.4.5.3B** and **4.4.5.3C** and participation and compliance with the MSHCP, with coverage afforded by the MSHCP, no significant direct or cumulative impacts related riverine/riparian features would result from the development or operation of the proposed project.

4.4.6 Cumulative Impacts

The cumulative area for biological resources is the MSHCP area. The MSHCP establishes a comprehensive, multi-jurisdictional program focused on the conservation of 146 species and their habitats in western Riverside County. The City reviews all public and private development and construction projects and other land use plans/activities within the MSHCP area to ensure compliance with the conservation criteria procedures and mitigation requirements set forth in the MSHCP. As a signatory to the MSHCP Implementing Agreement, the City has been issued "Take Authorization," which allows the implementation of land use decisions consistent with the MSHCP without individual authorization by state or federal authorities. As required by the MSHCP, focused biological resource studies have been conducted to assess potential impacts associated with development of the proposed uses. Where impacts to special status bird, plant species, and jurisdictional areas have been identified, mitigation has been identified to reduce the project-specific impacts to a less than significant level. Additionally, the MSHCP and its Implementation Agreement contain a fee mitigation program pursuant to which local agencies collect development impact fees and remit such fees to the Riverside Conservation Agency. These fees are in turn are used to acquire lands which are suitable for habitat preservation for species covered by the MSHCP. Habitat lands created by the MSHCP also have biological benefits for species technically not covered by the MSHCP, such as the burrowing owl. Habitat acquired by the MSHCP is suitable for owl habitat. The latest adjustment of the MSHCP fee mitigation (July 1, 2008) allows the collection of fees ranging from of \$1,008 per acre of high density residential development to \$6,597 per acre of commercial or industrial development. The payment of the required MSHCP fee is a standard requirement for all development occurring within the MSHCP area.

Because the MSHCP provides a regional and comprehensive approach to conservation planning, and through the implementation of the stated mitigation for project-specific impacts and the payment of required MSHCP mitigation fees, no significant cumulative effect on biological resources would result from the development of the proposed project.

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4.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

This chapter identifies and evaluates the proposed project's potential to cause adverse impacts to archaeological, historical, and paleontological resources. These resources include, but are not limited to, prehistoric and historic artifacts, burials, sites of religious or cultural significance to Native American groups, and historic structures. This chapter provides a discussion of impacts potentially attributable to the proposed project components, the criteria used to determine impact significance to cultural resources, and mitigation to reduce the effect implementation of the proposed project would have on cultural and paleontological resources. The analysis contained in this chapter is based in part on the following reference documents:

- *Cultural Resources Assessment Arantine Hills Specific Plan*, LSA Associates, Inc., August, 2010 (Appendix F-1 of this EIR).
- *A Phase I Cultural Resources Investigation of 500+/- Acres in the Bedford Canyon Area near the City of Corona of Riverside County*, McKenna and Brunzell, July 2003 (Appendix F-2 of this EIR).
- *City of Corona General Plan*, City of Corona, March 2004.

4.5.1 Existing Setting

4.5.1.1 Archaeological Resources

Archaeological resources are those associated with prehistoric cultural sites, prehistoric isolates, and the remnants of historic cultural sites that lack substantive building remnants such as roads and trails. Prehistoric cultural resources consist of those physical properties that predate the advent of written records in a particular region and are considered important to a culture, subculture, or community for scientific or humanistic reasons. These include geographic districts, structures, sites, objects, and other physical evidence of past human activity.

As indicated in the Cultural Resources Assessment (Appendix F-1 of the EIR), there are no known cultural resources that would be affected by the proposed project. Further, existing alluvial sediments within the project site make the potential to uncover buried, preserved archaeological resources low. The age of these alluvial soils make in unlikely to contain deeply buried cultural resources. The thin horizon of Holocene sediments overlying middle to late Pleistocene sediments is also unlikely.

4.5.1.2 Historic Resources

The City identifies historic resources as intact structures of any type that are 50 years or more of age. These resources are sometimes referred to the "built environment" and include houses or other structures, irrigation works, and engineering features. Known cultural resources are those that have been identified through formal recognition in one or more of the following inventories: the National Register of Historic Places, the California Archaeological Inventory, the California Historic Resources Inventory, California Historical Landmarks, and Points of Historic Interest. Three sites are currently included in the National Registrar of Historic Places. Therefore, three historical resource sites are located within the City limits, but none of those sites is located on or near the proposed project site.

4.5.1.3 Paleontological Resources

Geological mapping of Corona indicate active alluvial sediments within the project boundaries. As per the Geotechnical Report prepared by LOR Geotechnical Group Inc., March 2002, the majority of the site lies within the Bedford Canyon wash. This wash is comprised of relatively young alluvial sediments. The depth of these units at the site was not determined during this study, but is

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considered to be highly variable ranging from a few feet to on the order of several hundred or more to the older sedimentary bedrock and crystalline bedrock which underlies the valley floor. The project site is underlain by various ages of relatively unconsolidated alluvial materials overlying various ages of sedimentary rocks. The bedrock units included a series of grayish-green, white, tan, or reddish-brown sandstone and siltstone rocks. The overall units were typically moderately hard and dense, but highly weathered, were exposed, with a "hacky" or "puffy" appearance. Most of the units were moderately fractured and filled with secondary deposits of calcite, and labeled as the Vaqueros/Sespe formation undifferentiated. Overlying the sandstone and siltstone bedrock materials is a coarse grained unit composed of relatively unconsolidated, yet very dense, sandy gravel with cobbles and gravelly sand. The earlier study of the region conducted by Gray (1961) indicated that older alluvial terrace deposits in some areas are overridden by Pleistocene landslide materials and are thus thought to be, at least in part, of Pleistocene age (older than 11,000 years but younger than 1.8 million years). The upper portions of the bluffs were noted, at least in part, to be composed of unconsolidated alluvial materials which form the southern portion of a coalescing alluvial fan that forms the southern portion of the town of Corona, described by Gray (1961) as the Corona Compound Fan. Recent alluvial deposits were encountered within all of our exploratory borings and trenches placed across the lower elevations of the site, within the Bedford Canyon wash area. These units consisted primarily of silty sand with various amounts of gravel and cobbles.

4.5.1.4 Ethnographic Context

With the advent of the Spanish explorers and the beginning of the Spanish Mission Period, Franciscan friars and Spanish soldiers began establishing mission outposts along the California coast. The project's surrounding has been occupied by three native groups: the Cahuilla, Luiseno, and Gabrielino.

During the Ethnographic Period, Luiseno inhabited the coastal northern San Diego /southern Orange County, inland as far as Lake Elsinore and Palomar Mountain.¹ The Cupeno were located east of the Luiseno and southwest of the Cahuilla, in an area of about 10 square miles near the headwaters of the San Luis Rey River in the vicinity of Warner's Hot Springs. Along the coast north of the Luiseno were the Juaneno in an area that is now known as San Juan Capistrano. Still along the coast, the Gabrielino lived in the fertile Tustin and Los Angeles Plains eastwards as far as Mt. Rubidoux and San Bernardino.

The project site is located within Luiseno territory. Luiseno villages were usually located in valley bottoms, along streams, or along coastal strands near mountain ranges sheltered in coves or canyons, near a fresh water source, and often on an elevated landform. Individuals from these villages took advantage of the varied resources available. They also established seasonal camps along the coast and near bays and estuaries to gather shellfish and hunt waterfowl.

4.5.2 Policies and Regulations

4.5.2.1 Federal Regulations

National Historic Preservation Act (NHPA) of 1966 (as amended), Section 106. The NHPA established a national policy of historic preservation in order to protect, rehabilitate, restore, and reuse districts, sites, buildings, structures, and objects significant in American architecture, history, archaeology, and culture. The NHPA established the National Register, State Historic Preservation Offices (SHPOs) and programs, and the Advisory Council on Historic Preservation. The NHPA applies to all properties on or eligible for inclusion in the National Register. The Section 106 review process requires consultation to mitigate damage to "historic properties" (defined per 36 CFR

¹ Cultural Resources Assessment, Arantine Hills Specific Plan, LSA Associates, August 2010.

800.16[1] as places that qualify for the National Register), including Native American traditional cultural places (TCPs). Evaluation of cultural resources consists of determining whether it is significant (i.e., whether it meets one or more of the criteria for listing in the National Register). These eligibility criteria are defined in 36 CFR 60.4 as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association:

- A. That is associated with events that have made a significant contribution to the broad patterns of our history;
- B. That is associated with the lives of persons significant in our past;
- C. That embodies the distinctive characteristics of a type, period or method of construction, or that represents the work of a master, or possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; and/or
- D. That has yielded, or may be likely to yield, information important to prehistory or history.

4.5.2.2 State Regulations

California Environmental Quality Act. A “historic resource” includes, but is not limited to, any object, building, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.¹ CEQA mandates that lead agencies consider a resource “historically significant” if it meets the criteria for listing in the California Register. Such resources meet this requirement if they (1) are associated with events that have made a significant contribution to the broad patterns of California history, (2) are associated with the lives of important persons in the past, (3) embody distinctive characteristics of a type, period, region, or method of construction, and/or (4) represent the work of an important creative individual or possesses high artistic value.² These criteria mimic the criteria utilized to determine eligibility for the National Register.

In addition, CEQA Guidelines Section 15064.5(f) recognizes that historical or unique archaeological resources other than potential Native American burials may be accidentally discovered during project construction. This guideline recommends that immediate evaluation defined by qualified archaeologists be included in mitigation measures. This guideline also recommends that if the find is determined to be a historical or unique archaeological resource, that contingency funding and time allotments sufficient to allow for implementation and avoidance measures be available.

Senate Bill 18 (SB 18). Signed into law in September 2004, and effective March 1, 2005, SB 18 permits California Native American tribes recognized by the Native American Heritage Commission (NAHC) to hold conservation easements on terms mutually satisfactory to the tribe and the landowner. The term “California Native American tribe” is defined as “a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC.”

The bill also requires that, prior to the adoption or amendment of a city or county’s general plan, the city or county consult with California Native American tribes for the purpose of preserving specified

¹ Public Resources Code, Section 5020.1(j).
² Public Resources Code, Section 5024.1(c).

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places, features, and objects located within the city or county's jurisdiction. SB 18 also applies to the adoption or amendment of specific plans. This bill requires the planning agency to refer to the California Native American tribes specified by the NAHC and to provide them with opportunities for involvement.

As part of the Native American Consultation conducted for the proposed project, a letter was sent to the NAHC on February 18, 2010. Letters to each of the local Native American Tribes were mailed on February 18, 2010. The letters included a brief project description and asked that the tribes to contact the consultant with input regarding the presence of cultural resources in the project area.

Two tribes (Soboba Band of Luiseño Indians and the Pechanga Band of Mission Indians) (Tribes) requested further consultation and future updates in regards to the Project. On October 26, 2010, the City consulted with the Soboba Tribe, and on November 3, 2010, the City consulted with the Pechanga Tribe. During these consultations, both Tribes concluded that while the project site lies outside the limits of their existing reservations, the project area does fall within the bounds of their Tribal Traditional Use Areas, is in close proximity to known sacred sites, and is a shared use area that was used in ongoing trade with the Luiseño and Cahuilla people. The Tribes requested the following actions:

- Transfer of information regarding the progression of the project should be conducted as new development occurs;
- Each Tribe requested to be regarded as the lead consulting tribal entity for the project;
- That Tribal monitors be present during ground-disturbing operations, surveys, and archaeological testing; and
- Proper procedures identified by the Tribe related to the treatment and disposition of cultural artifacts be honored.

The consultation correspondence between the City and the Tribes are included in Appendix A of the EIR. The Cahuilla Tribe also commented on the NOP, and their comment letter is also included in Appendix A of the EIR. No other communication or correspondence with the other notified Native American tribal entities was received prior to the distribution of the Draft EIR.

California Health and Safety Code. The California Health and Safety Code §7050.5 states that if human remains are discovered on site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. This regulation is applicable to any project where ground disturbance would occur.

4.5.2.3 Local Policies

City of Corona General Plan Policies. The City's General Plan includes policies and goals that aim to preserve cultural resources within the City. Table 4.5.A identifies City's goals and policies that apply to the proposed project.

Table 4.5.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona General Plan Historic Resources Element	
<i>Goal 4.3: Recognize the importance of archeological and paleontological resources and ensure the identification and protection of those resources within the City of Corona.</i>	
Policy 4.3.3 Archaeological resources found prior to or during construction shall be evaluated by a qualified archaeologist, and appropriate mitigation measures applied, pursuant to Section 21083.2 of CEQA, before the resumption of development activities. Any measures applied shall include the preparation of a report meeting professional standards, which shall be submitted to the appropriate CHRIS information center.	The project underwent an archaeological and paleontological assessment to determine if such resources were located on the project site or have the potential to be located on the project site. No historic resources were located on the project site. The project is consistent with this policy.
Policy 4.3.4 Any project that involves earth-disturbing activities within previously undisturbed soils in an area determined to be archaeologically or culturally sensitive, shall require evaluation of the site by a qualified archaeologist retained by the project applicant. The applicant shall implement the recommendations of the archaeologist, subject to the approval of the City Planning Department.	The project is consistent with this policy. Refer to Mitigation Measure 4.5.6.1A and 4.5.6.1B.
Policy 4.3.5 Any project that involves earth-disturbing activities in previously undisturbed soils that have been determined to be archaeologically or culturally sensitive shall require consultation by the applicant with interested federally recognized American Indian Tribe(s) that have a traditional cultural affiliation with the project area and/or the resources affected by the project, for the purposes of determining archaeological and cultural resources impacts and creating appropriate mitigation to address such impacts. The applicant shall also arrange for monitoring of earth-disturbing activities by interested federally recognized American Indian Tribe(s) that have a traditional cultural affiliation with the project area and/or the resources affected by the project, if requested.	As part of the Phase I Cultural Resources Assessment prepared by McKenna et. al., letters to each of the local Native American Tribes The letters included a brief project description and asked that the tribes to contact the consultant with input regarding the presence of cultural resources in the project area. The project is consistent with this policy. Refer to Mitigation Measure 4.5.6.1B.
Policy 4.3.6 Any project that involves earth-disturbing activities in soil or rock units known or reasonably suspected to be fossil-bearing shall require monitoring by a qualified paleontologist retained by the project applicant for the duration of excavation or trenching.	The project is consistent with this policy. Refer to Mitigation Measures 4.5.6.2A–4.5.6.2C.
Policy 4.3.7 Paleontological resources found prior to or during construction shall be evaluated by a qualified paleontologist, and appropriate mitigation measures applied,	The project is consistent with this policy. Refer to Mitigation Measures 4.5.6.2A–4.5.6.2C

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Table 4.5.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
<p>pursuant to Section 21083.2 of CEQA, before the resumption of development activities. Any measures applied shall include the preparation of a report meeting professional standards, which shall be submitted to the Riverside County Museum of Natural History.</p>	
<p>Policy 4.3.8 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected and the project applicant immediately shall notify the Riverside County Coroner of the find and comply with the provisions of the California Health and Safety Code Section 7050.5, including P.R.C. Section 5097.98, if applicable. In the event that human remains are determined to be Native American human remains the applicant shall consult with the Most Likely Descendant (MLD) to determine the appropriate treatment for the Native American human remains</p>	<p>The project is consistent with this policy. Based on requests from Soboba and Pechanga, Native America monitors will be present during grading activities. Refer to Mitigation Measures 4.5.6.1A and 4.5.6.1B.</p>

4.5.3 Methodology

Research. A cultural resources records search was conducted at the Eastern Information Center (EIC) at the University of California, Riverside in 2010. The records search included a review of all recorded historic and prehistoric archaeological sites within one mile of the project, as well as a review of known cultural resource survey and excavation reports. Additionally, LSA examined the California State Historic Property Data (HPD) File, which includes the National Registrar of Historic Places (National Registrar), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI), various local historic registers, and historic maps.

Limited Field Survey. The project site was surveyed in 2002 (McKenna and Brunzell, 2003) and hence a limited field survey was carried out in 2003 to verify the validity of the prior 2002 survey. On May 21, 2010, LSA archaeologists Curt Duke and Victoria Avalos conducted a limited reconnaissance survey of the project site. The archaeologists were accompanied by two monitors from the Pechanga Band of Luiseno Indians (Pechanga) and one monitor from the Soboba Band of Luiseno Indians (Soboba). The monitors concurred with the results of the limited reconnaissance survey.

4.5.4 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, the effects of the project on cultural resources are considered to be significant if the proposed project would:

- Cause a substantial adverse change in the significance of a historical resources as defined in § 15064.5;

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and/or;
- Result in any disturbance of human remains, including those interred outside of formal cemeteries.

4.5.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.5.5.1 Historic Resources

Threshold	Would the proposed project cause a substantial adverse change in the significance of a historical pursuant to 15064.5 of the State CEQA Guidelines?
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A Cultural Resources Assessment,¹ which included a records search and a limited field survey, has been prepared for the proposed project. This Study builds on an earlier Phase I Cultural Resources Investigation of the 500+/- acres in the Bedford Canyon prepared by McKenna et al. in 2003, which included area on the east side of I-15 no longer within the proposed project boundary.

No structures or unique historic features are located within the project limits. No evidence of past structures or unique features was identified, nor was evidence of such structures identified during the on-site cultural resource survey. As no evidence has been identified to suggest the presence of past or current structures on site, potential impacts related to historic structures or features will not occur and further mitigation is not needed.

4.5.5.2 Human Remains

Threshold	Would the proposed project disturb any human remains, including those interred outside of formal cemeteries?
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The project site is currently undeveloped. No evidence suggesting the project site has been utilized in the past for human burials has been identified. In the unlikely event human remains are discovered during grading or construction activities within the project site, compliance with State law (Health and Safety Code § 7050.5) (HSC § 7050.5) would be required. These requirements are imposed on any construction activity in which human remains are detected, and include the following provisions:

- There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required; and
 - If the coroner determines the remains to be Native American:
 - The coroner shall contact the Native American Heritage Commission within 24 hours.

¹ Cultural Resource Assessment for the Arantine Hills Specific Plan, LSA Associates, Inc., August 2010

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- The NAHC shall identify the person or persons it believes to be the most likely descended from the deceased Native American.
- The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code § 5097.98 (PRC § 5097.98), or
- Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further and future subsurface disturbance pursuant to PRC § 5097.98(e).
 - The NAHC is unable to identify a most likely descendant.
 - The most likely descendant is identified by the NAHC, fails to make a recommendation within 48 hours of being granted access to the site; or
 - The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Compliance with existing state law would ensure that impacts related to the discovery of buried human remains would be less than significant and no mitigation is required. Because adherence to provisions of Health and Safety Code § 7050.5 is required of all development projects, and because adherence to the requirements in state law sufficiently mitigates for potential impacts to human remains, no significant impact related to this issue will occur. No mitigation is required.

4.5.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.5.6.1 Archaeological Resources

Impact 4.5.6.1. *The proposed land use actions and potential subsequent land development that may occur have the potential to disturb previously undetected archaeological resources.*

Threshold	Would the proposed project cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5 of the State CEQA Guidelines?
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A Cultural Resources Assessment, which included a records search and a limited field survey, has been prepared for the proposed project. This Study builds on an earlier Phase I Cultural Resources Investigation of the 500+/- acres in the Bedford Canyon prepared by McKenna et al. in 2003.

As stated in Section 4.5.1.1, previous archaeological surveys have been conducted within the project limits and no archaeological or cultural resources have been previously identified on site. As part of the review of potential impacts the proposed project may have on archaeological resources, a records search at the EIC was conducted at the University of California, Riverside in 2010.

Data from the EIC indicate that there have been 49 previous cultural resources studies conducted within a one-mile radius of the project. Twenty-four cultural resources are located within one-mile of the project, including an isolated historic glass scatter (McKenna 2002) located on the east side of I-15 (Primary number 33-12511). The majority of the other sites are located more than ½ mile from the project; these consist primarily of prehistoric artifact scatters, milling stations, and historic sites.

Due to the active nature of the alluvial sediments within the project, it is LSA's opinion that the potential to uncover buried, preserved archaeological resources is low. LSA does not see the need or benefit for an archaeological monitor during ground-disturbing activities associated with construction.

However, during separate SB18 consultations with the Pechanga and Soboba Tribes, the Tribes requested that Native American monitors be present on-site during all clearing, rough grading, and excavation activities due to the potential for such activities to unearth ancient remains and related artifacts from sacred burial sites. In order to ensure that cultural resources are identified during earthmoving activities, a qualified archaeologist shall be retained. The archaeologist monitor shall assess the nature and significance of the find and make recommendations for further study which may include: archaeological excavation, laboratory analysis, consultation with Indian Tribes, curation of materials, and an archaeological report. While the possibility of finding archaeological resources is remote for the project site, grading on the site would be required. On-site excavation may uncover previously undetected subsurface archaeological resources. To mitigate for this potential impact, the following measures have been identified.

4.5.6.1A The applicant shall retain a qualified archaeological monitor who shall prepare an Archaeological Resources Mitigation Monitoring Plan. The qualified archaeological monitor shall attend all pre-grading meetings to inform the grading and excavation contractors of the archaeological resources mitigation program and shall consult with them with respect to its implementation. The qualified archaeological monitor shall be on site at all times during the initial phases of clearing and rough grading to inspect cuts for archaeological resources. If such resources are discovered, the qualified archaeological monitor shall recover them. In instances where recovery requires an extended salvage time, the qualified archaeological monitor shall be allowed to temporarily direct, divert or halt grading to allow recovery of resource remains in a timely manner. Recovered archaeological resources, along with copies of pertinent field notes, photographs, and maps, shall be deposited in a scientific institution with archaeological collections and the resources shall be recorded in the California Archaeological Inventory Database. A final monitoring report shall be submitted to the City within 30 days of the end of monitoring activities.

4.5.6.1B All grading, excavation, and ground-breaking activities shall be monitored by a tribal monitor. The project applicant shall pay all fees associated with such tribal monitors. The tribal monitors will have the authority to temporarily stop and redirect grading activities, in conjunction with the archaeological monitor and the City.

Level of Significance After Mitigation. Adherence to **Mitigation Measures 4.5.6.1A** and **4.5.6.1B** would reduce potential cultural and archaeological resource impacts associated with subsequent development on the project site to a less than significant level.

4.5.6.2 Paleontological Resources

Impact 4.5.6.2. *The proposed land use actions and potential subsequent land development that may occur have the potential to disturb previously undetected subsurface paleontological resources.*

Threshold	Would the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
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The changes in land use due to implementation of Arantine Hills Specific Plan would result in a physical change in the environment. Therefore, subsequent development due to the implementation of this project would result in ground-disturbing activities. The Geotechnical Study prepared by LOR

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Geotechnical Group, Inc. indicates presence of bedrock and alluvial deposits that have likely high sensitivity for paleontological resources to be found on project site.

Portions of the project site along the south side of Bedford Wash in Planning Areas 17, 18, and 19 (in the Northeast quarter of Section 20, and Southwest quarter of Section 16) are located on sediments of middle to late Pleistocene age (Qof). In addition, Riverside County shows these portions of the project area as a High paleontological sensitivity. High B sensitivity indicates that fossils are likely to be encountered at or below four feet below ground surface, and may be impacted during excavation and construction activities (Riverside County Land Information System, 2011). Project areas with high, low, and unknown paleontological sensitivity are as illustrated in Figure 4.5.1.

Therefore, a PRIMP, including excavation monitoring by a qualified paleontologist, is recommended for earthmoving activities in Pleistocene sediments on the project site with potential to contain significant, nonrenewable paleontological resources. Therefore, mitigation is proposed to reduce the potential significant effect of construction activities on paleontological resources.

As per City of Corona General Plan Policy 4.3.6 and 4.3.7 any earth-disturbing activities in soils or rock units having reasonable paleontological potential shall require monitoring by a qualified paleontologist for the duration of excavation or trenching (refer to Table 4.5.A).

Mitigation Measures 4.5.6.2A through 4.5.6.2C have been identified to reduce potential significant impacts to paleontological resources.

Mitigation Measures. The following mitigation measures have been identified to reduce potential impacts to paleontological resources:

4.5.6.2A Prior to the issuance of grading permits, the project proponent shall submit to and receive approval from the City, a Paleontological Resource Impact Mitigation Program (PRIMP). The PRIMP shall include the provision of a trained paleontological monitor during on-site soil disturbance activities on the south side of Bedford Wash in Planning Areas 17, 18, and 19. The monitoring for paleontological resources shall be conducted on a full-time basis during the rough-grading phases of the project, but limited to the rough-grading within the south side of Bedford Wash in Planning Areas 17, 18, and 19. In the event that paleontological resources are unearthed or discovered during excavation, **Mitigation Measure 4.5.6.2C** shall apply. Conversely, if no paleontological resources are unearthed or discovered on site during excavation, no additional mitigation is required.

4.5.6.2B The paleontological monitor shall be equipped to rapidly remove any large fossil specimens encountered during excavation. During monitoring, samples of soil shall be collected and processed to recover micro-vertebrate fossils. Processing shall include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains.

4.5.2.6C If paleontological resources are unearthed or discovered during excavation of the project site within the south side of Bedford Wash in Planning Areas 17, 18, and 19, the following recovery processes shall apply:

- Upon encountering a large deposit of bone, salvage of all bone in the area shall be conducted with additional field staff and in accordance with modern paleontological techniques.

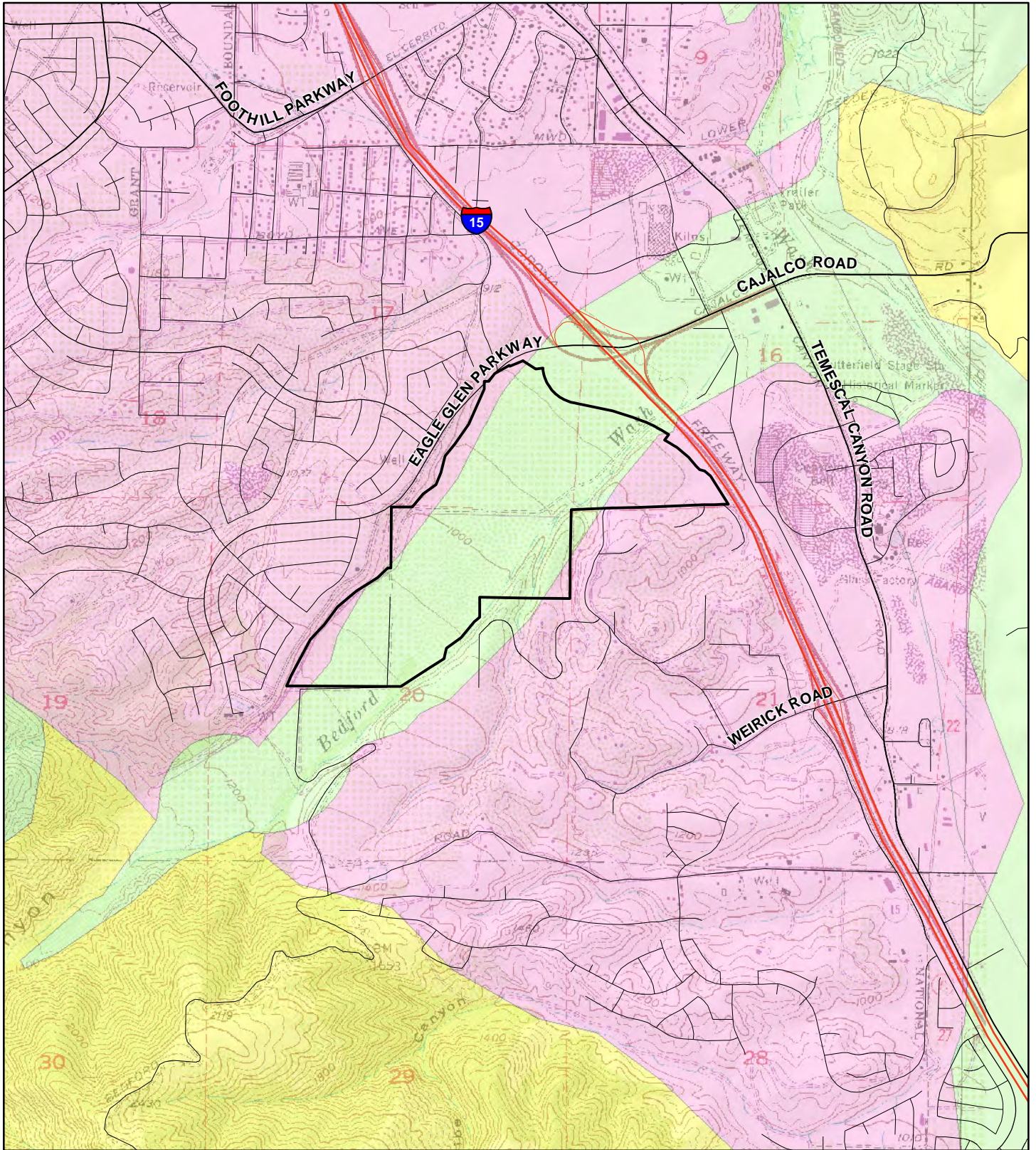
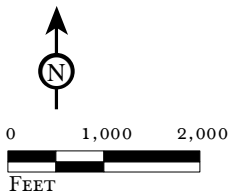


FIGURE 4.5-1

LSA



- Project Boundary
- Paleontological Sensitivity**
- High Potential/Sensitivity (High A)
- Low Potential
- Undetermined Potential

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Paleontological Sensitivity

SOURCE: USGS 7.5' Quad: Corona South (1988), CA; Thomas Bros., 2009; County of Riverside, 2004.

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- All fossils collected during the project shall be prepared to a reasonable point of identification. Excess sediment or matrix shall be removed from the specimens to reduce the bulk and cost of storage. Itemized catalogs of all material collected and identified shall be provided to the museum repository along with the specimens.
- A report documenting the results of the monitoring and salvage activities and the significance of the fossils shall be prepared.
- All fossils collected during this work, along with the itemized inventory of these specimens, shall be deposited in a museum repository (such as the Western Center for Archaeology & Paleontology, the Riverside Metropolitan Museum, or the San Bernardino County Museum) for permanent curation and storage.

Level of Significance After Mitigation. Adherence to **Mitigation Measures 4.5.6.2A** through **4.5.6.2C** would reduce potential impacts to paleontological resources to a less than significant level. These mitigation measures will ensure that impacts associated with ground-disturbing activities at the selected site are reduced to the greatest extent feasible.

4.5.7 Cumulative Impacts

The cumulative area for cultural resources is the City of Corona. Implementation of the proposed project would require measures to identify, recover, and/or record any cultural and/or paleontological resource that may occur within the limits of the selected site. Potential impacts associated with human remains would be reduced to a less than significant level through adherence to existing State law. There are no projects that would, in combination with the proposed project, result in any significant cumulative impacts on historical, archaeological, or paleontological resources, or in impacts to human remains. Like the proposed project, any other projects within the City would be required to adhere to similar mitigation measures that would reduce the potential for any individual or cumulative impacts. Therefore, the proposed project would have less than significant cumulative impacts associated with cultural resources.

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4.6 GEOLOGY AND SOILS

This chapter describes the location of the proposed project relative to the known geologic features and soil conditions and qualitatively evaluates potential impacts. Additionally, this chapter evaluates whether development on the proposed project site would significantly be affected by fault rupture, seismic shaking, erosion or unstable slopes, liquefaction, settlement, expansive soils, or other soil or geologic conditions. This chapter is based in part on general geologic information and maps available from the California Division of Mines and Geology (CDMG) and the *Soil Survey of Western Riverside County*, which are incorporated by reference. This chapter is also based in part on the following documents:

- Preliminary Geotechnical Feasibility Investigation 580 +/- Acres Bedford Canyon Corona Area, prepared by LOR Geotechnical Group, Inc. March 25, 2002; Appendix G-1;
- Preliminary Update and Document Review of Seismic Hazards 508 +/- Acres Bedford Canyon Corona, California, prepared by LOR Geotechnical Group, Inc., February 5, 2003, Appendix G-2; and
- Addendum Fault Investigation, 508 +/- Acres Arantine Hills, Corona California, prepared by LOR Geotechnical Group, Inc. November 16, 2004 (revised). Appendix G-3.

4.6.1 Existing Setting

As described in the *City of Corona General Plan Technical Background Report*,¹ the City and Sphere of Influence sit in a complex and active geological area. Mountains, which were formed by tectonic forces, surround the Los Angeles Basin and make up the unique geology of the area. These transverse mountain ranges are unusual in California in that they run east to west rather than trending northwest/southeast and include the San Bernardino Mountains, the San Gabriel Mountains, and the Santa Monica Mountains. The creation and orientation of the transverse range was caused by slow counterclockwise rotation of the Pacific Plate, which also created the numerous faults and earthquakes for which the area is famous. These mountains are fault-bounded blocks of rock and sediment formed during periods when the Pacific Plate was being driven under the North American Plate, resulting in the uplift of these mountains. The transverse mountains lie on the “big bend” of the San Andreas Fault. The active faults of the Los Angeles Basin lie beneath the thick layer of alluvium built up over millions of years from the floodwaters of the Los Angeles, San Gabriel, and Santa Ana Rivers. The Transverse and Peninsular Ranges tower over the Los Angeles flood basin, which is only slightly above sea level. Some of the higher peaks are Mt. Baldy in the San Gabriel Mountains at 10,124 feet, Mt. San Jacinto in the Peninsular Mountains at 10,804 feet, and Mt. San Gorgonio—the highest mountain in Southern California—in the San Bernardino Mountains at 11,502 feet.

The proposed project site is located along the northeastern foothills of the Santa Ana Mountains, just north of the Elsinore-Temecula basin, which in turn lies within the Perris Plain. The Santa Ana Mountains and Perris Plain lie within the larger Peninsular Ranges geomorphic province of Southern California. The Peninsular Ranges geomorphic province is characterized by a series of northwesterly trending mountain ranges extending from the coast of California eastward into the California desert and south to the tip of Baja California.

The site is underlain by various ages of relatively unconsolidated alluvial materials overlying various ages of sedimentary rocks. The exposed materials on site are categorized in to the following units: topsoil, fill, alluvium, older alluvium of the Corona Compound Alluvial Fan, terrace deposits, and sedimentary bedrock.

¹ *City of Corona General Plan Technical Background Report*, City of Corona, March 2004.

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The existing setting for geology and soils includes geologic formations, faulting and seismicity, soils, and geologic and seismic hazards, which are discussed below.

4.6.1.1 Geologic Formations

As described in the City of Corona General Plan Technical Background Report, the City and Sphere of Influence is underlain by surficial soils such as fill, alluvium and topsoil, and formational units such as divided and undivided Cenozoic and Mesozoic sedimentary rocks and by Cretaceous igneous rocks of the Southern California batholith.

Landslide Deposits. These deposits range in age from very recent to late Pleistocene epoch and generally occur in the steep slopes of the Santa Ana Mountains, which are generally underlain by fractured and weathered dark-gray porphyritic andesite flows, flow breccia, and tuff; black, moderately to well-bedded argillite; and brown graywacke. These deposits are also relatively abundant in terrain near the trace of the Elsinore fault zone, and generally consist of sandstone, conglomerate, siltstone, and shale overlaying micaceous sandstone, lignite, and clay (Weber 1977).

Younger Alluvium. These geologic materials range from Holocene epoch to the late Pleistocene epoch and generally consist of unconsolidated gravel, sand, and silt associated with intermittent river and alluvial fan deposition and generally have no visible surface dissection and negligible soil development. Generally this unit is scattered across the City and Sphere of Influence in drainages. The alluvium ranges in thickness from relatively thin (a few feet) in minor drainages to 100 feet or more in the Santa Ana River (Gray 1961).

Older Alluvium. These geologic materials are generally late Pleistocene epoch and consist of poorly consolidated gravel, sand, and silt associated with inactive drainages and fans. This unit generally has slightly dissected surfaces with some poorly developed argillic soil horizons. This unit composes the majority of the Corona compound alluvial fan, which outcrops from the Santa Ana River to Bedford Wash. The maximum thickness of this unit is apparently observed in the vicinity of Bedford Wash where the unit reaches a thickness of approximately 100 feet (Gray 1961). The unit generally thins in an easterly direction toward the Santa Ana River.

Alluvial Terrace Deposits. These geologic materials are generally late Pleistocene epoch and consist of poorly to well consolidated gravel, sand, and silt associated with inactive drainages and fans. This unit has moderately to well-dissected surfaces with moderately to very well developed argillic soil horizons (Greenwood and Morton 1991). Terrace deposits are generally located at relatively higher elevations near the base of the Santa Ana Mountains and across the southern portions of the City and Sphere of Influence.

Fernando Formation. These geologic materials are generally Pliocene epoch and consist of thick bedded, gray to white, marine sandstone. Outcrops of this unit are relatively minor and are generally scattered along the northern portions of the City and Sphere of Influence near the Temescal Wash and to the south near Bedford Wash (Greenwood and Morton 1991).

Puente Formation. These geologic materials generally are late Miocene epoch to Pliocene epoch and consist of gray to brown, massive, resistant sandstone, conglomerate, siltstone, and shale. This unit generally outcrops between Main Street Canyon and Bedford Wash located south of Corona and also in the Santa Ana Narrows area (Gray 1961).

Vaqueros and Sespe Formations (undivided). These geologic materials are late Eocene epoch and are generally undivided in the City and Sphere of Influence east of the Elsinore Fault Zone. They generally consist of red, gray, and grayish-green, marine conglomerate and sandstone of the Vaqueros Formation, and nonmarine conglomerate and sandstone with green to red clayey siltstone and sandstone of the Sespe Formation. The unit is typically poorly consolidated, weakly indurated, and is easily eroded (Gray 1961). Generally, outcrops of the unit occur along the west side of the City and Sphere of Influence south of Bedford Wash and in the Santa Ana Narrows area along with some scattered outcrops between the two canyons.

Silverado Formation. These geologic materials are Paleocene epoch and generally consist of brown to reddish brown, white to greenish-gray and gray, sandstone, conglomerate, siltstone, and shale overlying micaceous sandstone, lignite, and clay (Gray 1961). Generally, this unit outcrops across the City and Sphere of Influence from the Santa Ana Canyon to Bedford Wash.

Igneous Rocks. These geologic materials are late Cretaceous period and generally consist of brown to gray, granite, quartz monzonite, granodiorite, and quartz diorite. These materials generally outcrop along the eastern portions of the City and Sphere of Influence including the Temescal Mountains and the northeastern portions of the City and Sphere of Influence.

Santiago Peak Volcanics. These geologic materials are late Jurassic period and generally consist of dark-gray porphyritic andesite flows, flow breccia, and tuff. This unit unconformably overlies the Bedford Canyon Formation with approximately a 90-degree difference in dip (Gray 1961). This unit generally outcrops within the Santa Ana Mountains located along the western portion of the City and Sphere of Influence.

Bedford Canyon Formation. These geologic materials are Jurassic period and generally consist of black, moderately to well-bedded argillite, brown graywacke, and massive conglomerate, undivided. Low-grade regional metamorphism is pervasive in this unit. This unit generally outcrops within the Santa Ana Mountains located along the southwestern portion of the City and Sphere of Influence. Topographically, outcrops of this unit form weak round slopes relative to other geologic units in the City and Sphere of Influence (Gray 1961).

4.6.1.2 Faulting and Seismicity

As described in the City's General Plan,¹ the City of Corona is located in a seismically-active region. Several known active or potentially active faults are located in and around Corona. The Elsinore Fault Zone is the closest major fault system to the City and one of the largest in Southern California. At its northern end, the Elsinore Fault Zone splays into two segments: the Chino-Central Avenue Fault and the Whittier Fault. In the City of Corona area, the Elsinore Fault is referred to as the Glen Ivy Fault (refer to Figure 4.6.1), is located south of the City, and trends in a northwest-southeast direction.

The Chino-Central Avenue Fault is located approximately 1.9 miles west of central Corona. The fault branches away from the Elsinore (Glen Ivy) Fault at a point southwest of central Corona and extends northwest for a distance of approximately 13 miles through the Prado Flood Control Basin and into the Chino Hills. The Whittier Fault is located approximately 4.6 miles northwest of central Corona. The fault branches away from the Elsinore (Glen Ivy) Fault at a point west of central Corona, outside of the City, and extends northwest for a distance of approximately 23 miles through the Santa Ana Mountains and into the Whittier Hills. The Glen Ivy Fault consists of two strands, the Glen Ivy North

¹ *City of Corona General Plan*, City of Corona, adopted March 17, 2004.

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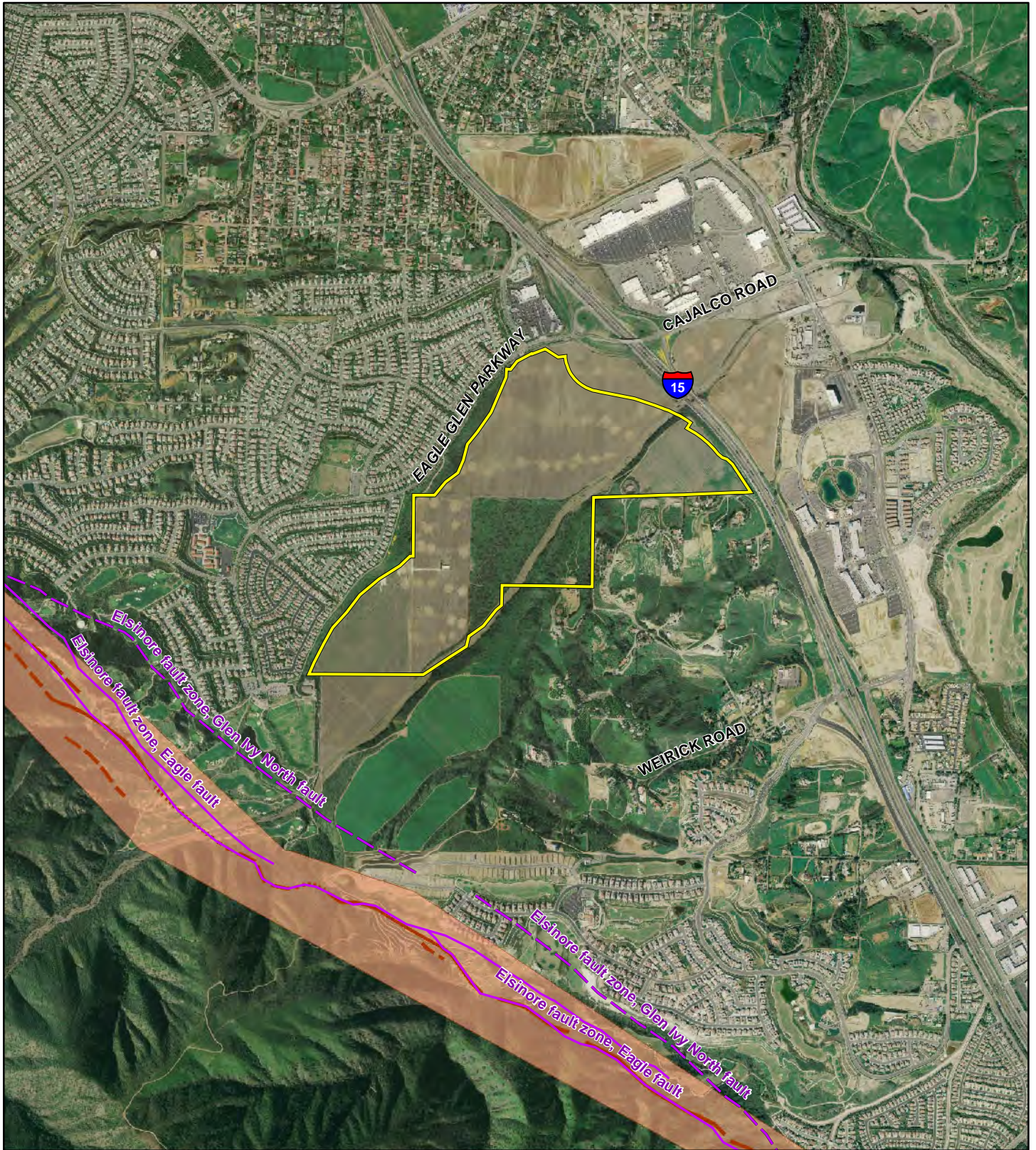
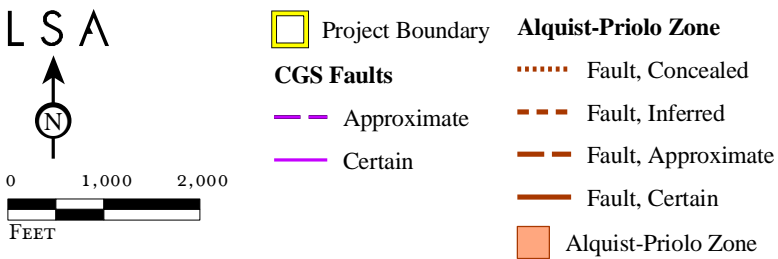


FIGURE 4.6.1



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Earthquake Faults and Alquist-Priolo Zones

SOURCE: AirPhotoUSA, 2008; California Geological Survey, 2002 & 2005.
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Fault and the Glen Ivy South Fault. Both strands of the Glen Ivy Fault are included in an Alquist-Priolo Earthquake Fault zone, which is located along the southwest boundary of the City and through the Temescal Valley portion of the City's Sphere of Influence. At its closest, the Glen Ivy Fault is located approximately 3.4 miles west of central Corona. The fault extends northwest from approximately Lake Elsinore for a distance of approximately 23.6 miles to approximately west of Corona, where it splits into the Whittier and Chino fault segments.

4.6.1.3 Soils

As described in the City of Corona General Plan Technical Background Report, several soil classes are present in the City and Sphere of Influence. Based on the General Soil Map for the Western Riverside Area, the soils in the City are predominantly of the Monserate-Arlington-Exeter associations. These soils tend to have a low to moderate swell (expansion) potential and are well-drained. They occur on nearly level to moderately steep slopes, and consist of a surface layer of sandy loam to loam with a shallow to deep hardpan.

Other soils within the City include the Friant-San Miguel-Exchequer association along the west and southwest boundary of the City and in a small portion of the southeastern area of the City. Friant series soils are generally shallow, well-drained, and typically occur on slopes ranging from 15 to 25 percent. Small areas in the northeastern and central-eastern portions of the City are underlain by the Fallbrook-Vista-Cieneba association, which is similar to the Friant association, is well-drained, and occurs on 30-50 percent slopes. Also, a portion of the east and southeast areas in the City is underlain by the Cajalco-Temescal-Los Posas association, with well-drained, undulating to steep, moderately deep to shallow soils.

Based on the *Soil Survey of Western Riverside County*, general soils within the proposed project site include the following:

Arbuckle gravelly loam, 2 to 8 percent slopes (AIC). This soil typically occurs on alluvial fans. Runoff is slow to medium and hazard of erosion slight to moderate. Arbuckle soils cover 20.2 acres of the proposed project site or approximately 7.4 percent.

Arbuckle gravelly loam, 8 to 15 percent slopes (AID). AID soils consist of gravelly very fine sandy loam surface layer and a gravelly loam subsoil. Runoff is medium on this soil, and the hazard of erosion is moderate. AID soils cover approximately 4.76 acres, or approximately 1.7 percent of the proposed project site.

Cortina cobbly loamy sand, 2 to 8 percent slopes (CmC). CmC soils are somewhat excessively drained soils on alluvial fans. These soils are formed in alluvium from metasedimentary rocks and composed of a gravelly loamy sand surface layer. Runoff is slow to medium and erosion potential is high. CMC soils cover around 163.39 acres, or approximately 59.7 percent of the proposed project site.

Garretson gravelly very fine sandy loam, 2 to 8 percent slopes (GdC). This soil is well drained and essentially free of gravel throughout. Runoff from this soil is slow to medium and erosion hazards are slight to medium. GdC soils cover approximately 46.3 acres of the site or 16.9 percent of the proposed project site.

Soper cobbly loam, 25 to 50 percent slopes, eroded (SuF2). SuF2 soils consist of well-drained soils on slopes ranging from 25 to 50 percent. This soil has a cobbly loamy surface layer and is 20 to 36 inches deep. Runoff is rapid on this soil and the hazard of erosion is high. Approximately 11.15 acres or 4.1 percent of the proposed project site consist of SuF2 soils.

Terrace escarpments (TeG). TeG soils vary in composition and are composed of relatively unconsolidated, yet very dense sandy gravel with cobbles and gravelly sand. This soil varies from a medium and grained sand to a poorly graded gravel with up to 60 percent of medium, sub rounded gravel in a coarse sand matrix. TeG soils cover approximately 28 acres, approximately 10.3 percent of the proposed project site.

4.6.1.4 Geologic and Seismic Hazards

Geologic and seismic hazards discussed in this subsection include the following:

- Surface rupture;
- Ground shaking;
- Liquefaction;
- Subsidence and seismic settlement;
- Landslides/slope stability; and
- Expansive soils.

Surface Rupture. Surface rupture occurs where displacement or fissuring occurs along a fault zone. While primary ground damage due to earthquake fault rupture typically results in a relatively small percentage of the total damage in an earthquake, the location of structures or facilities too close to a rupturing fault can cause profound damage. It is difficult to reduce the hazards of surface rupture through structural design. The primary method to avoid this hazard is to either set structures and facilities away from active faults, or avoid their construction in proximity to an active fault.

Faults throughout Southern California have formed over millions of years. Some of these faults are considered inactive under present geologic conditions, and other faults are known to be active.¹ Such faults have either generated earthquakes in historical times (200 years), or show geologic and geomorphic indications of relatively recent movement. Faults that have moved in the relatively recent geological past are generally presumed to be the most likely candidates to generate damaging earthquakes in the lifetimes of residents, buildings, or communities.

Ground Shaking. Ground shaking causes the vast majority of earthquake damage. Source effects include earthquake size, location, and distance. The bigger and closer the earthquake is, the more severe the damage will be. The exact way that rocks move along the fault can also influence shaking, as can the orientation of the fault in the ground.

Path effects are caused by seismic waves that change direction as they travel through the earth's contrasting layers, just as light bounces (reflects) and bends (refracts) as it moves from air to water. Sometimes this can focus seismic energy at one location, and cause damage in unexpected areas.

¹ The Alquist-Priolo Earthquake Fault Zoning Act defines *active faults* as those that show proven displacement of the ground surface within about the last 11,000 years. *Potentially active faults* are those that show evidence of movement within the last 1.6 million years.

Site effects are brought about by seismic waves that slow down in the loose sediments and weathered rock at the surface of the earth. As they slow, their energy converts from speed to amplitude, which increases shaking. This is identical to the behavior of ocean waves. As the waves slow down near shore, their crests grow higher. Sometimes, too, seismic waves get trapped at the surface and resonate. Whether resonance will occur depends on the period (the length) of the incoming waves. Waves, soils and buildings all have resonant periods. When these match, tremendous damage can occur.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine-to-medium-grained soils in areas where the groundwater table is within 50 feet of the surface. Shaking suddenly causes soils to lose strength and behave as a liquid. Excess water pressure is vented upward through fissures and soil cracks, and a water-soil slurry bubbles onto the ground surface. The resulting features are called “sand boils,” “sand blows,” or “sand volcanoes.” Liquefaction-related effects include loss of bearing strength, ground oscillations, lateral spreading, and flow failures or slumping.

Subsidence and Seismic Settlement. Ground subsidence is typically a gradual settling or sinking of the ground surface with little or no horizontal movement, although fissures (cracks and separations) are common. Subsidence can range from small or local collapses to broad regional lowering of the surface of the earth. The causes of subsidence include:

- Dewatering of peat or organic soils;
- Dissolution in limestone aquifers;
- First-time wetting of moisture-deficient, low-density soils (hydrocompaction);
- Natural compaction;
- Liquefaction;
- Crustal deformation;
- Subterranean mining; and
- Withdrawal of fluids (groundwater, petroleum, or geothermal).

Most of the damage caused by subsidence is the result of oil, gas, or groundwater extraction from below the ground surface, or the organic decomposition of peat deposits. Ground subsidence may occur as a response to natural forces such as earthquake movements, which can cause abrupt elevation changes of several feet.

Land subsidence has been identified in the Chino region and the most northerly part of the *Corona North, California* USGS 7.5-minute quadrangle, which includes the northern portion of the City. Based on studies performed by others, these phenomena have resulted from pumping drawdown of the regional groundwater table (Weber 1977). However, no indications show that the City located south of the Prado Flood Control Basin has experienced significant regional subsidence over time.¹

Landslides/Slope Stability. The topography in Corona slopes relatively evenly from the east to west. Due to the lack of any natural extreme variations in topography, the City has not identified as being susceptible to landslide/slope stability hazards. Despite the lack of an identified slope stability hazard, drainages running through the site over time have created areas with significant topographic relief and bluffs within the proposed project site.

¹ City of Corona General Plan Technical Background Report, City of Corona, March 2004.

Expansive Soils. Expansive soils generally have a significant amount of clay particles that can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The extent of shrink/swell is influenced by the amount and kind of clay in the soil. The occurrence of these soils is often associated with geologic units having marginal stability. Expansive soils can be widely dispersed, and they can occur in hillside areas as well as low-lying alluvial basins.

4.6.2 Policies and Regulations

4.6.2.1 State Regulations

Alquist-Priolo Earthquake Fault Zoning Act. The major State legislation regarding earthquake fault zones is the *Alquist-Priolo Earthquake Fault Zoning Act*. In 1972, the State of California began delineating “Earthquake Fault Zones” (called Special Studies Zones prior to 1994) around and along faults that are “sufficiently active” and “well defined” to reduce fault-rupture risks to structures for human occupancy (California Public Resources Code §2621–2630). The boundary of an “Earthquake Fault Zone” is generally 500 feet from major active faults and from 200 to 300 feet from well-defined minor faults. The mapping of active faults has been completed by the State Geologist, and these maps are distributed to all affected cities, counties, and State agencies for their use in developing planning policies and controlling renovation or new construction.

The Seismic Hazards Mapping Act. Passed in 1990, the Seismic Hazards Mapping Act (SHMA) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The California Geological Survey (CGS) is the principal State agency charged with implementing the 1990 SHMA. Pursuant to the SHMA, the CGS is directed to provide local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The goal is to minimize loss of life and property by identifying and mitigating seismic hazards. The seismic hazard zones delineated by the CGS are referred to as “zones of required investigation.” Site-specific geotechnical hazard investigations are required by SHMA when construction projects fall within these areas.

Natural Hazards Disclosure Act. Effective June 1, 1998, the Natural Hazards Disclosure Act requires that sellers of real property and their agents provide prospective buyers with a “Natural Hazard Disclosure Statement” when the property being sold lies within one or more State-mapped hazard areas. If a property is located in a Seismic Hazard Zone as shown on a map issued by the State Geologist, the seller or the seller’s agent must disclose this fact to potential buyers.

4.6.2.2 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that involve geology and soils. Table 4.6.A identifies goals and policies that apply to the proposed project.

Table 4.6.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona Public Health and Safety Element	
<i>Goal 11.1: Substantially reduce the known level of risk to loss of life, personal injury, public and private property damage, economic and social dislocation, and disruption of vital community services that would result from earthquake damage or other geologic disturbance.</i>	
<p>Policy 11.1.1 Require new development and redevelopment to be undertaken in a manner that is in compliance with current seismic and geologic hazard safety standards, as follows:</p> <ul style="list-style-type: none"> • Regulate land uses in areas known to have, or have potential to have, significant seismic and/or other geologic hazards. • Require detailed scientific analyses of natural hazards to the satisfaction of the City Engineer as a condition of development approval within the City of Corona. • Provide for the ongoing review and upgrading of the Seismic Safety and Public Safety Elements. 	The project would be consistent with this policy as discussed in Sections 4.6.5 and 4.6.6.
<p>Policy 11.1.3 Protect community health and safety from the adverse effects of strong ground motion through the implementation of effective, state of the art standards for seismic design of structures and reduce the level of potential property damage from strong ground motion, as follows:</p> <ul style="list-style-type: none"> • Adopt and maintain high standards for seismic performance of buildings, through prompt adoption and strict enforcement of the best available standards for seismic design. • Adopt new ordinances and amend existing ordinances that require the incorporation of seismic safety and safety considerations in developments under the City's jurisdiction. 	The project would be consistent with this policy as discussed in Section 4.6.5.2.
<p>Policy 11.1.5 Protect community safety and essential services by reducing the potential for property damage from liquefaction, and by collecting detailed information on liquefaction susceptibility throughout the City, as follows:</p> <ul style="list-style-type: none"> • Determine the potential for liquefaction at proposed development and redevelopment sites prior to development approval and require that specific measures be implemented, as necessary, to prevent or reduce damage in the event of an earthquake. • Promote the collection of relevant data on groundwater levels and liquefaction susceptibility, as a basis for future refinement of liquefaction policies or procedures. • Include potential damage to essential community services in liquefaction mitigation programs. • Develop a means of reducing the liquefaction potential of existing facilities. 	The project would be consistent with this policy as discussed in Section 4.6.6.1.

4.6.3 Methodology

The analysis of potential geologic and soil-related impacts is based upon the City's Public Health and Safety Element of the General Plan, geotechnical studies prepared for the project site, literature prepared by the CDMG, information from the NRCS, mapping published by the USGS, and other documents such as the City's Building Code, and the City's Standard Design Guidelines, which were reviewed and summarized to establish existing conditions. In determining the level of significance, the

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analysis assumes that construction and operation of the proposed project would comply with relevant federal and state laws and regulations, as well as City General Plan policies.

4.6.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts to geology and soils are based on *CEQA Guidelines* (2011). A project would have a significant impact on geology and soils if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to CDMG Special Publication 42).
 - Strong seismic ground shaking.
 - Seismic-related ground failure, including liquefaction.
 - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994 or most current edition), creating substantial risks to life or property; and/or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

4.6.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards and policies would reduce potential impacts to a less than significant level.

4.6.5.1 Fault Rupture

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault?
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Surface rupture occurs where displacement or fissuring occurs along a fault zone. While primary ground damage due to earthquake fault rupture typically results in a relatively small percentage of the total damage in an earthquake, the location of structures or facilities too close to a rupturing fault can cause profound damage. It is difficult to reduce the hazards of surface rupture through structural design. The primary method to avoid this hazard is to either set structures and facilities away from active faults, or avoid their construction in proximity to an active fault.

Faults throughout Southern California have formed over millions of years. Some of these faults are generally considered inactive under present geologic conditions and other faults are known to be

active.¹ Such faults have either generated earthquakes in historical times (within the last 200 years) or show geologic and geomorphic indications of relatively recent movement. Faults that have moved in the relatively recent geological past are generally presumed to be the most likely candidates to generate damaging earthquakes in the lifetimes of residents, buildings, or communities.

State law prohibits the construction and placement of habitable structures within 50 feet of an active fault pursuant to the Alquist-Priolo Act. Additionally, the City implements policies related to fault rupture hazards; these policies are found in the General Plan in the Public Health and Safety Element. The General Plan includes goals and related policies to reduce or minimize the effects associated with fault rupture on residents and employees including (see Goals 11.1 and related policies in Table 4.6-A).

A *Preliminary Geotechnical Feasibility Investigation* (LOR Geotechnical Group, Inc. March 2002: Appendix G-1) was conducted for the proposed project site located within and around Bedford Canyon. Past studies have noted that the Elsinore Fault is located at the base of the Santa Ana Mountains and have documented the presence of this fault as an active fault zone in Southern California. Subsequently, the State of California determined the Elsinore Fault to be a significant active fault and established an Alquist-Priolo (A-P) Fault Zone. As previously identified, the boundary of an "Earthquake Fault Zone" is generally 500 feet from major active faults and from 200 to 300 feet from well-defined minor faults. The A-P Zone of the Elsinore Fault is not located within the proposed project limits. As noted in the *Addendum Fault Investigation* (LOR Geotechnical Group, Inc. March 2002: Appendix G-1) the *Preliminary Geotechnical Feasibility Investigation* noted the presence of nine potential features which exhibited evidence that they could be representative of past tectonic activity crossing the proposed project site. However, there is no evidence that would consider these features active and none of the features would be classified as an active earthquake hazard as defined by the State of California Alquist-Priolo Earthquake Fault Zone Act.

Although the project is located within a seismically active region, implementation of the proposed project would not result in the development of structures within an A-P Earthquake Fault Zone. The nearest known active earthquake fault is the Elsinore fault zone located approximately 0.5 mile southwest of the proposed project site. In the absence of an active fault located on site, no fault rupture hazard would occur and no mitigation would be required.

4.6.5.2 Ground Shaking

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong ground shaking?
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Development of the proposed project could result in the development of up to 1,621 residential dwelling units and approximately 745,300 square feet of commercial and light industrial uses. The proposed project site is located within Seismic Zone 4 originally defined by the Uniform Building Code. Ground shaking during a seismic event is considered to be high for the proposed project site due to the site's proximity to existing active faults (refer to previously referenced Figure 4.6.1). The extent of ground shaking associated with an earthquake is dependent upon the size of the earthquake and the geologic material of the underlying area.

Ground shaking resulting from activity on local faults would be felt within the proposed site during a seismic event. All future construction and development within the proposed site would be required to

¹ The Alquist-Priolo Earthquake Fault Zoning Act defines *active faults* as those that show proven displacement of the ground surface within about the last 11,000 years. *Potentially active faults* are those that show evidence of movement within the last 1.6 million years.

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comply with applicable provisions of the most recent adopted version of the California Building Code (CBC) and the City's Municipal Code. These codes and regulations detail specific measures regarding structural, mechanical, electrical, and plumbing construction practices including seismic design parameters to minimize the risk of loss, injury, or death resulting from strong ground shaking.

Additionally, State law prohibits the placement of habitable structures within 50 feet of an active fault. Adherence to the CBC and the Corona Municipal Code, which is required of all construction within the City, will reduce potential impacts associated with this issue to a less than significant level. No mitigation is required.

4.6.5.3 Soil Erosion or Loss of Topsoil

Threshold	Would the proposed project result in substantial soil erosion or the loss of topsoil?
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As identified in the *Preliminary Geotechnical Feasibility Investigation*, the proposed project site is underlain by various ages of relatively unconsolidated alluvial materials overlying various ages of sedimentary rocks. The *Soil Survey of Western Riverside County* identifies the following soils within the proposed project area: Arbuckle gravelly loam, Cortina cobbly loamy sand, Garretson gravelly very fine sandy loam, Soper cobbly loam, and terrace escarpments. Arbuckle gravelly loam and Garretson gravelly very fine sandy loam soils exhibit a slight to moderate hazard of erosion. Cortina cobbly loamy sand and Soper cobbly loam soils exhibit a high hazard of erosion.

Future development that would occur under the proposed project may result in modifications to the ground in the form of grading. The potential for natural erosion is likely to be high in areas of moderately steep to steep slopes, little or no vegetative cover, loose to unconsolidated sediments, and/or uncontrolled surface water runoff. The modification of topography from future development that may occur on the proposed project site may result in the removal of surface vegetation and the creation of slopes that may increase the potential for localized erosion.

All new development within the City that disturbs an area greater than an acre is required to obtain coverage under the National Pollution Discharge Elimination System (NPDES) General Construction Permit. One of the requirements of the NPDES General Construction permit is to implement Best Management Practices (BMPs) that would control erosion and runoff generated from construction activities. Examples of such BMP control measures include, but are not limited to, detention basins for containment and use of silt fencing, sandbags, or straw bales to control runoff.

Because the development of the proposed project would involve the ground disturbance of greater than one acre, construction activities would be regulated under the NPDES General Construction Permit. Since the NPDES General Construction Permit requires erosion control measures during construction activities, potential erosion impacts would be less than significant and no mitigation is required.

4.6.5.4 Septic Tanks

Threshold	Would the proposed Planning Area have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?
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The proposed project will include the construction of habitable structures and will be connected to existing wastewater facilities owned and operated by the City of Corona Department of Water and Power. Therefore, septic tanks would not be necessary for the proposed project. Because the proposed project would not include the installation of septic tanks or alternative wastewater disposal systems, no impacts would occur. No mitigation is required.

4.6.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.6.6.1 Seismic-Related Ground Failure

Impact 4.6.6.1: *Future development permitted by the proposed project may locate development in an area susceptible to landslides.*

Threshold	Would the proposed project expose persons or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic ground failure?
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As previously identified, development of the proposed project could result in the development of up to 1,621 residential dwelling units and approximately 745,300 square feet of commercial and industrial uses. The proposed project site is located within Seismic Zone 4 as originally defined by the Uniform Building Code. Figure 5.1-1 of the *City of Corona General Plan Technical Background Report* indicates the location and type of geologic hazards that are present within the City including landslide, fault, and liquefaction hazards.

Landslides/Slope Stability. Figure 5.1-1 of the *Technical Background Report* depicts areas within the City and portions of the Sphere of Influence that are potentially susceptible to landslides. Generally, these deposits occur in the steep slopes of the Santa Ana Mountains, which are underlain by fractured and weathered Santiago Peak Volcanics and slate of the Bedford Canyon Formation. Landslide deposits are also relatively abundant in terrain near the trace of the Elsinore Fault Zone, and in some terrain underlain by Cretaceous period and Tertiary period sedimentary units.

As stated in the *Technical Background Report*, the potential for earthquake-induced landsliding in hillside terrain in the City is present. Generally these types of failures consist of rock falls, disrupted soil slides, rock slides, soil lateral spreads, soil slumps, soil block slides, and soil avalanches. Areas having the potential for earthquake-induced landsliding generally occur in areas of previous landslide movement, or where local topographic, geological, geotechnical, and subsurface water conditions indicate a potential for permanent ground displacements. In general, areas such as the steep slopes of the Santa Ana Mountains and the steep slopes within the Elsinore Fault Zone are considered to be relatively susceptible to earthquake-induced landsliding.

As identified in the *Preliminary Geotechnical Feasibility Investigation* prepared for the proposed project, the majority of this site lies on a relatively flat surface and no areas of landsliding or mass movement were observed in the flatter portions of the site. Along both the north and southern portions of the lower lying wash region, very deep near vertical cliffs are present. A relatively small landslide was noted along the southern wall of the northern bluff. Larger landslides were observed within the southeastern and southwestern portions of the site. The presence of these landslides indicates the potential for future landsliding within the project area and the potential for significant impacts to occur within the project site. This is a potentially significant impact requiring mitigation.

Subsidence and Seismic Settlement. Ground subsidence is typically a gradual settling or sinking of the ground surface with little or no horizontal movement, although fissures are common. Subsidence can range from small or local collapses to broad regional lowering of the surface of the earth. The causes of subsidence include dewatering of peat or organic soils; dissolution in limestone aquifers; first-time wetting of moisture-deficient, low-density soils (hydrocompaction); natural compaction; liquefaction; crustal deformation; subterranean mining; and withdrawal of fluids (groundwater, petroleum, or geothermal).

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Most of the damage caused by subsidence is the result of oil, gas, or groundwater extraction from below the ground surface, or the organic decomposition of peat deposits. Ground subsidence may occur as a response to natural forces such as earthquake movements, which can cause abrupt elevation changes of several feet. Land subsidence has been identified in the Chino region and the most northerly part of the *Corona North, California* USGS 7.5-minute quadrangle, which includes the northern portion of the City. Based on studies performed by others, these phenomena have resulted from pumping drawdown of the regional groundwater table (Weber 1977). However, no indications show any City locations south of the Prado Flood Control Basin have experienced significant regional subsidence over time.

The project site is south of the Prado Flood Control Basin area and has not exhibited any indication of subsidence. For this reason, impacts associated with this issue are considered to be less than significant and no mitigation is required. The proposed project does not include any activity known to cause damage by subsidence (e.g., oil, gas, or groundwater extraction). Settlement generally occurs within areas of loose, granular soils with relatively low density. The proposed project site is underlain by relatively dense alluvial and dense sedimentary bedrock materials and the potential for settlement is considered low. Because the proposed project site does not exhibit characteristics of a high potential for subsidence or settlement, impacts are considered less than significant. No mitigation is required.

Liquefaction. Liquefaction occurs primarily in saturated, loose, fine-to-medium-grained soils in areas where the groundwater table is within 50 feet of the surface. Shaking suddenly causes soils to lose strength and behave as a liquid. Excess water pressure is vented upward through fissures (cracks and separations) and soil cracks, and a water-soil slurry bubbles onto the ground surface. The resulting features are called “sand boils,” “sand blows,” or “sand volcanoes.” Liquefaction-related effects include loss of bearing strength, ground oscillations, lateral spreading, and flow failures or slumping. Generally, areas with a high potential for liquefaction include the Prado Basin and adjacent areas in the northwestern portion of the City. Areas in the City with a low potential for liquefaction occur as generally north–south running bands in the western, central, and southeastern portions of the City, with an east–west running band across the northern portion of the City. As depicted in Figure 5.1-1 of the *Technical Background Report*,¹ the proposed project site is located in an area with low liquefaction potential.

As previously identified, the potential for liquefaction generally occurs during strong ground shaking within relatively cohesionless loose sediments where the groundwater is typically less than 50 feet below the surface. Borings collected during the *Preliminary Geotechnical Feasibility Investigation* indicates that the groundwater depth at the proposed project site is greater than 50 feet below the surface, consistent with the information provided in the City’s General Plan. The elevated portions of the proposed project site are underlain by dense materials of older alluvium, which generally preclude liquefaction. Because the proposed project site does not exhibit characteristics of a high potential for liquefaction, impacts are considered less than significant. No mitigation is required.

Because the potential does exist for seismically-induced landslides to occur on site, impacts are considered potentially significant and mitigation measures are required.

Mitigation Measures. The following mitigation measures have been identified to reduce impacts associated with landslides.

4.6.6.1A Prior to the initiation of any on-site construction, the project contractor shall remove all loose, compressible alluvial and fill materials from areas to receive engineered compact fill. Actual depths of removal shall be verified during future site-specific

¹ *City of Corona General Plan Technical Background Report*, City of Corona, March 2004.

preliminary soils investigations and ultimately during the grading operation by observation and in-place density testing.

- 4.6.6.1B** All on-site soils shall provide adequate quality fill material provided they are free from organic matter and other deleterious materials. Unless approved by the project geotechnical engineer, rock or similar irreducible material with a maximum dimension greater than six inches shall not be buried or placed in fills. Oversized material may be stockpiled for landscaping purposes or placed in a rock disposal area as approved by the project owner, developer, geotechnical engineer, and City. Import fill shall be inorganic, non-expansive granular soils free from rocks or lumps greater than six inches in maximum dimension. Sources for import fill shall be approved by the project geotechnical engineer prior to their use. Fill shall be spread in maximum eight-inch uniform loose lifts; each lift brought to near optimum moisture content, and compacted to a relative compaction of at least 90 percent in accordance with ASTM D 1557.
- 4.6.6.1C** Cut and fill slopes shall be planned at gradients no steeper than two horizontal to one vertical. Additional information regarding any proposed cut slopes and the existing natural slope stability should be addressed within the site specific preliminary soils investigations when grading/development plans are made available for the specific tracts/development areas.
- 4.6.6.1D** Where fills are to be placed against existing slopes steeper than five horizontal to one vertical, the fill shall be properly keyed and benched into competent native materials. The key, constructed across the toe of the slope, shall be a minimum of 12 to 15 feet wide, a minimum of two feet deep at the toe, and sloped back at 2 percent. Benches shall be constructed at approximately two to four feet vertical intervals.
- 4.6.6.1E** Slopes at the project site shall be planted with a deep-rooted groundcover as soon as possible after completion. The use of succulent ground covers such as iceplant or sedum is not recommended. If watering is necessary to sustain plant growth on slopes, then the watering operation shall be monitored to ensure proper operation of the irrigation system and to prevent overwatering.
- 4.6.6.1F** Prior to the initiation of any on-site construction, evidence shall be submitted to the City for review and approval that on-site development has incorporated the design and siting recommendations detailed in the site-specific geotechnical investigation.

With implementation of **Mitigation Measures 4.6.6.1A** through **4.6.6.1F**, impacts related to landslides would be reduced to a less than significant level.

4.6.6.2 Expansive Soils

Impact 4.6.6.2: *Future development permitted by the proposed project may locate development in an area with expansive soils.*

Threshold	Would the proposed project be located on expansive soil, creating substantial risks to life or property?
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While the City of Corona General Plan Final EIR does not identify a significant impact related to expansive soils based on the requirement for all projects within the City to comply with the CBC and City Municipal Code, the *Preliminary Geotechnical Feasibility Investigation* conducted for the proposed project, indicated that one area on site was noted to contain clayey fines and is considered to have a medium expansion potential when tested in accordance with Standard 18-2 as originally defined by the Uniform Building Code. This medium expansive soil is considered to be an anomaly

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since it was observed within only 2 of 54 excavations placed at the project site. However, because the potential does exist for expansive soils to be present on site, impacts are considered potentially significant and mitigation measures are required.

Mitigation Measures. The following mitigation measure has been identified to reduce impacts associated with expansive soils.

4.6.6.2A On-site soils and any imported soils for individual tracts/development areas shall be evaluated for their expansion potential prior to grading and ultimately following completion of the grading operation. The evaluation shall determine and identify specialized construction procedures to specifically resist expansive soil activity in accordance with the CBC and/or applicable local ordinances.

With implementation of **Mitigation Measure 4.6.6.2**, impacts related to expansive soils would be reduced to a less than significant level.

4.6.7 Cumulative Impacts

The cumulative area for geologic issues is the City of Corona and western Riverside County, within the larger context of Southern California due to regional seismicity. The project area has potential geotechnical and soils constraints, as the entire Southern California area contains a number of major regional and local faults, including the San Andreas, San Jacinto, and Elsinore Faults.

The presence of regional faults creates the potential for damage to structures or injury to persons during seismic events. However, City, County, and State regulations provide guidelines for development in areas with geologic constraints and ensure that the design of buildings is in accordance with applicable CBC standards and other applicable standards, which reduces potential property damage and human safety risks to less than significant levels. Anticipated development in the City and surrounding area in general will not have a cumulatively considerable impact on earth resources, nor will regional geotechnical constraints have a cumulatively considerable impact on the proposed project or cumulative projects, as long as proper design and engineering are implemented based on available seismic and other geotechnical data. The proposed project represents an incremental portion of this potential impact, so the project will not have cumulatively significant impacts in this regard.

Because it is reasonable to conclude that all development within seismically active areas will be required to adhere to applicable State regulations, CBC standards, and the design and siting standards required by local agencies, a less than significant cumulative impact would occur with implementation of the proposed project.

4.7 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

This section defines climate change and greenhouse gases and presents the current legislation and programs addressing climate change in California. The section quantifies existing and potential future greenhouse gas emissions associated with the proposed project based on the *Arantine Hills Climate Change Analysis*¹ prepared for the proposed project. It also recommends mitigation measures that could be implemented to reduce those emissions.

4.7.1 Existing Setting

4.7.1.1 Global Climate Change

Global climate change is the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The Earth's average near-surface atmospheric temperature rose 0.6 ± 0.2 degrees Celsius ($^{\circ}\text{C}$) ($1.1 \pm 0.4^{\circ}\text{F}$) in the 20th century. Climate change refers to any significant change in measures of climate such as temperature, precipitation, or wind, lasting for decades or longer (Environmental Protection Agency [EPA], 2007). Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation); and/or
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO_2) and other compounds, cumulatively termed greenhouse gases (GHGs). GHGs are effective in trapping infrared radiation that otherwise would have escaped the atmosphere, thereby warming the atmosphere, the oceans, and earth's surface (EPA 2007). The prevailing scientific opinion on climate change is that "most of the warming observed over the last 50 years is attributable to human activities."² The increased amounts of CO_2 and other GHGs are the primary causes of the human-induced component of warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2 , methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). In the last 200 years, substantial quantities of GHGs have been released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, enhancing the natural greenhouse effect, which is believed to be causing global warming. While human-made GHGs include CO_2 , CH_4 , and N_2O , some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere.

Natural sources of CO_2 include the respiration (breathing) of humans and animals and evaporation from the oceans. Together, these natural sources release approximately 150 billion tonnes³ of CO_2 each year, far outweighing the 7 billion tonnes of human-made emissions from fossil fuel burning, waste incineration, deforestation, and cement manufacture. Nevertheless, natural removal processes such as photosynthesis by land- and ocean-dwelling plant species cannot keep pace with this extra input of human-made CO_2 , and consequently the gas is building up in the atmosphere.⁴

¹ Urban Crossroads, Inc., *Arantine Hills Specific Plan Climate Change Analysis*, May 13, 2011.

² Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis*, <http://www.ipcc.ch>.

³ A tonne means a ton in the metric unit system; it is also called a metric ton. A tonne is 1,000 kilograms, or approximately 2,204 pounds.

⁴ Enviropedia, http://www.enviropedia.org.uk/Global_Warming/Emissions.php.

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Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Human-made sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. Total annual emissions of CH₄ are approximately 500 million tonnes, with human-made emissions accounting for the majority. As for CO₂, the major removal process of atmospheric CH₄—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

Worldwide man-made GHG emissions are tracked for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Man-made GHG emissions for Annex I nations are available through 2007 while man-made GHG emissions for Non-Annex I nations are available through 2005. The sum of these emissions totaled approximately 42,133 million metric tons of carbon dioxide equivalent (MMTCO₂E).¹ It is important to note that the global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data.² Emissions from the top five countries and the European Union accounted for approximately 55 percent of the total global GHG emissions, according to the most recently available data. The United States was the number two producer of GHG emissions. The primary GHG emitted by human activities in the United States was CO₂, representing approximately 84 percent of total GHG emissions. CO₂ from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 80 percent of the GHG emissions.³

California is the fifteenth largest emitter of greenhouse gases on the planet, representing about 2 percent of the worldwide emissions. In December 2007, the California Air Resources Board (CARB) approved a GHG target for year 2020 equivalent to the State's calculated GHG level in 1990. The CARB developed the 2020 target after extensive technical work and a series of stakeholder meetings. The 2020 target of 427 MMTCO₂E requires the reduction of 169 MMTCO₂E, or approximately 30 percent, from the State's projected 2020 emissions of 596 MMTCO₂E (business as usual) and the reduction of 42 MMTCO₂E, or almost 9 percent, from 2008 emissions. Table 4.7.A identifies the current emissions and projected 2020 emissions of GHGs for the State.⁴

Based upon the 2008 GHG inventory data for the 2000–2008 GHG emissions inventory, California emitted approximately 474 MMTCO₂E including emissions resulting from imported electrical power in 2008.

Table 4.7.A: California GHG Emissions—Current and Projected (MMTCO₂E)

Sector	2008 Emissions	Projected 2020 Emissions (BAU)
Transportation	175.0	225.4
Electricity	116.4	139.2
Commercial and Residential	43.1	46.7
Industry	92.7	100.5
Recycling and Waste	6.7	7.7
High Global Warming Potential*	15.7	46.9
Agriculture	28.1	29.8

¹ The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the United Nations Framework Convention on Climate Change data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php and "Flexible GHG Data Queries" with selections for total GHG emissions excluding LULUCF/LUCF, all years, and non-Annex I countries.

² EPA, "Inventory of US Greenhouse Gas Emissions and Sinks 1990–2006," <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>, 2008.

³ Ibid.

⁴ CARB Climate Change Scoping Plan, December 2008.

Table 4.7.A: California GHG Emissions—Current and Projected (MMTCO₂E)

Sector	2008 Emissions	Projected 2020 Emissions (BAU)
Forest Net Emissions	-4.0	0.0
Emissions Total	474	596

* This category includes semiconductor manufacturing and other industrial processes that emit GHGs that have high global warming potential, such as sulfur hexafluoride (SF₆) and are tracked separately from other sectors.

BAU = Business as Usual

Source: CARB. Greenhouse Gas Inventory. <http://www.arb.ca.gov/cc/inventory/inventory.htm>

4.7.1.2 Effects of Global Climate Change

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution. Table 4.7.B lists greenhouse gases, the effects of each greenhouse gas, and sources for each of the greenhouse gases.

Additionally, according to the 2006 California Climate Action Team (CAT) Report,¹ the following climate change effects, which are based on trends established by the United Nations Intergovernmental Panel on Climate Change (IPCC), can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas;
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures;
- Increased electricity demand, particularly in the hot summer months; and
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

4.7.1.3 Existing Greenhouse Gas Emissions

With the exception of a single unoccupied temporary trailer and limited surface improvements, the project site is currently vacant, and therefore does not generate emissions.

4.7.2 Policies and Regulations

4.7.2.1 Federal Regulations

Energy Policy and Conservation Act. The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act,

¹ California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006.

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Table 4.7.B: Greenhouse Gas Properties, Effects, and Sources

Constituent	Description and Physical Properties	Health Effects	Sources
Water Vapor	Water vapor (H ₂ O) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization.	There are no health effects from water vapor. When some pollutants come in contact with water vapor, they can dissolve and then the water vapor can be a transport mechanism to enter the human body.	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.
Carbon Dioxide	Carbon dioxide (CO ₂) is an odorless, colorless natural greenhouse gas.	Outdoor levels of carbon dioxide are not high enough to result in negative health effects.	Carbon dioxide is emitted from natural and anthropogenic (human) sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Methane	Methane (CH ₄) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10–12 years) compared to other greenhouse gases.	There are no health effects from methane.	Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropogenic sources include fossil-fuel combustion and biomass burning.
Nitrous Oxide	Nitrous oxide (N ₂ O), also known as laughing gas, is a colorless greenhouse gas.	Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. It is harmless in small doses. In some cases, heavy and extended use can cause Olney's Lesions (brain damage). There are no known health effects at ambient atmospheric concentrations.	Concentrations of nitrous oxide began to rise at the beginning of the Industrial Revolution. In 1998, the global concentration was 314 parts per billion. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used as fuel in rocket engines and in race cars.
Chloro-fluorocarbons	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C ₂ H ₆) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface).	In confirmed indoor locations, working with CFC-113 or other CFCs is thought to have resulted in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation. There are no known health effects at ambient atmospheric concentrations.	CFCs have no natural source and were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful; so much so that levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some CFCs will remain in the atmosphere for over 100 years.
Hydro-fluorocarbons	Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant.	None.	HFCs are man-made for applications such as automobile air conditioners and refrigerants.
Per-fluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF ₄) and hexafluoroethane (C ₂ F ₆).	None.	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
Sulfur Hexafluoride	Sulfur hexafluoride (SF ₆) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest global warming potential of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 parts per trillion.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces oxygen. There are no known health effects at ambient atmospheric concentrations.	Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
Aerosols	Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols.	Health effects are similar to those associated with particulate matter.	Sulfate aerosols are emitted when fuel containing sulfur is burned. Another source of aerosols (in the form of black carbon or soot) is the result of incomplete combustion or the incomplete burning of fossil fuels. Although particulate matter regulation has been lowering aerosol concentrations in the United States, global concentrations are likely increasing as a result of other sources around the world.

Source: LSA Associates, Inc. March 2010

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Congress established the first fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the National Highway Traffic and Safety Administration (NHTSA), which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon (mpg). Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. The Corporate Average Fuel Economy (CAFE) program, administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Energy Policy Act of 1992. The Energy Policy Act (EPA) of 1992 was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPA includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPA requires certain federal, state, and local governments and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPA. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

Energy Policy Act of 2005. The Energy Policy Act of 2005 includes provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Federal Regulation of Climate Change. Climate change and GHG reduction are also concerns at the federal level; however, at this time, no federal legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the EPA to regulate GHG as a pollutant under the Clean Air Act (*Massachusetts vs. Environmental Protection Agency et al.*, 549 U.S. 497 (2007)). The court ruled that GHG fits within the Clean Air Act's definition of a pollutant, and that the EPA has the authority to regulate GHGs. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under Section 202(a) of the Clean Air Act:

- *Endangerment Finding:* The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.
- *Cause or Contribute Finding:* The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the EPA's proposed greenhouse gas emission standards for

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light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009.¹

4.7.2.2 State Regulations

California Code of Regulations Title 24, Part 6. Enacted in 1978, this part of the California Code established energy efficiency standards for residential and nonresidential buildings in response to a legislative mandate to reduce California's energy consumption. These standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recent standards were adopted and went into effect January 1, 2010.² Such standards include the provision of cool roofs, demand control ventilation, skylights for day-lighting in buildings, thermal breaks for metal building roofs, and lighting power limits. These standards are expected to reduce the growth in electricity use of residential and non-residential buildings. Continual updates to Title 24 along with the State's implementation of AB 1493 and SB 1368 will have a major impact on the State's attainment of the AB 32 goals.

California Code of Regulations Title 24, Part 11. This part of the California Code is known as the California Green Building Standards Code (CALGreen Code) and was enacted to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts with positive environmental impacts and through encouragement of sustainable construction practices. The CALGreen Code is not intended to substitute or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission (CBSC). This update to Part 11 of Title 24 of the California Code of Regulations was effective January 1, 2011.

Assembly Bill 4420 (AB 4420). The State of California has been studying the impacts of climate change since 1988, when AB 4420 was approved. This legislation directed the California Energy Commission (CEC), in consultation with the CARB and other agencies, to study the implications of global warming on California's environment, economy, and water supply. The CEC was also directed to prepare and maintain the State's inventory of GHG emissions.

Assembly Bill 1493 (AB 1493). In 2002, Governor Grey Davis signed AB 1493, which required the CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the State."

Executive Order S-3-05. Executive Order S-3-05 was signed by Governor Schwarzenegger in 2005 proclaiming California is vulnerable to the impacts of climate change. It states that increased temperatures could reduce the Sierra Nevada's snowpack, worsen California's air quality problems, and potentially cause a rise in sea levels. The Executive Order establishes total GHG emission targets including emissions reductions to the 2000 level by 2010, and the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

¹ <http://www.epa.gov/climatechange/endangerment.html>.

² *Nonresidential Compliance Manual for California's 2008 Energy Efficiency Standards*, California Energy Commission, effective January 1, 2010, <http://www.energy.ca.gov/title24/2008standards/index.html>, website accessed on March 4, 2010 .

Assembly Bill 32 (AB 32). In September 2006, Governor Schwarzenegger signed Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 directs the CARB to implement regulations for a cap on sources or categories of sources of GHG emissions. The bill requires that the CARB develop regulations to reduce emissions with an enforcement mechanism to ensure that the reductions are achieved, and to disclose how it arrives at the cap. It also includes conditions to ensure businesses and consumers are not unfairly affected by reductions.

AB 32 requires the CARB to:

- Adopt a list of discrete early action measures by July 1, 2007, that can be implemented before January 1, 2010;
- Establish a statewide GHG emissions cap for 2020 based on 1990 emissions and adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;
- Indicate how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions by January 1, 2009; and
- Adopt regulations by January 1, 2011, to achieve the maximum technologically feasible and cost-effective reductions in GHG, including provisions for using both market mechanisms and alternative compliance mechanisms.

AB 32 codifies Executive Order S-3-05's¹ year 2020 goal by requiring that statewide GHG emissions be reduced to 1990 levels by the year 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be implemented no later than January 1, 2012. To effectively implement the cap, AB 32 directs the CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels.

Senate Bill 1368 (SB 1368). In September 2006, Governor Arnold Schwarzenegger signed Senate Bill 1368, which calls for the adoption of a GHG performance standard for in-state and imported electricity generators to mitigate climate change. On January 25, 2007, the California Public Utilities Commission adopted an interim GHG emissions performance standard. This standard is a facility-based emissions standard requiring all new long-term commitments for baseload generation to serve California consumers with power plants that have emissions no greater than a combined cycle gas turbine plant. The established level is 1,100 pounds of CO₂ per megawatt-hour.

Executive Order S-01-07. Executive Order S-01-07 was signed by Governor Schwarzenegger on January 18, 2007, mandating a statewide goal to reduce the carbon intensity of California's transportation fuel by at least ten percent by 2020. The order also requires that a California-specific Low Carbon Fuel Standard be established for transportation fuels.

Senate Bill 97 (SB 97). Senate Bill 97 was approved on August 25, 2007, to address GHG analysis under CEQA. This legislation mandates that the Office of Planning and Research (OPR) prepare and submit guidelines to the California Resource Agency (CRA) for the mitigation of GHG emissions and their effects by July 1, 2009, and their adoption by January 1, 2010. This legislation does not provide for any guidance for non-exempted projects in the interim period between the passage of SB 97 and the adoption of guidelines by the OPR.

As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of

¹ Executive Order S-3-05 establishes greenhouse gas emission reduction targets for California.

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Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010. Proposed changes to the guidelines included new questions in Appendix G regarding Greenhouse Gas Emissions and major changes to the Transportation/Traffic checklist questions (Appendix A-3, CEQA Guidelines changes).

Senate Bill 375. SB 375 was signed into law on October 1, 2008. SB 375 provides emissions-reduction goals around which regions can plan, integrating disjointed planning activities, and provides incentives for local governments and developers to follow new conscientiously planned growth patterns.

Senate Bill 1078 (SB 1078), Senate Bill 107 (SB 107), Executive Order S-14-08, and Senate Bill X1-2 (SB X1-2). Established in 2002 SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Established in 2006, SB 107 (Chapter 464, Statutes of 2006) accelerated this requirement to the year 2010. In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expanded the State's renewable energy standard from 20 percent to 33 percent by the year 2020. In an effort to codify the 33 percent by 2020 goal, SB X1-2 was signed by Governor Edmund G. Brown Jr. in April 2011 preempting CARB's 33 percent Renewable Electricity Standard, which applies to all electricity retailers in the State including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new goals of 20 percent of retail sales from renewable source by the end of 2013, 25 percent by the end of 2016, and the 33 percent requirement being met by the end of 2020.

4.7.2.3 Regional Regulations

As stated above, SB 375 took effect in 2009 and required regional municipal planning organizations to develop regional land use plans that demonstrate how the regions will achieve compliance with the GHG reduction goals of AB 32. Cities located within these regions are then required, in turn, to update their General Plans in accordance with the regional plans. Non-compliance with SB 375 will result in transportation funds being withheld from the regional and/or local agency. To date, the regional municipal planning organization for Riverside County (the Western Riverside Council of Governments, or WRCOG) has not adopted a regional plan that is in compliance with SB 375.

4.7.2.4 City of Corona General Plan Policies

The City of Corona General Plan currently does not include policies and goals that apply to climate change and greenhouse gases. However, the City is in the process of preparing a Climate Action Plan that when adopted will serve to implement various greenhouse gas reduction strategies contained in the General Plan. Specifically, the Environmental Resources Element of the General Plan (Chapter 5) includes energy conservation and air pollution reduction goals. To foster implementation of these goals for the sake of greenhouse gas reduction, the City will adopt the Corona Climate Action Plan (C-CAP). The C-CAP will ensure that impacts from development on climate change is minimized, energy is conserved, and land use decisions and all internal City operations are consistent with adopted state legislation. The City anticipates adoption of the C-CAP in the second quarter of 2012.

4.7.3 Methodology

Bearing in mind that CEQA does not require “perfection” but instead “adequacy, completeness, and a good faith effort at full disclosure,” the analysis is based on methodologies and information available at the time this EIR was prepared. Estimation of GHG emissions in the future does not account for changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that is worse than that which is likely to be encountered. Additionally, as explained in greater detail below, many uncertainties exist regarding the precise relationship between specific levels of GHG emissions and the ultimate impact on global climate. Significant uncertainties also exist regarding the reduction potential of mitigation strategies. Thus, while information is presented below to assist the public and the City’s decision-makers in understanding the project’s potential contribution to global climate change impacts, the information available to the City is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

The recommended approach for GHG analysis included in the OPR June 2008 release is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance.¹ Neither the CEQA statute nor Guidelines prescribes quantitative thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the lead agency.

The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: “CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews.”

Pursuant to SB 97, the OPR is in the process of developing guidelines for analysis of the effects of GHG emissions. As part of this process, the OPR has asked CARB technical staff to recommend statewide interim thresholds of significance for GHGs. The CARB released a preliminary draft staff proposal in October 2008 that included initial suggestions for significance criteria related to industrial, commercial, and residential projects.

In March 2010, *CEQA Guidelines* amendments were adopted and include the following direction regarding determination of significant impacts from GHG emissions (Section 15064.4):

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
 - (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports

¹ State of California, 2008. Governor’s Office of Planning and Research. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act Review*. June 19.

its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or

- (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency may consider the following when assessing the significance of impacts from greenhouse gas emissions on the environment:
 - (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
 - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
 - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

CEQA Guidelines Section 15064(b) provides that the “determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data,” and further states that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

On February 3, 2011, the SCAQMD released the California Emissions Estimator Model (CalEEMod). The purpose of this new model is to more accurately calculate air quality and GHG emissions from direct and indirect sources and quantify applicable air quality and GHG reductions achieved from mitigation measures. The latest version of CalEEMod was utilized to calculate GHG emissions from the following source categories: construction, area, energy, mobile, waste, and water.

4.7.4 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, climate change/greenhouse gas emissions impacts would occur if the proposed project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Global climate change may result in significant adverse effects to the environment that will be experienced worldwide, with some specific effects observed in California. AB 32 requires statewide GHG emissions reductions to 1990 levels by 2020. Although these statewide reductions are now mandated by law, no generally applicable GHG emission threshold has yet been established.

State CEQA Guidelines Section 15064(b) provides that “...the determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data,” and further, that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary

with the setting.” The *State CEQA Guidelines* further indicate that even when thresholds are established, they may include “identifiable quantitative, qualitative or performance level of a particular environmental effect” (*State CEQA Guidelines*, Section 15064.7).

Some policymakers and regulators suggest that a zero emissions threshold would be appropriate when evaluating GHGs and their potential effect on climate change. Such a rule appears inconsistent with the State’s approach to mitigation of climate change impacts. AB 32 does not prohibit all new GHG emissions; rather, it requires a reduction in statewide emissions to a given level. Thus, AB 32 recognizes that GHG emissions will continue to occur; increases will result from certain activities, but reductions must occur elsewhere.

Individual projects incrementally contribute toward the potential for global climate change on a cumulative basis in concert with all other past, present, and probable future projects. While individual projects are unlikely to measurably affect global climate change, each of these projects incrementally contributes toward the potential for global climate change on a cumulative basis, in concert with all other past, present, and probable future projects. This analysis analyzes whether the project’s emissions should be considered cumulatively significant.

In order to evaluate the significance of a proposed project’s environmental impacts related to GHG emissions, it is necessary to identify quantitative or qualitative thresholds which, if exceeded, would constitute a finding of significance. As previously described, while project-related GHG emissions can be estimated the direct impact of such emissions on climate change and global warming cannot be determined on the basis of available science. There is no evidence at this time that the proposed project would directly affect global climate change. The SCAQMD has adopted a quantitative GHG emission significance threshold to assess direct impacts from industrial projects where the SCAQMD is the lead agency. The SCAQMD and other air quality agencies agree that GHG and climate change should be assessed as a potentially significant cumulative impact rather than a project-specific impact. The SCAQMD is considering the adoption of a numeric plan-level efficiency target of 6.6 MTCO₂E per service population.

Currently, there is no adopted threshold of significance for determining the cumulative significance of a project’s GHG emissions on global climate change. In the most recent IPCC Assessment Report (IPCC 2007b, Synthesis Report), the IPCC acknowledges that man-made warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedback even if GHG concentration were to be stabilized. The IPCC further found that both past and future man-made CO₂ emissions will continue to contribute to warming and sea level rise for more than a millennium, due to the time scales required for the removal of CO₂ from the atmosphere. Furthermore, the IPCC assessment noted that the definition of what is a dangerous man-made interference with the climate system and, consequently, the limits to be set for policy purposes are complex tasks that can only be partially based on science, as such definitions inherently involve normative judgments (IPCC 2007b – Working Group III).

Based on the information presented above, for the purpose of this analysis implementation of the proposed project may have a significant adverse impact on GHG emissions if it would result in any of the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment based on any applicable threshold of significance.
 - A potentially significant cumulative impact would occur if the proposed project exceeds the proposed SCAQMD threshold of 6.6 MTCO₂E per service population per year.
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

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- o A potentially significant cumulative impact would occur if the proposed project fails to show consistency with AB 32’s Scoping Plan and related measures.

4.7.5 Less than Significant Impacts

The following impacts were determined to be less than significant. For each of the following issues either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards and policies would reduce potential impacts to a less than significant level.

4.7.5.1 Greenhouse Gas Plan, Policy, Regulation Consistency

Threshold	Would the proposed project conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?
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The CAT and the CARB have developed several reports to achieve the Governor’s GHG targets that rely on voluntary actions of California businesses, local government and community groups, and State incentive and regulatory programs. These include the CAT’s 2006 “Report to Governor Schwarzenegger and the Legislature,” the CARB’s 2007 “Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California,” and the CARB’s “Climate Change Proposed Scoping Plan: a Framework for Change.”

The reports identify strategies to reduce California’s emissions to the levels proposed in Executive Order S-3-05 and AB 32 (i.e., 29% below existing “business as usual” emissions) that are applicable to proposed project. Table 4.7.C presents the applicable Recommended Actions (qualitative measures) identified to date by the CARB in its Climate Change Proposed Scoping Plan and whether or not the proposed project is consistent with the applicable Recommended Actions.

Table 4.7.C: Proposed Scoping Plan Recommended Actions for Climate Change

ID No.	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards	Yes	No
T-2	Transportation	Low Carbon Fuel Standard (Discrete Early Action)	Yes	No
T-3	Transportation	Regional Transportation-Related GHG Targets	Yes	No
T-4	Transportation	Vehicle Efficiency Measures	Yes	No
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)	No	No
T-6	Transportation	Goods-movement Efficiency Measures	No	No
T-7	Transportation	Heavy Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	No	No
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization	No	No
T-9	Transportation	High Speed Rail	No	No
E-1	Electricity and Natural Gas	Increased Utility Energy Efficiency Programs. More Stringent Building and Appliance Standards	Yes	No

Table 4.7.C: Proposed Scoping Plan Recommended Actions for Climate Change

ID No.	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
E-2	Electricity and Natural Gas	Increased Combined Heat and Power Use by 30,000 GWh	No	No
E-3	Electricity and Natural Gas	Renewable Portfolio Standard	No	No
E-4	Electricity and Natural Gas	Million Solar Roofs	No	No
CR-1	Electricity and Natural Gas	Energy Efficiency	No	No
CR-2	Electricity and Natural Gas	Solar Water Heating	No	No
GB-1	Green Buildings	Green Buildings	Yes	No
W-1	Water	Water Use Efficiency	Yes	No
W-2	Water	Water Recycling	No	No
W-3	Water	Water System Energy Efficiency	No	No
W-4	Water	Reuse Urban Runoff	No	No
W-5	Water	Increase Renewable Energy Production	No	No
W-6	Water	Public Goods Charge (Water)	No	No
I-1	Industry	Energy Efficiency and Co=Benefits Audits for Large Industrial Sources	No	No
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction	No	No
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission	No	No
I-4	Industry	Refinery Flare Recovery Process Improvements	No	No
I-5	Industry	Removal of Methane Exemption from Existing Refinery Regulations	No	No
RW-1	Recycling and Waste Management	Landfill Methane Control (Discrete Early Action)	No	No
RW-2	Recycling and Waste Management	Additional Reduction in Landfill Methane – Capture Improvements	No	No
RW-3	Recycling and Waste Management	High Recycling/Zero Waste	No	No
F-1	Forestry	Sustainable Forest Target	No	No
H-1	High Global Warming Potential Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)	No	No
H-2	High Global Warming Potential Gases	SF ₆ Limits in Non-Utility and Non-Semiconductor Manufacturing (Discrete Early Action)	No	No
H-3	High Global Warming Potential Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	No	No
H-4	High Global Warming Potential Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)	No	No

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Table 4.7.C: Proposed Scoping Plan Recommended Actions for Climate Change

ID No.	Sector	Strategy Name	Applicable to Project?	Will Project Conflict With Implementation?
H-5	High Global Warming Potential Gases	High GWP Reduction from Mobile Sources	No	No
H-6	High Global Warming Potential Gases	High GWP Reductions from Stationary Sources	No	No
H-7	High Global Warming Potential Gases	Mitigation Fee on High GWP Gases	No	No
A-1	Agriculture	Methane Capture at Large Dairies	No	No

Source: Urban Crossroad, Inc., March 2011.

As noted in Table 4.7.C, of the 39 Recommended Actions, the applicable Recommended Actions are those that are in the Transportation, Electricity and Natural Gas, Green Buildings, and Water sectors.

Applicable Recommended Actions in the Transportation sector include Actions T-1 through T-4. Action T-1 involves improvements to light-duty vehicle technology for the purposes of reducing GHG emissions through focusing on legislating improved controls for vehicle manufacturers. This Action would generally be considered applicable to the proposed project in that vehicles utilized by the proposed project during construction as well as post-construction would be subject to these standards, as applicable, and would be consistent with this Action. Action T-2 involves implementation of a low carbon fuel standard. In order to reduce the carbon intensity of transportation fuels, the CARB is developing a Low Carbon Fuel Standard (LCFS), which would reduce the carbon intensity of California's transportation fuels by at least ten percent by 2020 as called for by Governor Schwarzenegger in Executive Order S-01-07. While implementation of this standard is not within the purview of a development project, existing and future land uses such as those proposed by the project would be a substantial consumer of fuels for its vehicle fleet. Vehicles utilized by the proposed project during construction as well as post-construction would be subject to these standards through the use of LCFS fuels, as applicable, and would be consistent with this Action.

Action T-3 addresses regional transportation targets for reducing GHG emissions. A beneficial impact of the proposed project is that it may reduce vehicle miles traveled (VMT) within the region by reducing trip lengths and providing a sustainable community. The actions associated with implementation of the proposed project would allow for residential uses to be clustered around commercial and industrial uses and would encourage a reduction of VMT within the City. Action T-4 concerns vehicle efficiency measures such as the promotion of sustainable tire practices. The CARB is pursuing a regulation to ensure that tires are properly inflated when vehicles are serviced. In addition, the California Energy Commission in consultation with the California Integrated Waste Management Board is developing an efficient tire program focusing first on data gathering and outreach, then on potential adoption of minimum fuel-efficient tire standards, and on the development of consumer information requirements for replacing tires. While implementation of this standard is not within the purview of a development project, the proposed project would result in additional vehicle miles traveled. Vehicles utilized by the proposed project during construction as well as post-construction would be subject to these standards, as applicable, and would be consistent with this Action.

Applicable Recommended Actions in the Energy and Natural Gas sector include Action E-1. Action E-1, together with Action GB-1 (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards. Elements of this action include encouraging construction of zero net energy (ZNE) buildings and implementation of passive solar design. In addition to employing on-site electricity generation, a ZNE building must either replace natural gas with renewable energy for space and

water heating, or compensate for natural gas use by generating surplus electricity for sale on the State's electricity grid. The proposed project is required to comply with the 2008 Title 24 Energy Efficiency Standards and applicable Green Building Standards; therefore, the proposed project would not conflict with these Actions.

Applicable Recommended Actions in the Water sector includes Action W-1. Action W-1, Water Use Efficiency, involves the reduction in the energy consumption used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. The proposed project would install water-efficient fixtures and appliances and would not conflict with this Action.

GHG emissions reduction strategies were also set forth in the 2006 CAT Report, and the strategies included in the CAT Report that apply to the project are contained in Table 4.7.D, which also summarizes the extent to which the project would comply with the strategies to help California reach the emission reduction targets. The strategies listed in Table 4.7.D are addressed as either part of the project, required mitigation measures, or requirements under local or state ordinances.

Table 4.7.D: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
California Air Resources Board (CARB)	
Vehicle Climate Change Standards. AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light duty trucks. Regulations were adopted by the CARB in September 2004.	Consistent. Vehicles that would access the project site would be in compliance with CARB vehicle standards to the maximum extent feasible.
Other Light Duty Vehicle Technology. New standards would be adopted to phase in beginning in the 2017 model year.	
Heavy Duty Vehicle Emission Reduction Measures. Increased efficiency in the design of heavy duty.	
Diesel Anti-Idling. In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Consistent. Heavy duty diesel trucks that access the project site would be required to limit idling to no more than five minutes.
Hydrofluorocarbon Reduction. 1) Ban retail sale of HFC in small cans; 2) Require that only low GWP refrigerants be used in new vehicular systems; 3) Adopt specifications for new commercial refrigeration; 4) Add refrigerant leak-tightness to the pass criteria for vehicular Inspection and Maintenance programs; 5) Enforce federal ban on releasing HFCs.	Consistent. This measure applies to consumer products. When the CARB adopts regulations for these reduction measures, any products that the regulations apply to will comply with the measures.
Alternative Fuels: Biodiesel Blends. The CARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	Consistent. When the CARB adopts regulations for the use of biodiesel fuel in heavy duty truck, trucks supplying the commercial uses would comply with this measure.
Integrated Waste Management Board	
Achieve 50 percent Statewide Recycling Goal. Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989) will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Consistent. Project design would include provisions for tenants to recycle.

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Table 4.7.D: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Zero Waste – High Recycling. Additional recycling beyond the State's 50 percent recycling goal.	
Department of Forestry	
Urban Forestry. A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	Consistent. Implementation of the proposed project would result in the planting of additional trees and vegetation at the project site.
Department of Water Resources	
Water Use Efficiency. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	Consistent. The project shall implement U.S. EPA Certified Water Sense labeled or equivalent faucets and high-efficiency toilets, and implement water-conserving shower heads to the extent feasible.
California Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress. Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed building and additions to and alterations to existing buildings).	Consistent. The project would be compliant with updated (2008) Title 24 Standards for building construction.
Appliance Energy Efficiency Standards in Place and in Progress. Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	Consistent. Appliances purchased for use in the project would be consistent with existing energy efficiency standards.
Green Building Initiative. Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.	Consistent. With implementation of the project design features, the project is expected to reduce energy use. Additionally, the project would be consistent with energy standards required by Title 24 or better.
California Building Standards Commission	
California Green Building Standards Code. As of January 1, 2011, the California Green Building Standards Code (CALGreen) requires that new buildings reduce water consumption, employ building efficiency systems, divert construction waste from landfills, and install low pollutant-emitting finish materials. CALGreen's mandatory measures establish a minimum for green construction practices, and incorporate environmentally responsible buildings without significantly driving up construction costs. CALGreen has approximately 52 nonresidential mandatory measures and an additional 130 optional measures. Key mandatory measures for commercial buildings include specified parking for clean air vehicles, a 20% reduction of potable water use within buildings, a 50% construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and building efficiency systems for new, nonresidential buildings over 10,000 square feet.	Consistent. Compliance with CALGreen's mandatory measures will be required for all non-residential buildings constructed within the Specific Plan area.
Public Utilities Commission (PUC)	
California Solar Initiative. Installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced	Consistent. Recommended project design features include a provision that buildings shall be designed to accommodate renewable energy sources, such as photovoltaic solar

Table 4.7.D: Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
metering in solar applications; and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	energy systems as is economically and physically feasible.

GHG = greenhouse gas
Source: Urban Crossroads, Inc. March 2011.

As previously identified, implementation of the proposed project could result in the development of up to approximately 1,621 (or 1,806 if PA 16 is developed with age restricted units) residential dwelling units (approximately 130 acres), 745,300 square feet (approximately 17 acres) of commercial/industrial uses, approximately 52 acres of parks and open space, and approximately 16.5 acres of roadways. Development that would occur on the proposed project site is governed by the Arantine Hills Specific Plan. The Arantine Hills Specific Plan includes a variety of physical attributes and operational programs that would generally contribute to a reduction in operational-source pollutant emissions including GHG emissions. For example, the Specific Plan considers a variety of alternative transportation options including walking and biking. In addition, the Specific Plan also includes a *Sustainable Design Strategies* chapter that identifies various strategies where sustainable design practices can be implemented. The *Sustainable Design Strategies* chapter identifies strategies related to the following topics: site planning, energy efficiency, materials efficiency, water efficiency, occupant health and safety, and landscape design.

As identified in Table 4.7.D, future development that would occur under the proposed project would be consistent with GHG emission reduction strategies and policies. The project would implement appropriate GHG reduction strategies and would ensure that it does not conflict with or impede implementation of reduction goals identified in AB 32, Governor’s Executive Order S-3-05, and other strategies to help reduce GHGs to the level proposed by the Governor. In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Therefore, the proposed project would not conflict with any applicable plan, program, policy, or regulation related to the reduction of GHG emissions. Impacts are considered less than significant and no mitigation is required.

4.7.6 Significant Impacts

The following impact was determined to be potentially significant and mitigation measures have been recommended to reduce the significance of the identified impact.

4.7.6.1 Greenhouse Gas Emissions

Impact 4.7.6.1: *Implementation of the proposed project may have the potential to emit GHG emissions in excess of interim thresholds.*

Threshold	Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
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Future development that could occur within the proposed project site could generate GHG emissions during construction and operation activities. It is anticipated that the majority of energy consumption (and associated generation of GHG emissions) would occur during the project’s operation (as opposed to its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings and less than 20 percent is consumed during construction.¹ As of

¹ United Nations Environment Programme (UNEP), 2007. *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris, France.

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yet, there is no study that quantitatively assesses all of the GHG emissions associated with each phase of the construction and use of an individual development.

The following activities are associated with the proposed project and could directly or indirectly contribute to the generation of GHG emissions:

- **Removal of Vegetation:** The net removal of vegetation for construction results in a loss of the carbon sequestration in plants. However, planting of additional vegetation would result in additional carbon sequestration and would lower the carbon footprint of the project.
- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment.
- **Gas, Electric, and Water Use:** Natural gas use results in the emissions of two GHGs: CH₄ (the major component of natural gas) and CO₂ from the combustion of natural gas. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Preliminary estimates indicate that the total energy used to pump and treat this water exceeds 6.5 percent of the total electricity used in the state per year.¹
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. CH₄ is 25 times more potent than CO₂. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.

The proposed project was analyzed for the potential construction of its proposed land uses, water, sewer, and drainage infrastructure, and roadways. Implementation of the proposed project would result in the development of up to 1,621 (or 1,806 if PA 16 is developed with age restricted units) residential dwelling units (approximately 130 acres), 745,300 square feet (approximately 17 acres) of commercial/industrial uses, approximately 52 acres of parks and open space, and approximately 16.5 acres of roadways. GHG emissions that could be generated on the proposed project site would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. There would also be long-term regional emissions associated with project-related vehicular trips and stationary source emissions, such as natural gas used for heating. Preliminary guidance from OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities. The calculation presented in Table 4.7.E, includes construction emissions in terms of CO₂ and annual carbon dioxide equivalent (CO₂e) GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that could result from the development of the proposed project. Calculations and model run sheets for GHG emissions are provided in Appendix C of this EIR.

¹ California Energy Commission (CEC), 2004. *Water Energy Use in California* (online information sheet) Sacramento, CA, August 24. Website: energy.ca.gov/pier/iaw/industry/water.html. Accessed July 24, 2007.

Table 4.7.E: Total Project Annual Greenhouse Gas Emissions Without Mitigation

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Annual construction-related emissions amortized over 30 years	695.75	0.79	—	696.54
Area Source Emissions	1,208.11	1.26	6.20	1,216.04
Energy Emissions	13,118.44	5.88	40.30	13,166.08
Mobile Source Emissions	28,650.34	26.25	—	28,676.62
Waste Emissions	339.04	420.84	—	759.80
Water Usage Emissions	1,860.83	96.81	40.30	1,997.59
Total CO₂e (All Sources)				46,512.67
Service Population				6,807
MT CO₂e/Service Population (SP)/Year				6.83
Threshold MT CO₂e/SP/Year				6.6
Significant?				Yes

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers.
 CH₄ = methane CO₂e = carbon dioxide equivalent
 CO₂ = carbon dioxide N₂O = nitrous oxide
 Source: Urban Crossroads, Inc. March 2011.

As identified in Table 4.7.E, GHG emissions that could be generated by development on the proposed project site predominantly consist of CO₂. In comparison to criteria air pollutants such as ozone and PM₁₀, CO₂ emissions persist in the atmosphere for a substantially longer period of time. While emissions of other GHGs, such as CH₄, are important with respect to global climate change, emission levels of other GHGs are less dependent on the land use and circulation patterns associated with the proposed project than are levels of CO₂.

Due to the global nature of this phenomenon and the scale of the emissions, total emissions are expressed in units of teragrams (a trillion [10¹²] grams or one million metric tons [tonnes]) per year (Tg/year). This is the standard metric unit used worldwide. As identified in Table 4.7.E, implementation of the proposed project could produce approximately 46,500 metric tons per year of CO₂, which is approximately 0.0465 Tg/year of CO₂. As a comparison, the existing emissions from the entire SCAG region are estimated to be approximately 176.79 million metric tonnes of CO₂ per year and approximately 496.95 million metric tonnes of CO₂ per year for the entire state.

At present, there is a federal ban on CFCs; therefore, it is assumed development that could occur under the proposed project would not generate emissions of CFCs. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment; however, the details regarding refrigerants to be used in the project site are unknown at this time. PFCs and sulfur hexafluoride are typically used in industrial applications, none of which would be used on the project site. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.

The proposed project is estimated to accommodate a service population of 6,807.¹ As identified in Table 4.7.E, GHG emissions that could be generated by development on the proposed project site would exceed the threshold of 6.6 MTCO₂e per service population per year prior to mitigation as the project is estimated to emit 6.83 MTCO₂e per service population per year. This is a significant cumulative impact and mitigation measures are required.

¹ Service population calculation: (1,621 dwelling units x 3.28 persons/dwelling unit = 5,316.88 persons) + (745,300 square feet of non-residential building area x 1 employee/500 square feet = 1,490.6 employees) = 6,807 people.

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Mitigation Measures. To ensure that the proposed project's emissions of GHGs are reduced to a less than significant level, previously referenced **Mitigation Measures 4.3.6.4A** and **4.3.6.4B** and the following mitigation measures shall be implemented. It should be noted that **Mitigation Measures 4.3.6.4A** and **4.3.6.4B** and the following mitigation measures will implement many of the Specific Plan's programs and strategies identified above.

4.7.6.1A Prior to the issuance of each grading permit associated with the Specific Plan, the project developer shall develop and implement a construction waste management plan that would require the recycling and/or salvaging of non-hazardous construction and demolition waste.

4.7.6.1B Prior to the issuance of each building permit associated with the Specific Plan, the project developer shall facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills by providing easily accessible areas that serve each building and are dedicated to the collection and storage of paper, cardboard, glass, plastics, and metals.

Level of Significance After Mitigation. The mitigation measures identified above would contribute to a reduction in GHG emissions from energy, mobile, and water usage sources. With implementation of the identified mitigation measures, the proposed project's GHG emissions are reduced to a less than significant level as evidenced in Table 4.7.F. As described above, project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide and therefore constitute a potential cumulative impact. For this reason, it is speculative to assess and determine how project-related GHG emissions would contribute to global climate change and how global climate change may impact the state. Therefore, project-related GHG emissions are not project-specific impacts to global warming but are instead the project's contribution to this cumulative impact. As stated previously, project-related GHG emissions and their contribution to global climate change impacts in the state are less than significant and less than cumulatively considerable because (1) the project's impacts alone would not cause or significantly contribute to global climate change, and (2) the project has no substantial effect on consumption of fuels or other energy resources, especially fossil fuels that contribute to GHG emissions when consumed.

Table 4.7.F: Total Project Annual Greenhouse Gas Emissions With Mitigation

Emission Source	Emissions (metric tons per year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Annual construction-related emissions amortized over 30 years	695.75	0.79	—	696.54
Area Source Emissions	1,208.11	1.26	6.20	1,216.04
Energy Emissions	11,410.90	5.04	37.20	11,451.97
Mobile Source Emissions	28,376.74	26.04	—	28,402.80
Waste Emissions	339.04	420.84	—	759.80
Water Usage Emissions	1,503.43	77.49	31.00	1,612.88
Total CO₂e (All Sources)				44,140.03
Service Population				6,807
MT CO₂e/Service Population (SP)/Year				6.48
Threshold MT CO₂e/SP/Year				6.6
Significant?				No

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers.

CH₄ = methane CO₂e = carbon dioxide equivalent

CO₂ = carbon dioxide N₂O = nitrous oxide

Source: Urban Crossroads, Inc. March 2011.

It is important to note that Sections 5 and 7.5 of the Specific Plan include the following programs and strategies that will result in physical design features that will act to reduce operational-source greenhouse gas emissions. These programs and strategies are consistent with previously referenced **Mitigation Measures 4.3.6.4A and 4.3.6.4B**.

Programmed Circulation Plans. At a program level, the Specific Plan includes Pedestrian Circulation (see Specific Plan Section 5.1.4 and Exhibit 5.6) and Bicycle Circulation (see Specific Plan Section 5.1.5 and Exhibit 5.7) Plans intended to provide for alternative modes of travel by providing other transportation options. These alternative modes of travel will reduce vehicle-related air pollutant emissions and result in a healthier environment.

Sustainable Design Strategies. At a strategic level, the Specific Plan also includes Sustainable Design Strategies (see Specific Plan Section 7.5) addressing site planning, energy efficiency, materials efficiency, water efficiency, occupant health and safety, and landscape design. These strategies will reduce operational source air pollutant emissions and include the following:

Site Planning

- A. Provide physical linkages between land uses that promote walking and bicycling, and provide alternatives to automobile use.
- B. Encourage compact development that concentrates residential areas close to other land uses such as parks, retail, and employment centers.
- C. Include a range of housing types and/or densities within Arantine Hills.
- D. Create an interconnected street network within the Specific Plan area that facilitates movement of vehicles, cyclists, and pedestrians.
- E. Incorporate “green” practices in developing buildings and infrastructure.
- F. Encourage design of landscape areas that capture and direct stormwater runoff, particularly in open space, parks, and trails.
- H. Minimize the amount of paved areas for roads, parking, and patios, particularly in residential areas where feasible, or consider using porous or permeable pavement.

Energy Efficiency

Most buildings can reach energy efficiency levels that exceed California Title 24 standards, yet most only strive to meet the standard. It is reasonable to strive for energy reduction in excess of that required by Title 24 standards. Where feasible and appropriate, the following strategies are encouraged, but not required:

- A. Passive design strategies can dramatically affect building energy performance. These measures include building shape and orientation, passive solar design, and the use of natural lighting.
- B. Develop strategies to provide natural lighting to reduce reliance on artificial lighting.
- C. Incorporate the use of Low-E windows or use EnergyStar windows.
- D. Install high-efficiency lighting systems with advanced lighting controls. For non-residential buildings, include motion sensors tied to dimmable lighting controls. Task lighting reduces general overhead light levels.
- E. Use a properly sized and energy-efficient heat/cooling system in conjunction with a thermally efficient building shell. Consider utilizing light colors for roofing and wall finish materials; install high R-value wall and ceiling insulation.

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- F. Individual developments within Arantine Hills are encouraged to implement some of the strategies of the EnergyStar program, which is an energy performance rating system developed by the U.S. Department of Energy and the Environmental Protection Agency. The program certifies products and buildings that meet strict energy-efficiency guidelines. Involvement in the EnergyStar program will be completely optional at the discretion of each individual developer/builder.
- G. For retail, commercial, office, research and development, and light industrial uses, promote the use of light-colored roofing with a high solar reflectance in order to reduce the heat island effect from roofs.
- H. In retail, commercial, and office developments, provide a limited number of preferred parking spaces for hybrid vehicles, fuel cell vehicles, electric vehicles and other fuel efficient vehicles.

Materials Efficiency

- A. Select sustainable construction materials and products by evaluating characteristics such as reused and recycled content, zero or low off gassing of harmful air emissions, zero or low toxicity, sustainably harvested materials, high recyclability, durability, longevity, and local production. Such products promote resource conservation and efficiency. Using recycled-content products also helps develop markets for recycled materials that are being diverted from California's landfills, as mandated by the Integrated Waste Management Act.
- B. Encourage the use of low VOC paints and wallpapers.
- C. Encourage the use of low VOC Green Label carpet.
- D. Use dimensional planning and other material efficiency strategies. These strategies reduce the amount of building materials needed and cut construction costs. For example, consider designing rooms on four-foot multiples to conform to standard-sized wallboard and plywood sheets.
- E. Consider using recycle base, crushed concrete base, recycle content asphalt, shredded tires in base and asphalt in roads, parking areas and drive aisles, if feasible and economically viable. Reusing materials keeps materials out of landfills and costs less.
- F. Design with adequate space to facilitate recycling collection and to incorporate a solid waste management program that prevents waste generation.
- G. Establish a construction waste recycling program with a local waste management company, with a goal of recycling no less than 50 percent of the construction waste generated by construction of the Arantine Hills community. Excavated soil and land-clearing debris does not contribute to this requirement.
- H. The waste disposal company shall be responsible for providing each home with recycle bin(s) to facilitate recycling. The bin(s) should be portable and easily moved.
- I. Encourage the use of building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project.
- J. Encourage the use of rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) into new homes. Examples of materials that could achieve this goal include, but are not limited to, bamboo, wool, cotton insulation, agrifiber, linoleum, wheatboard, strawboard, and cork.

Water Efficiency

- A. Minimize wastewater by using ultra low-flush toilets, low-flow shower heads, and other water conserving fixtures.
- B. Use recirculating systems for centralized hot water distribution.
- C. Promote the use of tankless water heaters for residential, mixed-use, retail, commercial, and office development within the Arantine Hills community.

- D. Use a smart irrigation controller that automatically adjusts the frequency and/or duration of irrigation events in response to changing weather conditions for all landscaped areas.
- E. Use micro-irrigation (which excludes sprinklers and high-pressure sprayers) to supply water in non-turf areas where applicable.
- F. Use state-of-the-art irrigation controllers and self-closing nozzles on hoses.
- G. Use recycled water to irrigate landscape areas throughout the project. The non-potable irrigation system shall be designed to meet all applicable standards of the California Regional Water Quality Control Board, California Department of Health, Riverside County Health Department, City of Corona Department of Water and Power, and Corona Municipal Code.
- H. Use separate valves for separate water-use planting areas, so that plants with similar water needs are irrigated by the same valve.

Occupant Health and Safety

- A. Choose construction materials and interior finish products with zero or low emissions to improve indoor air quality.
- B. Provide adequate ventilation and a high-efficiency, in-duct filtration system for commercial, office, research and development, and light industrial uses. Heating and cooling systems that ensure adequate ventilation and proper filtration can have a dramatic and positive impact on indoor air quality.
- D. Provide effective drainage from the roof and surrounding landscape.
- E. Install adequate ventilation in bathrooms.
- F. Design non-residential building systems to control humidity.

Landscape Design

- A. Use low or medium water use and native plant materials where appropriate. Minimize turf areas throughout the community in order to promote water conservation. Limit the use of turf to areas which experience high functional use and are needed to accommodate outdoor activities such as sports, picnicking, etc. These areas could include parks, sports fields and other play areas. Only use warm-season turf varieties which are suited to the climate.
- B. Provide plant materials that are well suited to the solar orientation and shading of homes.
- C. Group plants according to water use, slope aspect and sun/shade requirements. Irrigate each hydrozone on a separate valve using high-efficiency irrigation techniques.
- D. Use organic wood or shredded bark mulch and soil amendments to retain soil moisture.
- E. Incorporate locally native vegetation into the plant palette for Arantine Hills.
- F. Encourage the use of colored hardscape materials to reduce glare and/or reflect heat in outdoor plazas and gathering areas.
- G. Use low-growing, low to medium water use plant material in parkways instead of turf.
- H. Provide shade trees in paved areas and adjacent to buildings in order to increase natural cooling and conserve energy.

As stated previously, the design strategies listed above from Section 7.5 of the Arantine Hills Specific Plan will be implemented through the design of the specific individual projects that will ensue from the Specific Plan and these programs and strategies are consistent with **Mitigation Measures 4.3.6.4A** and **4.3.6.4B**. Although these design strategies will reduce the greenhouse gas emissions generated by the project, the benefit of the greenhouse gas emissions reduction from the design strategies is difficult to quantify and therefore is not reflected in the emissions values contained in Table 4.7.F.

4.7.7 Cumulative Impacts

While it is not possible to determine whether the project individually or cumulatively will have a significant impact on global warming or climate change, it will contribute to cumulative GHG emissions in California. Cumulatively, the build out of the proposed project would contribute approximately 0.047 TgCO₂e, which is 0.009 percent of California's 2004 total emissions for carbon dioxide, methane, and nitrous oxide (492 TgCO₂e). The mitigation measures discussed above will likely reduce the project's emissions of greenhouse gases; however, without the necessary science and analytical tools, it is not possible to determine with certainty whether the project's emissions of greenhouse gases will be cumulatively considerable, within the meaning of *CEQA Guidelines* Sections 15065(a)(3) and 15130. The CARB is currently in the process of designing regulations to monitor, limit, and ultimately reduce California GHG emissions but there are as yet no adopted standards for assessing the significance of cumulative impacts from projects.

Given the findings of AB 32, of SB 97, and the requirements of CEQA, the Lead Agency must determine whether a project will or will not have a cumulatively considerable contribution. Due to the lack of guidance for determining the significance of cumulative impacts to climate change from projects, and out of an overabundance of caution, the project has been evaluated to determine whether emissions of greenhouse gases have been minimized to the extent feasible with current technology and measures.

The GHG emission estimates presented in previously referenced Table 4.7.E identify the emissions associated with the development of the proposed project at build out. Cumulatively, implementation of the project would result in average annual emissions of approximately 47,000 metric tons of CO₂e per year.

Due to the global nature of this phenomenon and the scale of the emissions, total emissions are expressed in units of Tg/year. This is the standard metric unit used worldwide. As identified in Table 4.7.E, the project will produce approximately 47,000 metric tons per year of CO₂e, which is approximately 0.047 Tg/year of CO₂e.

Cumulatively, the emissions from electricity production would comprise approximately 14 percent of the project's total CO₂e emissions, and from solid waste disposal approximately 7 percent. The emissions from vehicle exhaust would comprise approximately 72 percent of the project's total CO₂e emissions. The emissions from vehicle exhaust are controlled by the state and federal governments and are outside the control of the City. The remaining CO₂e emissions are primarily associated with building heating systems. Specific development projects proposed under the project would comply with existing state and federal regulations regarding the energy efficiency of buildings, appliances, and lighting, which would reduce the project's electricity demand. The new buildings constructed in accordance with current energy efficiency standards would be more energy efficient than older buildings.

With implementation of mitigation and the strategies and programs described previously, the project is consistent with the strategies to reduce California's emissions to the levels proposed in Executive Order S-3-05. For this reason, cumulative impacts associated with the proposed project are considered to be less than significant.

4.8 HAZARDS AND HAZARDOUS MATERIALS

This chapter describes and analyzes the potential impact to human health and the environment due to the exposure to hazardous materials or conditions that could be encountered as a result of the development and operation of the proposed project. Potential impacts include those associated with the routine transport, use, or disposal of hazardous materials; reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; and safety hazards associated with the project location in an airport land use planning area. Potential impacts associated with air contaminants that could be emitted during operation of the project are addressed in Chapter 4.3 (Air Quality), while the potential hazardous material impacts on groundwater are addressed in Chapter 4.9 (Hydrology and Water Quality). This section is based in part on the following reports, which are included as Appendix I of this EIR:

- *Phase I Environmental Site Assessment and Limited Site Characterization, McMillan Farm Properties*, LOR Geotechnical Group, Inc., March 21, 2002 (Appendix I-1 of this EIR).
- *Phase I Environmental Site Assessment Update, Arantine Hills, Corona California*, LOR Geotechnical Group, Inc., September 16, 2009 (Appendix I-2 of this EIR).

4.8.1 Existing Setting

4.8.1.1 Project Site History

The project site was originally owned by the Cortina Ranch Company and was utilized for agricultural uses (citrus production) from 1962 until June 2007. In 1986, portions of the project site were sold to McMillan Farm Management with the last parcel in the project site purchased in 2001.

During a field reconnaissance conducted as part of the 2002 Phase 1 Site Assessment,¹ structures associated with citrus farming operations were noted on the project site. These structures included propane-powered wind machines, aboveground storage tanks, one mobile home, one steel storage building, a retention basin, and several power poles. The aboveground storage tanks consisted of a 1,000-gallon gasoline tank, a 500-gallon diesel tank, a 10,000-gallon smudge pot fuel tank, a 10,000-gallon plastic fertilizer tank, and a 1,000-gallon domestic water tank. Aside from these structures, the project site was predominantly covered with citrus groves in 2002.

An updated Phase 1 Site Assessment was conducted in 2009 to document changes to the project site since 2002.² During the 2009 Phase 1 Site Assessment, it was noted that the project site had been cleared of all citrus trees that were present during the 2002 survey. Structures still present on the project site included a mobile home, one steel storage building, water wells/pumps, power poles, aboveground fertilizer tanks, and one aboveground diesel fuel tank.

4.8.1.2 Adjacent Uses to the Project Site

Directly north of the Specific Plan area is the Eagle Glen Specific Plan area, a residential and golf course community. There is an existing neighborhood commercial center located on Bedford Canyon Road, just north of Cajalco Road, adjacent to I-15. To the northeast, the Specific Plan area abuts vacant land owned by the Riverside County Transportation Commission (RCTC). To the south of the project lies unincorporated County land and a series of large scattered lots located on rugged topography that is privately owned agricultural land. Further south beyond unincorporated County land is Cleveland National Forest land.

¹ *Phase I Environmental Site Assessment and Limited Site Characterization, McMillan Farm Properties*, LOR Geotechnical Group, Inc., March 21, 2002.

² *Phase I Environmental Site Assessment Update, Arantine Hills, Corona California*, LOR Geotechnical Group, Inc., September 16, 2009.

4.8.2 Policies and Regulations

4.8.2.1 Federal Regulations

Comprehensive Environmental Response, Compensation, and Liability Act. Discovery of environmental health damage from disposal sites prompted the U.S. Congress to pass the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). The purpose of the CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat. The Hazard Ranking System is used to determine whether a site should be placed on the National Priorities List for cleanup activities.

Superfund Amendments and Reauthorization Act. The Superfund Amendments and Reauthorization Act (SARA) pertains primarily to emergency management of accidental releases. It requires formation of state and local emergency planning committees, which are responsible for collecting, material handling, and transportation data for use as a basis for planning. Chemical inventory data are made available to the community at large under the “right-to-know” provision of the law. In addition, SARA also requires annual reporting of continuous emissions and accidental releases of specified compounds. These annual submissions are compiled into a nationwide Toxics Release Inventory (TRI).

Resource Conservation and Recovery Act. The Resource Conservation and Recovery Act (RCRA) Subtitle C addresses hazardous waste generation, handling, transportation, storage, treatment, and disposal. It includes requirements for a system that uses hazardous waste manifests to track the movement of waste from its site of generation to its ultimate disposition. The 1984 amendments to RCRA created a national priority for waste minimization. Subtitle D establishes national minimum requirements for solid waste disposal sites and practices. It requires states to develop plans for the management of wastes within their jurisdictions. Subtitle I requires monitoring and containment systems for underground storage tanks that hold hazardous materials. Owners of tanks must demonstrate financial assurance for the cleanup of a potential leaking tank.

Hazardous Materials Transportation Act. The Hazardous Materials Transportation Act is the statutory basis for the extensive body of regulations aimed at ensuring the safe transport of hazardous materials on water, rail, highways, in the sky, or in pipelines. It includes provisions for materials classification, packaging, marking, labeling, placarding, and shipping documentation.

4.8.2.2 State Regulations

California Code of Regulations. Most state and federal regulations and requirements that apply to generators of hazardous waste are spelled out in the California Code of Regulations (CCR), Title 22, Division 4.5. Title 22 contains the detailed compliance requirements for hazardous waste generators, transporters, treatment, storage, and disposal facilities. Because California is a fully authorized State according to RCRA, most RCRA regulations (those contained in 40 Code of Federal Regulations [CFR] 260, et seq.) have been duplicated and integrated into Title 22. However, because the Department of Toxic Substance Control (DTSC) regulates hazardous waste more stringently than the U.S. EPA, the integration of California and federal hazardous waste regulations that make up Title 22 do not contain as many exemptions or exclusions as does 40 CFR 260. As with the California Health and Safety Code, Title 22 also regulates a wider range of waste types and waste management activities than do the RCRA regulations in 40 CFR 260. To aid the regulated community, California compiled the hazardous materials, waste and toxics-related regulations contained in CCR, Titles 3, 8, 13, 17, 19, 22, 23, 24, and 27 into one consolidated CCR, Title 26 “Toxics.” However, the California hazardous waste regulations are still commonly referred to as Title 22. For the purposes of clarity,

because of the extensive reach of Title 22 and Title 26, many common household products sold in grocery stores and home improvement warehouses qualify as hazardous materials. These items include household cleaners, detergents, paint, motor oil, lubricants, glues, pesticides, etc. The term “hazardous materials” is also defined to include many on site materials as well, such as lubricants, fuel, etc. Thus, when this chapter of the EIR discusses the transport and storage of “hazardous materials,” it is referring to the potential transport of bulk products to the project locations and to the temporary storage of such materials at the project sites prior to re-package and transport to subsequent destinations.

Cortese List: Section 65962.5(a). Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop at least annually an updated Hazardous Waste and Substances Sites list (Cortese List). The Cortese List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. Release sites include or hazardous materials release sites may include the following:

- All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
- All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
- All information received by the Department of Toxic Substances Control pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
- All sites listed pursuant to Section 25356 of the Health and Safety Code.
- All sites included in the Abandoned Site Assessment Program

The DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

The California Hazardous Material Management Act. The Hazardous Materials Management Act (HMMA) requires that businesses handling or storing certain amounts of hazardous materials prepare a Hazardous Materials Business Emergency Plan (HMBEP), which includes an inventory of hazardous materials stored on site (above specified quantities), an emergency response plan, and an employee training program. An HMBEP is a written set of procedures and information created to help minimize the effects and extent of a release or threatened release of a hazardous material. The intent of the HMBEP is to satisfy federal and state community right-to-know laws and to provide detailed information for use by emergency responders.

Per the California Health and Safety Code (HSC), Chapter 6.95, Sections 25500–25532, an HMBEP must be submitted by any business that handles a hazardous material or a mixture containing a hazardous material in quantities equal to, or greater than:

- A total weight of 500 pounds or a total volume of 55 gallons;
- 200 cubic feet of a compressed gas at standard temperature and pressure; and/or
- A radioactive material handled in quantities for which an emergency plan is required pursuant to Parts 30, 40, or 70 of Chapter 10, Title 10, Code of Federal Regulations (CFR), or equal to or greater than the amounts specified above, whichever amount is less.

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An HMBEP must be prepared prior to facility operation. Any business subject to HMBEP requirements shall submit an amendment of its HMBEP to the local implementing agency when there is:

- A 100 percent or more increase in the quantity of a previously disclosed hazardous material;
- Any handling of a previously undisclosed hazardous material subject to the inventory requirements;
- Change of business address;
- Change of ownership;
- Change of business name; and/or
- Change of contact information.

In addition, any business subject to HMBEP requirements is also required to certify the inventory of hazardous materials handled at the business every year. Businesses are also required to review their HMBEPs at least once every three years to determine if a revision is necessary. Once the review has been conducted, the business must certify in writing to the local implementing agency that a review has been completed and necessary changes were made.

The California Hazardous Waste Control Law. The Hazardous Waste Control Law (HWCL) is the primary hazardous waste statute in the State of California. The HWCL requires a hazardous waste generator, which stores or accumulates hazardous waste for periods greater than 90 days at an on-site facility or for periods greater than 144 hours at an off-site or transfer facility, which treats, or transports hazardous waste, to obtain a permit to conduct such activities. The HWCL implements RCRA as a “cradle-to-grave” waste management system in the State of California. The HWCL specifies that generators have the primary duty to determine whether their wastes are hazardous and to ensure their proper management. The HWCL also establishes criteria for the reuse and recycling of hazardous wastes used or reused as raw materials. The HWCL exceeds federal requirements by mandating source reduction planning and a much broader requirement for permitting facilities that treat hazardous waste. It also regulates the number of types of wastes and waste management activities that are not covered by federal law with RCRA.

State Aeronautics Act (Public Utilities Code Section 21670, et seq.). The Public Utilities Code establishes the requirement for the creation of airport land use commissions for every county in which there is located an airport that is served by a scheduled airline. Additionally, these sections of the Code mandate the preparation of Comprehensive Land Use Plans (CLUP) to provide for the orderly growth of each public airport and the area surrounding the airport. The purpose of CLUPs includes the protection of the general welfare of inhabitants within the vicinity of the airport and the general public.

California Emergency Services Act. Government Code 8550–8692 provides for the assignment of functions to be performed by various agencies during an emergency so that the most effective use may be made of all manpower, resources, and facilities for dealing with any emergency that may occur. The coordination of all emergency services is recognized by the state to mitigate the effects of natural, man-made, or war-caused emergencies which result in conditions of disaster or extreme peril to life, property, and the resources of the state, and generally, to protect the health and safety and preserve the lives and property of the people of the state.

State Fire Plan. The State Board of Forestry and the California Department of Forestry and Fire Protection have drafted a comprehensive update of the State Fire Plan for wildland fire protection in

California. The planning process defines a level of service measurement, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis.

4.8.2.3 Regional Policies

Riverside County Department of Community Health. The Department of Environmental Health (DEH) of the Riverside County Community Health Agency is responsible for regulation the operations of businesses and institutions that handle hazardous materials or generate hazardous wastes in the City of Corona. As part of the state-mandated Certified Unified Programs administered by the CalEPA, the DEH coordinates regulatory and enforcement of the following programs: Household Hazardous Waste, Hazardous Waste Minimization, Underground Storage Tanks (USTs), Hazardous Waste Generator Permits, and Hazardous Materials Handlers Program.

Riverside County Airport Land Use Plan. The Riverside County Airport Land Use Commission (ALUC) assists local agencies by ensuring the development of compatible land uses in the vicinity of existing airports. The current Corona Municipal Airport Comprehensive Land Use Plan was adopted by the Riverside County ALUC in 1993. The Corona Municipal Airport Comprehensive Land Use Plan contains policies to maintain flight paths and minimize impacts to residents and employees of the area for this general aviation facility. The “Airport Influence Area” of the Corona Municipal Airport is the area within which the Riverside County Airport Land Use Commission exercises its responsibilities under the PUC, Chapter 4, Article 3.5, Section 21670 *et seq.* Land uses within the Airport Influence Area at Corona Municipal Airport are required to be compatible with standards that are based on three separate considerations: airport noise, safety, and height.

4.8.2.4 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes the goals, policies, and implementation measures related to hazards. Table 4.8.A identifies applicable goals and policies that apply to the proposed project.

Table 4.8.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona Land Use Element	
<i>Goal 1.10: Development of low-density residential neighborhoods in areas on the City’s southern periphery that preserve the rural and open space character of their setting.</i>	
Policy 1.10.3 Minimize the removal of native landscape and integrate with new residential development, to the extent feasible and practical for fire control.	The project would be consistent with this policy as discussed in Section 4.8.6.2
<i>Goal 1.12: Development and maintenance of industries that provide job opportunities for Corona’s residents and sustain the City’s economy.</i>	
Policy 1.12.9 Control the development of industrial uses that use, store, produce, or transport toxic and hazardous materials, generate unacceptable levels of air or noise pollution, or result in other adverse impacts.	The project would be consistent with this policy as discussed in Section 4.8.5.1. Air and Noise impacts associated with the proposed project are analyzed and discussed in Section 4.3 (Air Quality) and Section 4.12 (Noise) in this EIR.

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Table 4.8.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
City of Corona Infrastructure and Public Services Element		
Goal 9.6: Address fire prevention measures on open space land to reduce the risk of wildland fires.		
Policy 9.6.1	Implement brush clearing and other fire prevention programs on Open Space lands, thereby reducing the possibility for the encroachment of wildland fires onto inhabited areas (in consideration of maintenance programs for important plant and animal habitats).	The project would be consistent with this policy as discussed in Section 4.8.6.2.
Policy 9.6.2	Remove chaparral and other highly flammable vegetation and replace it with slow-burning and fire-resistant species in natural areas that are proximate to urbanized areas.	The project would be consistent with this policy as discussed in Section 4.8.6.2.
City of Corona Environmental Hazards and Public Safety Element		
Goal 11.3: Ensure that the health, safety and general welfare of residents and visitors of the City of Corona including the overall health of the natural environment is provided through good land use planning and strict adherence and enforcement of the City of Corona Hazardous Material Area Plan, Uniform Fire Code, Certified Unified Program Agency, and other pertinent sources and documents.		
Policy 11.3.2	Implement policies contained in the City of Corona Hazardous Material Area Plan to effectively protect the community in the event of a hazardous waste spill or similar event.	The project would be consistent with this policy as discussed in Section 4.8.5.1.
Goal 11.10: Provide effective emergency response to disasters that limits the loss of life and curtails property damage and social dislocation, enhances emergency preparedness through community education and self-help programs, and minimizes to the greatest extent feasible, serious damage and injuries.		
Policy 11.10.1	Ensure that emergency/disaster preparedness is the mutual responsibility of City agencies, Riverside County, the Federal Emergency Management Agency, local residents and the business community.	The project would be consistent with this policy as discussed in Section 4.8.5.4.

City of Corona Emergency Operations Plan. Emergency response policies and procedures in the City of Corona are contained in the Emergency Operations Plan (EOP), adopted by the City in 1999. The EOP sets forth the City’s emergency planning, organization and response policies and procedures, and addresses the integration and coordination with other governmental agencies and Special Districts. This plan is reviewed annually by the Corona Fire Department’s Office of Disaster Preparedness to coordinate and update necessary revisions. With the goal of providing effective emergency response during disasters within the City to limit the loss of life, property damage, and social dislocation, the General Plan identifies policies to ensure that the EOP is regularly updated to conform with changing conditions within the City.

4.8.3 Methodology

Evaluation of hazards and hazardous material impacts associated with the proposed project includes a focus on the use, generation, management, transport, and disposal of hazardous or potentially hazardous materials on the project site. For airport hazards, the County of Riverside ALUC MIP ALUP (1984) was consulted to determine if the proposed project would increase air hazards. In determining the level of significance, the analysis assumes that construction and operation of the proposed project would be in compliance with relevant local, state, and federal laws and regulations pertaining to the use, storage, and disposal of hazardous materials. Because it is possible for many fires to affect a relatively limited area, resulting in limited impacts, and for one fire to affect a large area, resulting in many impacts, the frequency of wildfires is not used as a means for assessing the impacts of wildfires. Instead, for evaluation of wildfire impacts, the potential for wildfire ignition is used as the criterion for assessing wildfire impacts.

4.8.4 Thresholds of Significance

The proposed project would result in a significant adverse impact with regard to hazards if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation; and/or
- Result in the exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.8.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.8.5.1 Routine Transport, Use, or Disposal of Hazardous Materials and Reasonably Foreseeable Upset and Accident Conditions

Threshold	Would the proposed project create a significant hazard to the public through the routine transport, use, or disposal of hazardous materials?
	Would the proposed project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Exposure to hazardous materials during the operation of the proposed on-site uses may result from (1) the improper handling or use of hazardous substances; (2) transportation accident; or (3) an unforeseen event (e.g., fire, flood, or earthquake). The severity of any such exposure is dependent upon the type and amount of the hazardous material involved; the timing, location, and nature of the event; and the sensitivity of the individual or environment affected.

The proposed project includes the development of residential, commercial, industrial/business park, and recreational uses. The subsequent development that could occur as a result of the development of the project site would introduce potentially hazardous materials (e.g., petroleum products,

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pesticides, fertilizer, and other household hazardous products such as paint products, solvents, and cleaning products) on site. Hazardous materials would be present on the project site during construction of these uses. Equipment and vehicles utilized during construction would be similar to those found on typical construction sites and include graders, dozers, water trucks, and pickup trucks. Hazardous materials associated with equipment and vehicles would consist of fluids used to operate/drive equipment and vehicles.

Due to the potentially hazardous materials that may be stored and sold in conjunction with retail sales in the commercial areas of the Specific Plan, as well as the presence of household hazardous materials in the residential areas of the Specific Plan, the potential for an accidental release of hazardous materials into the environment is present at the proposed project site. However, due to the size of containers such products would be sold in, any hazardous material spill associated with the household hazardous products sold in commercial developments or in residential areas within the Specific Plan such as paint products, solvents, cleaning products, fertilizer, or related substances is likely to be small and easily contained.

Although future development on the site would introduce potentially hazardous materials on site, appropriate documentation for all hazardous waste that is transported in connection with project-site activities would be provided as required for compliance with existing hazardous materials regulations. As described in Title 49 of the Code of Federal Regulations¹ and implemented by Title 13 of the CCR, the United States Department of Transportation (USDOT) Office of Hazardous Materials Safety has established strict regulations for the safe transportation of hazardous materials. Transportation of all hazardous materials would comply with all applicable regulations.

Additionally, the California Hazardous Materials Management Act requires that businesses handling or storing certain amounts of hazardous materials prepare an HMBEP, which includes an inventory of hazardous materials stored on site (above specified quantities), an emergency response plan, and an employee training program. As previously stated, both the Federal Government and the State of California require all businesses that handle more than a specified amount of hazardous materials or extremely hazardous materials, to submit an HMBEP to its local Certified Unified Program Agency (CUPA). The HMBEP must include an inventory of the hazardous materials used in the facility, and emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. The HMBEP must include the Material Safety Data Sheet for each hazardous and potentially hazardous substance used. The Material Safety Data Sheets summarize the physical and chemical properties of the substances and their health impacts. The plan also requires immediate notification to all appropriate agencies and personnel of a release, identification of local emergency medical assistance appropriate for potential accident scenarios, contact information of all company emergency coordinators of the business, a listing and location of emergency equipment at the business, an evacuation plan, and a training program for business personnel.

HMBEPs are designed to be used by responding agencies, such as the Fire Department, during a release to allow for a quick and accurate evaluation of each situation for an appropriate response. HMBEPs are also used during a fire to quickly assess the types of chemical hazards that firefighting personnel may have to deal with, and to make decisions as to whether or not the surrounding areas need to be evacuated. Compliance with existing law will ensure that no significant impacts pertaining to the creation of hazards affecting the public will occur. The handling of hazardous materials in accordance with the HMBEP as required by applicable local, state, and federal standards, ordinances, and regulations would ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials on the project site are less than significant; therefore, no mitigation is required.

¹ Code of Federal Regulations, Title 49—Transportation, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, <http://www.phmsa.dot.gov/hazmat/regs>, site accessed February 21, 2011.

4.8.5.2 Existing or Proposed School

Threshold	Would the proposed project emit hazardous emissions or handle acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
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The nearest school to the project site is Woodrow Wilson Elementary School, which is located approximately 0.3 mile west of the site. Other schools within the area include Temescal Valley Elementary School, which is approximately 2.0 miles southeast of the project site. Implementation of the proposed project would result in the subsequent development of the site with residential, commercial, and industrial uses. These uses would handle hazardous materials and substances in the form of household products like paint, cleaning solvents, fertilizers, and petroleum products. Although the project site could be developed with development that would handle hazardous materials and substances, the type of hazardous materials that could be present would be typical of materials present at any residential, commercial, or light industrial site. As previously identified, there are no existing schools that are within 0.25 mile of the project site. In addition, the Specific Plan identifies that students residing in the Arantine Hills community would attend existing schools within the Corona-Norco Unified School District. Therefore, no new school facilities are proposed to be built within 0.25 mile of a project that would emit hazardous emissions.

There would be no existing or proposed schools within 0.25 mile that would be exposed to hazardous emissions, materials, and substances resulting from development of the project. In addition, the handling of hazardous materials or emission of hazardous substances in accordance with the HMBEP as required by applicable local, state, and federal standards, ordinances, and regulations would ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials or emissions of hazardous substance near existing or proposed schools are less than significant. Therefore, no mitigation is required.

4.8.5.3 Within an Airport Land Use Plan, Within Two Miles of a Public Airport or Within Two Miles of a Private Airport

Threshold	Would the project be located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area?
Threshold	For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the proposed project area?

There are no public use or private airports within two miles of the project site. The nearest local airport to the project site is the Corona Municipal Airport (CMA), approximately 6.5 miles northwest of the project site. The project site is not located within an airport land use plan.¹ Due to the distance of the project site from the CMA, the potential development of the site with residential, commercial, and industrial uses would not result in a safety hazard for people residing or working within the Specific Plan area. Therefore, no impacts associated with this issue would occur and no mitigation is required.

4.8.5.4 Conflict with Emergency Response Plans

Threshold	Would the project impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation?
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¹ *Map CO-1 Compatibility Map for Corona Municipal Airport, Riverside County Airport Land Use Compatibility Plan Policy Document, Riverside County Airport Land Use Commission, adopted October 2004.*

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Implementation of the proposed project would increase the amount of commercial, industrial, and residential uses within the City of Corona beyond what currently exist. Development within the project area has been accounted for in the City's General Plan as evidenced by the site's designation of "possible future urban use." The proposed project will be designed, constructed, and maintained in accordance with applicable standards associated with vehicular access, ensuring that vehicular access will provide for adequate emergency access and evacuation. Construction activities that may temporarily restrict vehicular traffic would be required to implement a Traffic Management Plan as part of the building permit that will require adequate and appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Compliance with existing regulations for emergency access and evacuation would ensure that impacts related to this issue are less than significant and no mitigation is required.

4.8.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.8.6.1 Located on a List of Hazardous Materials Sites

Threshold	Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?
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LOR Geotechnical Group, Inc. reviewed federal, state and local environmental databases for information pertaining to documented and/or suspected releases of regulated hazardous substances and/or petroleum products within specified search distances. Table 4.8.B provides a summary of adjacent properties that are listed in regulatory databases for hazardous materials.

Table 4.8.B: Properties Listed in Regulatory Databases for Hazardous Materials

Listed Site	Summary
Comprehensive Environmental Response, Compensation, and Liability Information System, No Further Remedial Action Planned (CERCLIS-NFRAP)	
Liston Aluminum Company	Approximately 0.5 mile northeast of project site at Temescal Canyon and Cajalco Roads. This property is listed in several databases; however, based on its distance from the site, no adverse environmental impact to the site is anticipated.
ENVIROSTOR Database	
Pacific Clay Products	Located over 0.5 mile east of project site. Based on distance from site, no adverse environmental impact to the site is anticipated.
Paul Hubbs Construction Company	Located over 0.5 mile east of project site. Based on distance from site, no adverse environmental impact to the site is anticipated.
Leaking Underground Storage Tanks (LUST) Database	
Liston Aluminum Company	Approximately 0.5 mile northeast of project site at Temescal Canyon and Cajalco Roads. This property had a release of gasoline that resulted in a soil-only environmental case that is currently being administered by the State DTSC. Based on its distance from the site, no adverse environmental impact to the project site is anticipated.
Underground Storage Tank (UST) Database	
Eagle Glen Mobil	Located approximately 0.125 mile northwest of the project site. No leaks have been reported at this facility and the property does not currently pose an adverse environmental impact to the subject site.

Table 4.8.B: Properties Listed in Regulatory Databases for Hazardous Materials

Listed Site	Summary
Historical Underground Storage Tank (HIST UST) Database	
McMillan Brothers Citrus Ranch	Located approximately 0.25 mile northwest of the project site. This property was listed as having 5 USTs. The property is not part of the project site, has been developed with residential uses, and does not currently pose an adverse environmental impact to the project site due to distance and development.
Cortese List	
Liston Aluminum Company	Approximately 0.5 mile northeast of project site at Temescal Canyon and Cajalco Roads. This property is listed in several databases; however, based on its distance from the site, no adverse environmental impact to the site is anticipated.

As indicated in Table 4.8.B, the project site is not listed in any regulatory database for hazardous materials. Based on the information provided by the public, regulatory, and governmental agencies and information obtained during the record search and literature review, there do not appear to be any sites within a mile that would have an adverse environmental impact upon the subject site.

There are existing structures/infrastructure scattered throughout the project site. All of these structures/infrastructure features were utilized for agricultural purposes on the project site. Table 4.8.C provides a summary of these structures on site.

Table 4.8.C: Structures/Infrastructure Features On Site

Structure/Infrastructure Feature	Summary
Planning Area 1	
None	Planning Area 1 consists of vacant land that has been recently disked.
Planning Area 2	
None	Planning Area 2 consists of vacant land that has been recently disked.
Planning Area 3	
None	Planning Area 3 consists of vacant land that has been recently disked.
Planning Area 4	
None	Planning Area 4 consists of vacant land that has been recently disked.
Planning Area 5	
Wooden Power Poles	These poles run across the south end of this parcel and across the center. Likely to have been used to bring power to a water well located near the center of Planning Area 5.
Aboveground Water Reservoir	Located south of the old water well. Consists of an approximately 250-gallon green plastic tank.
Planning Area 6	
Langstroth bee hive boxes and three 55-gallon drums	Located at the far southeastern end of the parcel. Bee hive boxes were utilized for honey bee cultivation. Two of the 55-gallon drums were empty, and other drum contained pieces of burned bee boxes and other trash.
Planning Area 7	
Mobile Home	Located in south-center portion of Planning Area 7, east side of the metal storage building. Currently has a propane tank along the south east side. The mobile home also has a septic system for sewage disposal.
Metal Storage Building	Located in south-center portion of Planning Area 7. The metal storage building is approximately 75 feet by 30 feet, has a concrete floor, and is separated into three areas.

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Table 4.8.C: Structures/Infrastructure Features On Site

Structure/Infrastructure Feature	Summary
	<p><i>Pesticide storage room:</i> Approximately 15 foot by 30 foot room utilized for pesticide storage. Contained a few bags of lime and 11 old pesticide mixing stands. Mixing stands were empty at the time of survey; the mixing stands are no longer utilized on site. No significant staining of the concrete floor was noted.</p> <p><i>Tool Area:</i> Approximately 15 foot by 30 foot room utilized for tool storage and maintenance. At the time of the survey, this room contained chains, nuts and bolts, wire, belts, sprayer parts, oil cans, fire extinguisher, PVC fittings and glue, battery charger, and hand tools. No staining of the concrete floor was noted.</p> <p><i>Storage Area:</i> Remaining area of the building (approximately 30 feet by 50 feet) utilized for farm equipment storage. Used to store two small tractors used for weed control, a welder, grinder, and an air compressor. Room also contained a 30-gallon drum used for trash, two 5-gallon containers (one for nuts and bolts, one for gasoline), one small container of Roundup, and three 55-gallon drums (one for tractor oil, one for used tractor oil, and one empty drum).</p>
Wooden Power Poles	Located in Planning Area 7 along the direct access road from Eagle Glen Parkway. Used to bring power to the mobile home and metal storage building.
Aboveground Diesel Tank	Located 40 feet to the east/southeast of the metal storage building. Has a capacity of 500 gallons but is no longer used. No significant staining of the soil was noted beneath the tank.
Concrete Pad	Located approximately 250 feet west of the mobile home, on the south side of the dirt access road. Approximately 4 feet by 5 feet in size, with two holes in the center. The past use of this pad is not known.
Planning Area 8	
None	Planning Area 8 consists of vacant land that has been recently disked.
Planning Area 9	
None	Planning Area 9 consists of vacant land that has been recently disked.
Planning Area 10	
Wind Machine	Small base of an old wind machine only.
Planning Area 11	
Groundwater Well	Located north of east-west dirt road.
Aboveground Steel Tanks	Located north of east-west dirt road, these 6 tanks are “free-flow” tanks which were used to mix chemical fertilizer into the irrigation water for the citrus groves.
Wooden Power Poles	Extends to Planning Area 11 from the west to provide power to the groundwater well.
Langstroth bee hive boxes	Located just south of the dirt road. Bee hive boxes were utilized for honey bee cultivation.
Planning Area 12	
None	Planning Area 12 consists of vacant land that has been recently disked.
Planning Area 13	
Wind Machine	Small base of an old wind machine only.
Planning Area 14	
Langstroth bee hive boxes and three 55-gallon drums	Located along the north central portion of Planning Area 14, just south of the dirt road, a cleared out area utilized for honey cultivation. Approximately 10 to 15 Langstroth bee hive boxes scattered around. Also three 55-gallon drums utilized for dry trash, wood, and plastic.
Planning Area 15	
Wind Machine	Small base of an old wind machine only.

Table 4.8.C: Structures/Infrastructure Features On Site

Structure/Infrastructure Feature	Summary
Planning Area 16	
None	Planning Area 16 consists of vacant land that has been recently disked.
Planning Area 17	
None	Planning Area 17 consists of vacant land that has been recently disked.
Planning Area 18	
None	Planning Area 18 consists of vacant land.
Planning Area 19	
Old Water Reservoir	Located in the center of Planning Area 19, this feature is approximately 200 feet in diameter and about 10 feet deep. The reservoir has a deteriorating lining of an asphaltic material.

Source: LOR Geotechnical, Inc., 2009

As identified in Table 4.8.C, the project site does not contain any existing structures/features that exhibit existing hazardous conditions. In addition, due to the past agricultural use of the project site, a Limited Site Characterization (LSC) was conducted as part of the Phase I Site Assessment. The LSC was conducted to address residual organochlorine pesticides, (OCPs), smudge pot storage area, 10,000-gallon aboveground smudge oil storage tank, and the location of a 10-foot by 10-foot storage shed previously located west of Planning Area 4. The 2002 Phase I Site Assessment concluded that there were no residual hydrocarbons at the smudge pot storage area, the roofing shingles and retention basin asphaltic materials did not contain asbestos, the former 10,000-gallon aboveground storage tank did not have any significant hydrocarbon contamination. The location of the former approximately 10-foot by 10-foot shed had a very high level of pesticides (DDT, Endrin, and Chordane) in the soil beneath the wood floor and contained about 5 pounds of Chordane.¹ Since the 2002 Phase 1 Site Assessment, the 10-foot by 10-foot shed had been removed. However, residual OCPs were present in the soils where the shed had been previously located. While the majority of project-wide soils had residual OCPs levels below concern, some soil samples did have DDT levels above 1 part per million (ppm). To ensure that impacts associated with this area of the project site are reduced to a less than significant level, **Mitigation Measures 4.8.6.1A** and **4.8.6.1B** have been identified.

As previously stated, the project site was not listed as having any hazardous materials releases and was not included on the Cortese List.² In addition, no violations were noted in this regulatory database for the project site. Since the project site is not included on any list of hazardous materials sites as defined by Government Code Section 65962.5, it is highly unlikely that hazardous materials would be uncovered during soil-disturbing activities on site. However, in the event that unknown wastes or suspected hazardous materials are discovered during soil-disturbing activities on the project site, **Mitigation Measures 4.8.6.1C** through **4.8.6.1F** have been identified.

Mitigation Measures. The following mitigation measures have been identified to reduce impacts associated with the discovery of unknown hazardous materials on site.

4.8.6.1A For any soil disturbance in the area where the 10-foot by 10-foot shed located at the west edge of Planning Area 4 was previously located, soil in this area shall be tested for residual organochlorine pesticides (OCPs). If OCP levels are detected at levels of

¹ Phase I Environmental Site Assessment Update, Arantine Hills, Corona California, LOR Geotechnical Group, Inc., September 16, 2009.

² Phase I Environmental Site Assessment Update, Arantine Hills, Corona California, LOR Geotechnical Group, Inc., September 16, 2009.

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1 part per million (ppm) or greater, the soils shall be removed to an adequate depth and exported to an approved landfill facility by a certified contractor.

4.8.6.1B If soil from any location on the project site is to be removed or transported off site, the soil exports must have a DDT level of less than 1 part per million (ppm). Soil to be exported off site shall be tested, and verification of the soil testing results shall be submitted to the City for review prior to the issuance of soil export operations.

4.8.6.1C If unknown wastes or suspected hazardous materials are discovered during any construction activities on the project site, the following shall occur:

- Immediately stop work in the vicinity of the suspected contaminant, removing workers and the public from the area;
- Notify the City of Corona Fire Department;
- Notify the project engineer of the implementing agency (the City of Corona) and secure the area containing the unknown wastes or suspected hazardous materials as directed by the project engineer; and
- Notify the implementing agency's Hazardous Waste/Materials Coordinator.

4.8.6.1D Testing and remediation of unknown wastes or suspected hazardous materials shall be conducted under the purview of the appropriate oversight agency (i.e., DTSC, Santa Ana RWQCB, and/or City). Remediation shall be conducted to the standards established by the Lead Agency (i.e., DTSC, Santa Ana RWQCB, and/or City). All contaminated soil locations identified shall be remediated below hazardous levels established by Title 22 of the California Code of Regulations and to the satisfaction of the applicable Lead Agency.

4.8.6.1E Prior to the issuance of demolition permits for any planning areas containing structures, any remaining structures on site shall be visually inspected by the project engineer of the implementing agency (City of Corona) prior to demolition activities. If hazardous materials are encountered, the materials shall be tested and properly disposed of in accordance with state and federal regulatory requirements. Any stained soils or surfaces underneath the removed materials shall be sampled. Results of the sampling would indicate the appropriate level of remediation efforts that may be required. Testing and remediation of unknown wastes or suspected hazardous materials shall be conducted under the purview of the appropriate oversight agency (i.e., DTSC, Santa Ana RWQCB, and/or City). Remediation shall be conducted to the standards established by the Lead Agency (i.e., DTSC, Santa Ana RWQCB, and/or City). All contaminated soil locations identified shall be remediated below hazardous levels established by Title 22 of the California Code of Regulations and to the satisfaction of the applicable Lead Agency.

4.8.6.1F Prior to the issuance of grading permits for each planning area, all miscellaneous debris (e.g., wood, concrete, 55-gallon drums, miscellaneous household debris, scrap metal, and plastic piping) shall be removed and disposed of at an approved landfill facility prior to construction activities under the purview of the most appropriate oversight agency (i.e., DTSC, Santa Ana RWQCB, and/or City). Once removed, a visual inspection of the areas beneath the removed materials shall be performed by the construction contractor as specified by the City of Corona. Any stained soils observed underneath the removed materials shall be sampled. Results of the sampling, if necessary, would indicate the level of remediation efforts that may be required. Remediation shall be conducted to the standards established by the Lead Agency (i.e., DTSC, Santa Ana RWQCB, and/or City). All contaminated soil locations identified shall be remediated below hazardous levels established by Title

22 of the California Code of Regulations and to the satisfaction of the applicable Lead Agency.

Level of Significance after Mitigation. Adherence to the identified mitigation measures would reduce impacts associated with this issue to a less than significant level.

4.8.6.2 Wildland Fire

Threshold	Result in the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.
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The City of Corona is bordered by hills, mountains, open fields, and undeveloped lots contiguous to residential development. Residential landscaping, fencing, and outbuildings increase fuel loading, spotting, and fire intensity. Fire prevention strategies within the City concentrate on educating the public and enforcement of fire codes. Fire suppression strategies for the City focus around containment and control while protecting structures in the threatened areas. Suppression activities may utilize natural firebreaks; direct suppression of the fire by hose lines, aircraft, bulldozers, and hand crews; increasing defensible spaces around homes; utilizing fire suppression foams; and mop up and total extinguishment of the fire.

The California Department of Forestry and Fire Protection (CDFFP) also identifies fire hazard severity zones within the City. The CDFFP has five different fire hazard zone classifications: urbanized/developed areas outside of fire hazard zones, non-wildland fuels, moderate fire areas, high fire areas, and very high fire areas. As illustrated in Figure 4.8.1, the majority of the project site is identified as “Non-wildland/non urban” by the CDFFP. However, the southeastern portion of the site is identified as a “Very High Fire Hazard” Severity Zone. Adjacent land to the east and south of the project site are also identified as a “Very High Fire Hazard” Severity Zone and State Responsibility Area (SRA) “Very High Fire Hazard Severity Zone” by the CDFFP.¹

Although portions of the project site are located within a “Very High Fire Hazard” Severity Zone, any construction activities and development that would occur on the project site would be required to comply with all applicable fire code requirements associated fire prevention measures to reduce the risk of wildland fires to an acceptable level. In addition, these areas are subject to the requirements of the City of Corona Fire Department construction design guidelines and fuel modification standards. The goal of the fuel modification program is to protect homes and businesses within the Arantine Hills Specific Plan from the hazards of wildfires, via fuel reduction through vegetation management. These guidelines are intended to provide the developer with examples of fuel modification measures that can be used to create an area around buildings or properties to create defensible space.² Figure 4.8.2 illustrates the proposed fuel modification areas within the project site.

In compliance with the County of Riverside Fire Authority Design Guidelines and fuel modification standards, the project will be required to implement a 200-foot fuel modification zone along the easterly edge of the Specific Plan area. The 200-foot defensible space zone serves to reduce the amount of fuel surrounding buildings and structures within the Specific Plan. This is achieved through a number of strategies, including providing separation between fuels, pruning and/or reshaping existing vegetation, and spacing plant material in order to prevent fire transfer. Regular maintenance

¹ *Wildland Fire Hazard Zones*, California Department of Forestry and Fire Protection, 1985.

² Defensible space is the area around buildings and structures which provides firefighters with a working environment in which to protect those buildings and structures from encroaching wildfires. This space also serves to minimize the chance that a structure fire will escape to the surrounding wildland.

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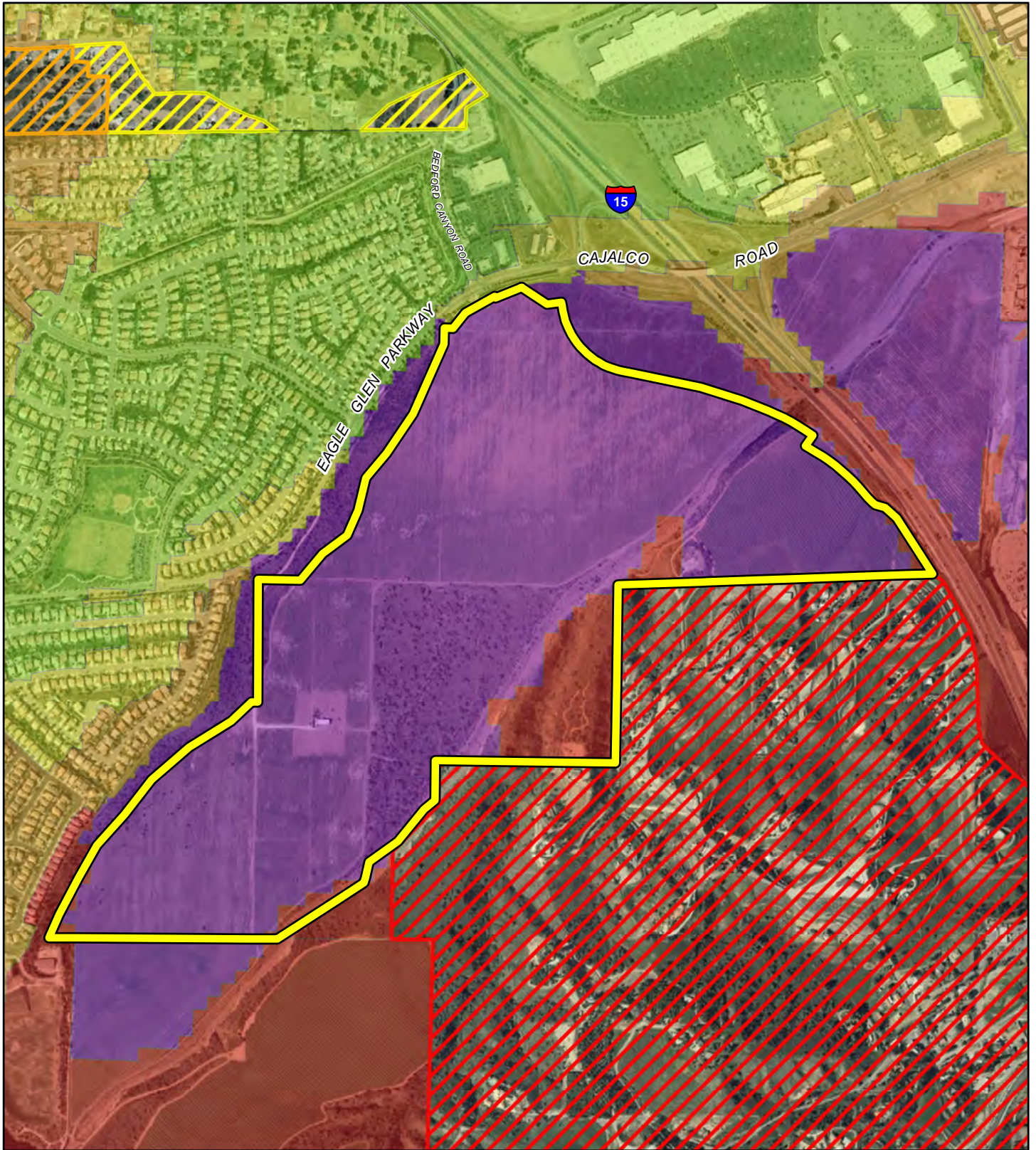
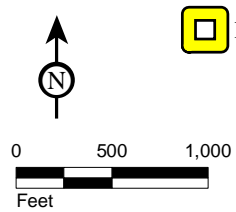


FIGURE 4.8.1

LSA



Project Boundary

Fire Hazard Severity Zones

- LRA, Very High
- LRA, High
- LRA, Moderate
- LRA, Non-Wildland/Non-Urban
- LRA, Urban Unzoned

- SRA, Very High
- SRA, High
- SRA, Moderate

*Arantine Hills Specific Plan
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Wildfire Hazard Zones*

SOURCE: CAL FIRE - FRAP, 2007.

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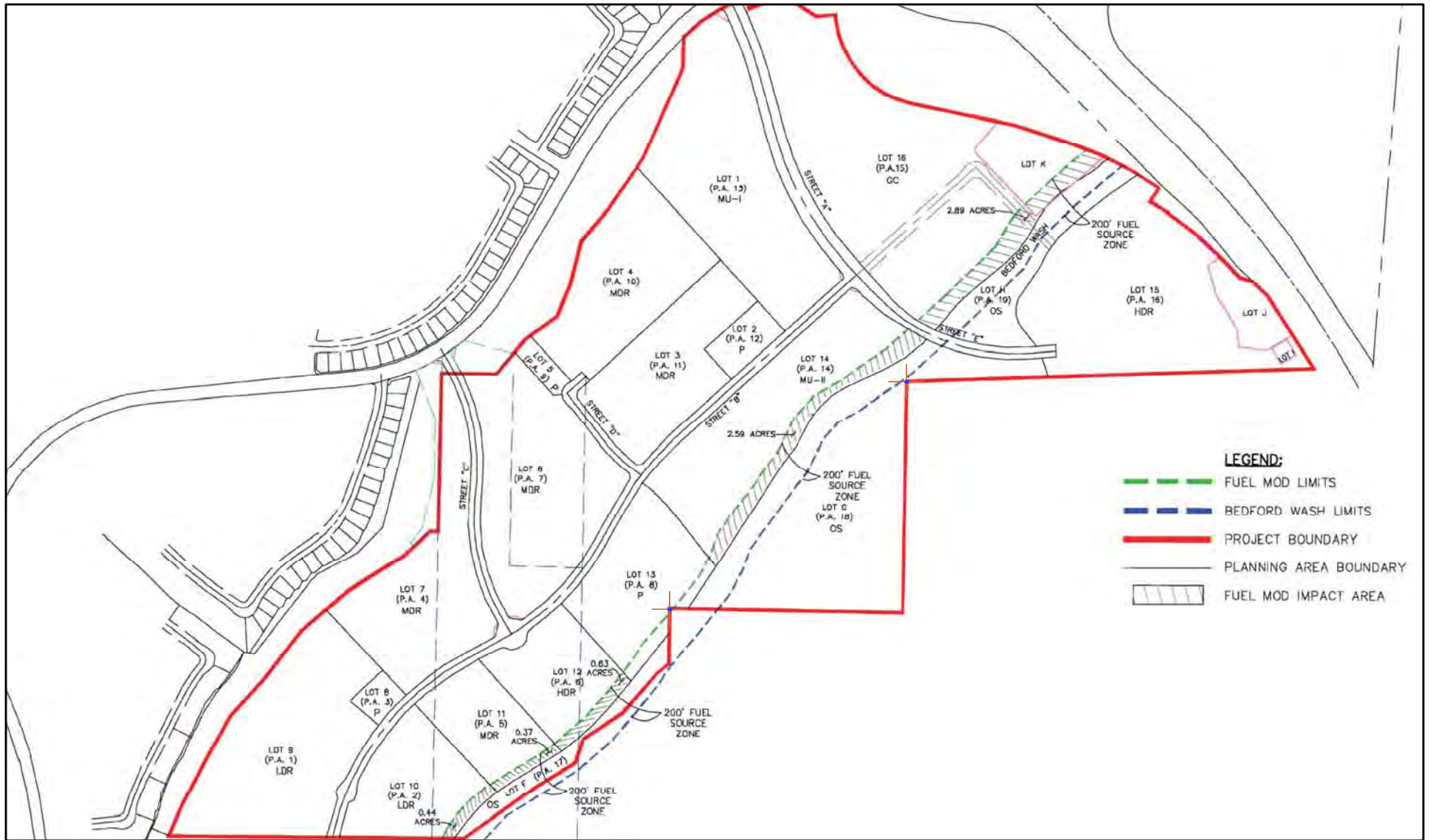
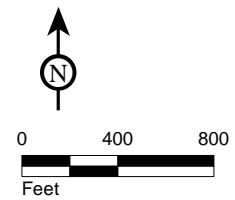


FIGURE 4.8.2

LSA



SOURCE: Arantine Hills Specific Plan, 2011.

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Fuel Modification Zones

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of this area is recommended in order to prevent soil erosion and the spread of non-native invasive plant species. This area typically consists of two zones:

- Zone 1 is the first 30 feet surrounding a structure and is a reduced fuel zone that requires irrigation.
- Zone 2 is the remaining 170 feet and includes single or clusters of well trimmed fire-resistant and/or native plant material only.

To ensure that impacts associated with this issue would be less than significant, **Mitigation Measure 4.8.6.2A** has been identified.

Mitigation Measure. The following mitigation measure has been identified to reduce impacts associated with wildland fires.

4.8.6.2A Prior to the issuance of building permits for each planning area, the project proponent shall prepare, submit, and receive approval from the City and Riverside County Fire Department, a project-specific Wildland Fire Plan/Fuel Modification Plan. The Wildland Fire Plan/Fuel Modification Plan shall include but shall not be limited to the following:

- Goals, policies, and actions related to fire funding and fire rehabilitation;
- Fire protection and evacuation plan;
- Vegetative fuels management plan;
- Public education program; and
- Defensible space requirements which meet and/or exceed the Riverside County Fire Department Fuel Modification Requirements.

Level of Significance after Mitigation. Adherence to **Mitigation Measure 4.8.6.2A** would reduce wildland fire impacts that could occur on the project site to a less than significant level.

4.8.7 Cumulative Impacts

The cumulative impact analysis considers development of the proposed project in conjunction with other development in the City. Significant cumulative impacts associated with the routine transport, use, and disposal of hazardous materials would occur as the proposed project would increase the number of residents, employees, and patrons in the area as well as the number of trucks transporting hazardous materials. The proposed project in combination with other projects of a similar nature has the potential to create a significant cumulative impact related to this issue. Often, these risks are site-specific and localized and therefore limited to the project site. However, since the number of trucks containing hazardous materials on the road in a given area at any given time is impossible to estimate and since accidental spills and leaks are unplanned occurrences, it is impossible to predict the occurrence of such events. It is reasonable to assume, however, that with an increase in vehicles transporting hazardous materials the potential for accidents would increase.

While the project-specific hazardous material impacts of individual development projects will be addressed separately in future CEQA documents, anticipated future development will contribute, through increases in population and the number of outlets that transport or dispose of hazardous materials, to a cumulative increase in risk for hazardous material incidents. Although each project has unique hazardous materials considerations, it is anticipated that future cumulative projects would

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comply with the local, state, and federal regulations and requirements as these are required for all development projects. As a result, cumulative impacts associated with hazardous materials would be less than significant.

Cumulative aircraft hazard impacts consist of future development within the boundaries of the ALUP accident potential zones. The risk to each future project is based on the specific accident potential zone. The risks associated with development in these accident potential zones can only be reduced through conformance with land use guidelines and policies identified by the ALUP. However, because the surrounding cities as well as the County of Riverside have implemented comprehensive land use plans that incorporate ALUP recommendations, it is anticipated that cumulative development within the accident potential zones would not create a significant and cumulative impact associated with aircraft accident hazards.

4.9 HYDROLOGY AND WATER QUALITY

This chapter describes the hydrologic conditions on and adjacent to the project site and evaluates potential impacts to surface and groundwater resources associated with the Specific Plan area under consideration. This chapter is based in part on the following documents that are included by reference:

- *Preliminary Water Quality Management Plan for Arantine Hills Project*, AEI-CASC Consulting, February 15, 2011 (Appendix J-1 to this EIR).
- *Master Drainage Plan for the Arantine Hills Specific Plan*, AEI-CASC Consulting, February 10, 2011 (Appendix J-2 to this EIR).

In addition to these project-specific technical studies, the analysis contained in this section is also based on the following reference documents:

- *City of Corona General Plan*, City of Corona, adopted March 17, 2004.
- *City of Corona General Plan Final EIR*, City of Corona, March 2004.
- *City of Corona General Plan Technical Background Report*, City of Corona, March 2004.
- *City of Corona Municipal Code*, City of Corona.

4.9.1 Existing Setting

4.9.1.1 Drainage

The Specific Plan area is located within the Santa Ana River watershed, which encompasses approximately 153.2 square miles across three counties (San Bernardino County, Riverside County, and Orange County). Flows within this watershed start in the San Bernardino Valley, crossing Riverside and Orange Counties before emptying into the Pacific Ocean. Existing flows on site currently drain in a southwestern direction to the Bedford Canyon Wash, which bisects the Specific Plan area. Flows entering Bedford Canyon Wash eventually drain to the Temescal Canyon Wash.

4.9.1.2 Water Quality

The Specific Plan area is within Region 8 (Santa Ana Region) of the California Regional Water Quality Control Board (RWQCB) and is located within the Bedford Canyon Creek Sub-basin area of the Upper Santa Ana Valley and Elsinore groundwater basins. The Santa Ana River and its principal tributaries begin in the San Bernardino Mountains, the eastern San Gabriel Mountains, and the Santa Ana Mountains. The project site falls within the Upper Santa Ana River Watershed, with the primary water quality concerns being wastewater reclamation (Total Dissolved Solids [TDS] and nitrogen issues), groundwater recharge, water level management, and invasive plant eradication. Table 4.9.A identifies receiving waters that would receive urban stormwater runoff from the Specific Plan area.

According to the Santa Ana Water Quality Control Plan, water quality in the project area is continuously altered by a number of factors including but not limited to consumptive use, importation of water high in dissolved solids, runoff from urban and agricultural areas, and the recycling of water within the basin (RWQCB 1995). In general, water quality in the Santa Ana Region becomes progressively poorer as water moves along hydraulic flow-paths. The highest quality water is typically associated with tributaries flowing from surrounding mountains and groundwater recharged by these streams. As indicated in Table 4.9.B, each of the receiving waters has multiple designated beneficial uses. These designations provide a description of how the water is used and what beneficial purposes it serves. Table 4.9.B provides a description of each of these water uses.

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Table 4.9.A: Receiving Waters From the Specific Plan Area

Receiving Water	303(d) List Impairments	Designated Beneficial Use	RARE Use* Designation
Bedford Canyon Wash	None	(GWR, REC1, REC2, WARM, WILD) Intermittent	Not a water body classified as RARE
Temescal Creek – Reach 2	None	(AGR, IND, GWR, REC1, REC2, LWRM) Intermittent	Not a water body classified as RARE
Temescal Creek – Reach 1	None	REC1, REC2, WARM, WILD	Not a water body classified as RARE
Santa Ana River – Reach 3	Pathogens	AGR, GWR, REC1, REC2, WARM, WILD, RARE, SPWN	10 miles

* Rare, Threatened or Endangered Species (RARE) waters support habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened, or endangered.

Source: *Preliminary Water Quality Management Plan Arantine Hills*, AEI-CASC Consulting, February 2011.

Table 4.9.B: Receiving Waters Beneficial Uses

Designated Beneficial Use	Description of Beneficial Use
Agricultural Supply (AGR)	Waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation.
Groundwater Recharge (GWR)	Waters used for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
Industrial Service Supply (IND)	Waters are used for industrial activities that do not depend primarily on water quality. These uses may include, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
Limited Warm Freshwater Habitat (LWRM)	Waters support warm water ecosystems which are severely limited in diversity and abundance as the result of concrete-lined watercourses and low, shallow dry weather flows which result in extreme temperature, pH, and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur in LWRM waters.
Rare, Threatened, or Endangered (RARE)	Waters support the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened, or endangered.
Water Contact Recreation (REC-1)	Waters used for recreational activities involving body contact with water where ingestion of water is reasonably possible. Uses include, but are not limited to, swimming, water-skiing, whitewater activities, fishing, and use of natural hot springs.
Non-contact Water Recreation (REC-2)	Waters used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water is reasonably possible. Uses include, but are not limited to, picnicking, sunbathing, hiking, camping, boating, hunting, sightseeing, and aesthetic enjoyment.
Spawning, Reproduction, and Development (SPWN)	Waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.
Warm Freshwater Habitat (WARM)	Waters that support warm water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
Wildlife Habitat (WILD)	Water that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.

Source: *Water Quality Control Plan for the Santa Ana River Basin*, 1995.

4.9.1.3 Water Source

Water resources in the City and throughout Riverside County are sustained by substantial groundwater basins, which are used as reservoirs to store water during wet years. These underground reservoirs are tapped throughout the year according to the demand for water. Groundwater conditions in these basins are influenced by natural hydrologic conditions such as percolation of precipitation, groundwater seepage, and ephemeral stream flow within the watershed areas.

The City of Corona developed a Groundwater Management Plan in 2008 (GWMP) to support the management of a reliable and sustainable groundwater resource for the City. The GWMP follows the guidelines set forth by AB 3030, the California Department of Water Resources Groundwater Management Act, which provides a systematic procedure for an existing local agency to develop a groundwater management plan. The GWMP allows the City of Corona to address issues of groundwater recharge and storage in order to effectively manage the local sub-basins and the City's water supply. The Plan area covers three groundwater sub-basins within the City's water service area and sphere of influence. These three sub-basins, Temescal, Coldwater, and Bedford, are located in western Riverside County in the Santa Ana River Watershed. Collectively, the analysis of these basins is used to describe the "state of the basins" with respect to groundwater use, water levels, quality, and storage. The GWMP identified the following objectives for the management and operations of the relevant basins:

- Operate the groundwater basin in a sustainable manner for beneficial uses;
- Increase the reliability of water supply for basin users;
- Prevent substantial water level declines in Channel Aquifer;
- Protect groundwater quality in unconfined aquifers;
- Maintain required outflow at Prado Dam; and
- Monitor groundwater levels, quality, and storage.

Most of the City's groundwater production is from the Temescal Sub-basin. The primary aquifer that supports the City groundwater production has been designated the Channel Aquifer in the City's GWMP. This aquifer consists of a relatively homogeneous and highly permeable sand layer approximately 200 feet thick. The Channel Aquifer is limited in extent and occurs in the northern portion of the Temescal Sub-basin. In addition, the City also produces groundwater from alluvial fan aquifers that are adjacent to the Channel Aquifer in the subsurface of the Temescal Sub-basin. Typical depths for the City's wells in the Temescal Sub-basin range from about 200 to 500 feet with a design capacity of 22,340 AFY. Average pumping from the Temescal Sub-basin was 10,821 AFY from 1990 to 2002, with groundwater pumping increasing by 80 percent to more than 19,000 AFY since 2002. The Temescal Sub-basin also includes a small subarea west of the La Sierra Hills and east of the Santa Ana River. This northeastern area is referred to as the Norco area, and consists of relatively low permeability alluvium and bedrock flanked on the east and west by bedrock outcrops.

The Bedford Sub-basin connects to the Temescal Sub-basin near the base of the Bedford Canyon where the alluvium along Temescal Wash thins as the wash leaves the sub-basin and traverses northward through bedrock. No potable groundwater is currently pumped by the City from the Bedford Sub-basin, but the City has done so in the past. The City currently has two non-potable wells located in the Bedford Sub-basin that are used to supplement the City's recycled water system. The City's average pumping from these wells is 327 AFY.

The Coldwater Sub-basin connects to the Bedford Sub-basin along a trace of the Glen Ivy Fault Zone, a locally named fault related to the larger basin-bounding Chino-Elsinore Fault Zone. Average pumping from the Coldwater Sub-basin was 6,284 AFY from 1990 to 2004, with groundwater pumping ranging between 3,800 and 4,600 AFY since 2002.

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None of the three sub-basins from which the City has extracted groundwater is adjudicated. However, under a stipulated judgment titled *Orange County Water District vs. City of Chino, et al.* (1968), the City and other purveyors upstream from Prado Dam have the right to use all surface and groundwater supplies originating above Prado Dam without interference from water purveyors downstream from Prado Dam, provided that the average adjusted base flow at Prado Dam is at least 42,000 AFY. To ensure provision of the judgment, the City is required to provide a baseline flow of 1,625 AFY from the City's WRF.

4.9.1.4 Water Supply

The Arantine Hills Specific Plan is entirely located within the City of Corona Department of Water and Power (CDWP) water supply service area. The City would serve the proposed project with water for the required local and master planned facilities. The CDWP has a 45-square mile service area that provides water to approximately 150,000 customers. The CDWP water supply consists of groundwater, Colorado River water, and water supplied from the Sacramento-San Joaquin Delta. Reclaimed water has become extremely important in managing local water resources. In recent years, reclaimed water has become increasingly accepted for irrigation and landscaping. The CDWP also operates three water reclamation facilities and treats approximately 13 million gallons per day. This reclaimed water is delivered to approximately 144,000 customers within the CDWP Service area.

4.9.2 Policies and Regulations

In the past, the effort to control the discharge of stormwater focused on quantity (i.e., flood control) and, to a limited extent, on quality of stormwater. In recent years, awareness of the need to improve water quality has increased. With this awareness, federal, state, and local programs have been established to pursue the ultimate goal of reducing pollutants contained in stormwater discharges to waterways. The emphasis of these programs is to promote the concept and the practice of preventing pollution at the source, before it can cause environmental harm.

4.9.2.1 Federal Regulations

Clean Water Act. The Federal Clean Water Act (CWA) was amended in 1972 to prevent discharge of pollutants to Waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES Program. In November 1990, the U.S. Environmental Protection Agency (EPA) published final regulations that establish application requirements for stormwater permits. The regulations require an NPDES permit for stormwater associated with construction and industrial activity, which discharges either directly to surface waters or indirectly through separate municipal storm drains. Pollution control is achieved by establishing engineering measures, such as detention basins and sediment traps, during both the construction period and the operational phases of the project.

Pursuant to requirements of the State Water Resources Control Board and the NPDES, Order No. 2009-0009-DWQ, NPDES No. CAS000002 applies to all construction activities Statewide. Construction activity includes clearing, grading, or excavation that results in the disturbance of at least one acre of total land area, or activity which is part of a larger common plan of development of one acre or greater. The Santa Ana RWQCB regulates hydromodification¹ as well as surface and groundwater quality through adoption of water quality plans and standards, and issuance of water quality permits and waivers. The NPDES permit deals with both the construction phase and

¹ Hydromodification is the alteration of the hydrologic characteristics of coastal and non-coastal waters, which, in turn, could cause degradation of water resources.

operational phase of development projects. For the construction phase of a project, the NPDES permit identifies the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The purpose of an SWPPP is to identify and implement Best Management Practices (BMPs) to reduce impacts to surface water from contaminated stormwater discharges, during construction.

Stormwater control measures during construction and grading would be outlined in the construction NPDES permit and SWPPP prepared for the proposed project. Examples of such BMP control measures include detention basins for containment, use of silt fencing, sandbags or straw bales to control runoff, and identification of emergency procedures in case of hazardous materials spills. The project proponent would be required to obtain a construction NPDES permit prior to site grading. In addition, the NPDES permit requires the identification of post-construction BMPs to be incorporated into the project's operational Water Quality Management Plan (WQMP). Also known as a post-construction management plan, the WQMP would identify measures or BMPs required to be in place and operational after construction. These BMPs are designed to treat and/or minimize post-construction runoff to reduce entry of contaminants into storm flows. These could include site design concepts or techniques that promote the use of permeable surfaces or natural drainage systems, and minimizing impervious surfaces or directly connected impervious surfaces.

National Flood Insurance Program. The National Flood Insurance Program (NFIP) is a relatively recent federal program. The Federal Government has been actively involved in flood control since 1927 following major floods on the Mississippi River. Beginning with the Flood Control Act of 1936, Congress assigned the U.S. Army Corps of Engineers (USACE) the responsibility for flood control engineering works and later for floodplain information services. Flood control was provided through the construction of dams and reservoirs. Despite these programs and rapidly rising federal expenditures for flood control, flood losses continued to rise. In 1968, Congress passed the National Flood Insurance Act, which created the NFIP. The Flood Disaster Protection Act of 1973, which amended the 1968 Act, required the purchase of flood insurance by property owners who were located in special flood hazard areas and were being assisted by federal programs, or by federally supervised, regulated, or insured agencies or institutions.

National Flood Insurance Program Reform Act of 1994. In 1994, the National Flood Insurance Program Reform Act went through its first major revision since its inception. Included in this revision were provisions that if a lender were to escrow an account and if the structure were in the floodplain, then the lender *must* escrow for flood insurance. The revised legislation also included increased flood insurance limits and the elimination of the 1962 buy-out program. However, the legislation did initiate the Hazard Mitigation Fund as part of the flood insurance policy. Also included in this legislation was the increase from a 5-day to a 30-day waiting period for a new policy to become effective. It also prohibits the waiver of flood insurance purchase requirements as a condition of receiving federal disaster assistance. If the flood insurance policy were not maintained, in the event of another disaster, no disaster assistance would be made available for that structure.

Executive Order 11988, Floodplain Management. Executive Order 11988 requires the USACE to provide leadership and to take action to:

- Reduce the hazards and risk associated with floods;
- Minimize the impact of floods on human health, safety, and welfare; and
- Restore and preserve the natural and beneficial values of the current floodplain.

To comply with Executive Order 11988, the policy of the USACE is to develop projects that, to the extent possible, avoid or minimize adverse effects associated with use of the floodplain and that avoid

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development (or the inducement of development) in an existing floodplain unless there is no practicable alternative.

4.9.2.2 State Regulations

California Water Code. The California Water Code is the principal State law regulating water quality in California. The Health and Safety Code, Fish and Game Code, Harbors and Navigation Code, and the Food and Agriculture Code all contain water quality provisions that require compliance.

The California Water Code contains provisions regulating water and its use. This portion of the California Water Code, Division 7 (Porter-Cologne Act), establishes a program to protect water quality and beneficial uses of the State water resources and includes groundwater and surface water. The State Water Resources Control Board is the principal State agency responsible for control of water quality. It establishes waste discharge requirements, water quality control planning and monitoring, enforcement of discharge permits, and ground and surface water quality objectives. It also prevents waste and unreasonable use of water, and adjudicates water rights.

The Health and Safety Code, Fish and Game Code, Harbors and Navigation Code, and the Food and Agriculture Code all contain provisions concerning water quality. The Health and Safety Code provides for protection of ground and surface waters from hazardous waste and other toxic substances. The Harbors and Navigation Code provides regulations designed to prevent the unauthorized discharge of waste from vessels into surface waters. The Fish and Game Code has provisions to prevent unauthorized diversions of any surface water and discharge of any substance that may be deleterious to fish, plant, animal, or bird life. The Food and Agriculture Code provides for the protection of groundwater that may be used for drinking water supplies.

The California Code of Regulations also contains administrative procedures for the State and RWQCBs in Title 23 and for water quality for domestic uses, wastewater reclamation, and hazardous waste management in Title 22. The CDFG, through provisions of the California Fish and Game Code (§1601 through §1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. The presence of a channel bed and banks, and at least an intermittent flow of water define streams (and rivers). The CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFG.

Cobey-Alquist Flood Plain Management Act (California Water Code Section). This Act states that a large portion of land resources of the State of California is subject to recurrent flooding. The public interest necessitates sound development of land use, as land is a limited, valuable, and irreplaceable resource, and the floodplains of the State are a land resource to be developed in a manner that, in conjunction with economically justified structural measures for flood control, would result in prevention of loss of life and of economic loss caused by excessive flooding. The primary responsibility for planning, adoption, and enforcement of land use regulations to accomplish floodplain management rests with local levels of government. It is policy of the State of California to encourage local government to plan land use regulations to accomplish floodplain management and to provide State assistance and guidance.

4.9.2.3 Local Policies

Riverside County Water Quality Management Plan (WQMP) Guidance Document. This document is intended to provide guidelines for project-specific post-construction BMPs and for regional and sub-regional source control BMPs and structural BMPs to address management of urban runoff quantity and quality to protect receiving waters. It identifies the BMPs, including design

criteria for treatment control BMPs that may be applicable when considering any map or permit for which discretionary approval is sought. New development and significant redevelopment projects submitted since December 31, 2004, are required to submit a project-specific WQMP prior to the first discretionary project approval or permit. Project applicants may be required to submit a preliminary project-specific WQMP for discretionary project approval (such as land use entitlement). Project applicants are required to submit for review and approval a final project-specific WQMP that is in substantial conformance with the preliminary project-specific WQMP prior to the issuance of any building or grading permit. The new MS4 permit adopted on January 29, 2010, identifies new requirements for approval of WQMPs by local agencies.

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that involve water resources. Table 4.9.C identifies applicable goals and policies that apply to the proposed project.

Table 4.9.C: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona General Plan Infrastructure and Utilities Element	
<i>Goal 7.6: Establish and maintain adequate planning, construction, maintenance, and funding for storm drainage and storage control facilities to support permitted land uses. If necessary, upgrade existing deficient systems to accommodate new permitted development and protect existing development within the City of Corona as well as pursue public funding sources to reduce fiscal impacts of implementation.</i>	
Policy 7.6.6 Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and sub-regional storm drainage systems, and, if warranted, require new development to provide adequate drainage facilities and to mitigate increases in stormwater flows and/or cumulative increases in regional flows. Developers of proposed projects are to submit a final drainage plan for the City Engineer's review and approval.	The project would be consistent with this policy as discussed in Section 4.9.5.4.
<i>Goal 7.7: Ensure that urban runoff from existing and new development does not degrade the quality of the City's surface waters, groundwater system, and other sensitive environmental areas.</i>	
Policy 7.7.2 Reduce pollutant loading through passive treatment systems such as vegetated filter strips, grass swales, and infiltration/sedimentation areas in suitable open space areas, overland flow channels and landscaping adjacent to parking lots and streets.	The project would be consistent with this policy as discussed in Section 4.9.6.2.
Policy 7.7.7 Require developers to obtain a National Pollutant Discharge Elimination System (NPDES) permit from the State Water Resources Control Board (SWRCB) prior to moving construction equipment onto a development site. The NPDES permit shall be retained at the construction site throughout the construction period, and a copy shall be filed with the City Engineer.	The project would be consistent with this policy as discussed in Section 4.9.6.1.
Policy 7.7.8 During construction projects, ensure compliance with all the terms and conditions outlined as part of the NPDES permit, including the implementation of the latest Best Management Practices (BMPs) and a determination of need for any additional Water Quality Management Plans to reduce pollutants and urban runoff flows to the maximum extent practical.	The project would be consistent with this policy as discussed in Section 4.9.6.1.
Policy 7.7.9 Require that new developments employ the most efficient drainage technology to control drainage and minimize damage to environmentally sensitive areas.	The project would be consistent with this policy as discussed in Section 4.9.5.4.

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Table 4.9.C: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona General Plan Environmental Resources Element	
Goal 10.1: Enhance and protect the quality of hydrologic resources and prevent their contamination.	
Policy 10.1.2 Conduct construction activities to minimize adverse impacts on water resources through the use of Best Management Practices, as established and updated from time to time by the City of Corona.	The project would be consistent with this policy as discussed in Section 4.9.6.1.
Goal 10.2: Ensure sustainable use of finite energy and water resources for the long-term use of residents and visitors of Corona.	
Policy 10.2.5 Require the use of reclaimed water in common areas and landscape treatments for all proposed developments.	The project would be consistent with this policy as discussed in Section 4.9.6.3.

4.9.3 Methodology

Evaluation of hydrology and water quality impacts associated with the proposed project includes the following:

- Determine the construction phase water quality impacts based on NPDES standards;
- Determine the operational water quality impacts based on NPDES standards;
- Determine the operational impacts on drainage patterns and drainage capacity; and
- Determine the impacts on local groundwater table levels.

Construction and routine operation impacts were evaluated by estimating compliance with local and State stormwater quality regulations requiring implementation of effective BMPs.

4.9.3.1 Pollutants of Concern and Assessment Methodology

The pollutants of concern for the water quality analysis have been chosen based upon the previously described regulations and the pollutants identified by regulatory agencies that potentially could be generated by the proposed project. The anticipated and potential pollutants in stormwater or urban runoff for various land uses are reflected in Table 4.9.D.

The following pollutants were chosen as pollutants of concern for evaluating water quality impacts of the proposed project based on three jointly applied criteria: (1) pollutants that have impaired urban surface receiving waters in other areas; (2) prevalence in urban runoff; and (3) regulatory requirements and guidance, including the California Toxics Rule (CTR) and Municipal Separate Storm Sewer Systems (MS4) permit. Table 4.9.E describes these pollutants of concern (sediments, nutrients, heavy metals, organic compounds, trash and debris, oxygen-demanding substances, oil and grease, and pathogens) and their general impact on water quality and aquatic habitat.

4.9.3.2 Treatment Control BMPs and Assessment Methodology

The treatment control BMPs for the water quality analysis have been chosen based upon the previously described regulations and the pollutants identified by regulatory agencies that potentially would be generated by the proposed project. The anticipated and potential efficiency of these BMPs in regard to specific pollutants in urban runoff are reflected in Table 4.9.F. The following treatment control BMPs were chosen for the purpose of evaluating water quality impacts based on the following criteria: (1) effectiveness of removing specific pollutants that have impaired urban surface receiving

Table 4.9.D: Anticipated and Potential Pollutants Generated by Land Use Type

Priority Project Categories	General Pollutant Categories								
	Sediment/ Turbidity	Nutrients	Organic Compounds	Trash & Debris	Oxygen- Demanding Substances	Bacteria & Viruses	Oil & Grease	Pesticides	Metals
Commercial/Industrial Development	P ¹	P ¹	P ⁵	E	P ¹	P ³	E	P ¹	P
Restaurants	N	N	N	E	E	E	E	N	N
Parking Lots	P ¹	P ¹	E ⁴	E	P ¹	P ⁶	E	P ¹	E
Attached Residential Development	E	E	N	E	P ¹	P	P ²	E	N
Streets, Highways and Freeways	E	P ¹	E ⁴	E	P ¹	P ⁶	E	P ¹	E

E = Expected P = Potential N= Not Expected

¹ A potential pollutant if landscaping or open area exists on the project site.

² A potential pollutant if the project includes uncovered parking areas.

³ A potential pollutant if land use involves animal waste.

⁴ Specifically, petroleum hydrocarbons.

⁵ Specifically, solvents.

⁶ Bacterial indicators are routinely detected in pavement runoff.

Source: *Riverside County Water Quality Management Plan Guidance for Urban Runoff* (July 2006).

Table 4.9.E: Pollutants and General Water Quality Impacts

Pollutant	Water Quality Impact
Sediments	Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction.
Nutrients	Elevated nutrient levels in surface waters cause algal blooms, excessive vegetative growth, and dissolved oxygen levels, which is detrimental to aquatic life.
Heavy Metals	Bio-available forms of trace metals are toxic to aquatic life, potential of groundwater contamination, bio-accumulation in aquatic life, affect beneficial uses of a water body.
Organic Compounds	May contain levels that are harmful or hazardous to aquatic life.
Trash and Debris	Detrimental effect on recreational value of a water body and aquatic habitat; interferes with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris.
Oxygen-Demanding Substances	Reduces a water body's capacity to support aquatic life. Can result in the growth of undesirable organisms and the release of odorous and hazardous compounds such as hydrogen sulfide.
Oil and Grease	Can accumulate in aquatic life from contaminated water, sediments, and food and are toxic at low concentrations. Can persist in sediments for long periods of time and result in adverse impacts on the diversity and abundance of existing bio-communities and can affect the aesthetic value of a water body.
Pathogens (Bacteria, Viruses, and Protozoa)	May result in water body impairments, can exceed public health standards for water contact recreation, creating a harmful environment. Can alter the aquatic habitat and create a harmful environment for aquatic life.

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Table 4.9.E: Pollutants and General Water Quality Impacts

Pollutant	Water Quality Impact
Pesticides	Elevated levels can indirectly or directly constitute a hazard to life or health. During cleaning activities, these compounds can be washed off into storm drains creating runoff containing toxic levels of the pesticides active component. Dirt, grease, and grime may adsorb concentrations that are harmful or hazardous to aquatic life.

Table 4.9.F: Treatment Control BMP Selection Matrix

BMP Categories	General Pollutant Categories								
	Bacteria & Viruses	Metals	Nutrients	Pesticides (non-soil bound)	Organic Compounds	Sediments / Turbidity	Trash & Debris	Oxygen-Demanding Substances	Oil & Grease
Biofilters ¹	U	H/M	L	U	U	H/M	L	L	H/M
Detention Basins ²	U	M	M	U	U	M	M	M	M
Infiltration BMPs ³	H/M	H	H/M	U	U	H/M	U	H/M	U
Wet Ponds/ Wetlands ⁴	U	H	H/M	U	U	H/M	U	H/M	U
Filtration Systems ⁵	H/M	H	L/M	U	H/M	H/M	H/M	H/M	H/M
Water Quality Inlets	L	L	L	L	L	L	M	L	M
Hydrodynamic Separator Systems ⁶	L	L	L	L	L	H/M (L for Turbidity)	H/M	L	L/M
Manufactured/ Proprietary Devices ⁷	U	U	U	U	U	U	U	U	U

L = Low Removal Efficiency
H/M = High or Medium Removal Efficiency
U = Unknown Removal Efficiency

¹ Includes grass swales, grass strips, wetland vegetation swales, and bioretention.

² Includes extended/dry detention basins with grass lining and extended/dry detention basins with impervious lining.

³ Includes infiltration basins, infiltration trenches, and porous pavements.

⁴ Includes permanent pool wet ponds and constructed wetlands.

⁵ Includes sand filters and media filters

⁶ Also known as hydrodynamic devices, baffle boxes, swirl concentrators, or cyclone separators

⁷ Includes proprietary stormwater treatment devices as listed in the CASQA Stormwater Best Management Practices Handbooks, other Stormwater treatment BMPs not specifically listed, or newly developed/emerging stormwater treatment technologies.

Source: *Preliminary Water Quality Management Plan for Arantine Hills*, AEI-CASC Consulting, February 15, 2011.

waters in other areas; (2) prevalence of the pollutant in urban runoff; and (3) regulatory requirements and guidance, including the CTR and MS4 permit.

In some cases, other volume-based BMPs, proprietary BMPs, or combinations of BMPs may be appropriate for a development. Such BMPs or combinations of BMPs may be employed on a site-specific basis as approved by the City of Corona. The appropriate BMP(s) for a project should be determined based on the size of the project area and the types of pollutants that would be found in the development runoff. Table 4.9.G describes these BMPs (biofilters, water quality inlets, detention basins, and infiltration basins) and their general characteristics.

Table 4.9.G: BMP Characteristics

BMP	General Characteristics
Biofilters	Pollutants are removed by filtering and through settling of sediment and other solid particles as the design flow passes through (not over) the vegetation. Overall the effectiveness of grass swales is limited and they are recommended in combination with other BMPs.
Water Quality Inlet	Pollutants are removed through sedimentation and separation as the design flow passes through one or more chambers. Generally used for pretreatment before discharging into another type of BMP.
Extended Detention Basin	Basin sized to detain and slowly release the design volume of urban runoff, allowing particles and associated pollutants to settle out. Maintenance efforts would need to be directed toward vegetation management, vector control, and removal of debris accumulations.
Infiltration Basins	Basin sized to detain and infiltrate runoff, allowing particles and associated pollutants to settle out. Maintenance efforts would be directed toward vegetation management, vector control, and removal of debris accumulations. This BMP may require groundwater monitoring.
Hydrodynamic Separator System	Device treats stormwater by creating a whirlpool of water within a concrete chamber in which solids fall to the bottom of the chamber while buoyant debris, oil, and grease rise to the surface, allowing water to pass through a flow control opening.

4.9.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts to hydrology and water quality are based on *CEQA Guidelines* (2010). A project would have a significant impact on surface hydrology, water quality, and/or groundwater if it would:

- Result in violations of any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation on site or off site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff which would result in on-site or off-site flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

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- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss injury or death involving flooding, including flooding as a result of the failure of a levee or dam; and/or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

4.9.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.9.5.1 Dam or Levee Failure Flooding Impacts

Threshold	Would the project expose people or structure to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?
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According to the National Inventory of Dams, dams fall under one of three hazard types: low, significant, or high. These types are based on potential for damage in the case of dam failure or mis-operation. Dams with low hazard potential are those in which failure or mis-operation would result in no probable loss of human life and low economic and/or environmental losses. Dams with significant hazard potential are those in which failure or mis-operation would result in no probable loss of human life but can cause economic loss, environmental damage, and disruption of lifeline facilities. Dams with high hazard potential are those in which failure or mis-operation would probably cause loss of human life. Corona is the nearest city to four of Riverside County’s dams. As identified in Table 4.9.H, three of these four dams have a high hazard potential, while the fourth is characterized by significant hazard potential.

Table 4.9.H: Riverside County Dams Nearest to City of Corona

Dam Name	River	Height (feet)	Storage (acre-feet)	Year built	Drainage area (square miles)	Hazard type
Lee Lake	Temescal Creek	47	2,800	1919	53	Significant
Oak Street	Oak Street Creek	36	400	1979	6.02	High
Mabey Canyon	Mabey Creek	46	111	1974	1.5	High
Mathews	Cajalco Creek	264	222,400	1918	40	High

Source: City of Corona, 2004.

The primary inundation threat to the City of Corona is from Lake Mathews, which impounds 182,000 acre-feet (AF). Lake Mathews is approximately seven miles southeast of Corona. Two dams contain Lake Mathews, one on its north side and the other one on the south side. Failure of either dam would cause flooding along the Temescal Wash in the eastern and northeastern portions of the City. Should either of the two Lake Mathews dams fail, inundation is 40 minutes to Corona city limits and about 65

minutes to the Prado Basin. The water flow would generally follow the Temescal Channel from southeast to northwest of the intersection of I-15 and SR-91.

The flow pattern is westward away from Corona. Since the flow pattern is away from the City, Prado Dam does not pose as severe of a threat of inundation as do the Lake Mathews Dams. In addition, the US Army Corps of Engineers has begun construction to increase the capacity of the reservoir behind Prado Dam.

Relatively less significant is Mabey Canyon Debris Basin, which has a capacity of 68 AF. This basin is located near the southwesterly City limits and would pose a threat of inundation for a short duration in the western portion of the City as waters emptied into the Oak Avenue and Mangular Avenue Channels. Mabey Canyon Debris Basin was built to provide flood protection for the developed areas downstream, and is completely dry during most of the year. This factor, along with its limited capacity, helps minimize the likelihood of a damaging inundation. The Santa Ana River no longer poses a major flooding hazard to the City of Corona due to several upstream flood control projects, including the Seven Oaks Dam. The Seven Oaks Dam is the largest dam in San Bernardino County built strictly for flood control, and will save downstream property owners millions of dollars in flood insurance premiums.

As identified by the City, the Specific Plan area is outside of any identified dam inundation zones.¹ Since the Specific Plan area is not within an area susceptible to dam inundation, no impacts associated with this issue would occur. No mitigation measures are required.

4.9.5.2 100-Year Flooding Hazard Impacts

Threshold	Would the proposed project place within a 100-year flood hazard area structures that would impede or redirect flood flows? Would the proposed project place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
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Most of the annual rainfall in the region occurs in the winter. Flooding in the City of Corona could result from intense storms resulting in rapid runoff or through the failure of dams. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) identify areas subject to flooding during the 100-year and 500-year storm.² As illustrated in Figure 4.9.1, the 100-year floodplain has not been mapped for the Specific Plan area.

In order to define the 100-year flood plain, to ensure all structures will not affect the 100-year flood flows, and to ensure all housing will not be constructed within a 100-year floodplain, the master conveyance map for the project must establish a flood plain boundary along Bedford Canyon Wash. A Conditional Letter of Map Revision (CLOMR) shall be completed through FEMA prior to any grading permit and a Letter of Map Revision (LOMR) shall be completed prior to the issuance of any building permit. With issuance of the required LOMR by FEMA, impacts associated with placement of structures or housing within a 100-year flood hazard area would be reduced to a less than significant level and no mitigation measures are required.

¹ *Figure 5.2-1 Creeks, Washes, Channels, and Flood Zones*, City of Corona General Plan Technical Background Report, City of Corona, March 2004.

² The term "100-year" is a measure of the size of the flood, not how often it occurs. The "100-year flood" is a flooding event that has a one percent chance of occurring in any given year.

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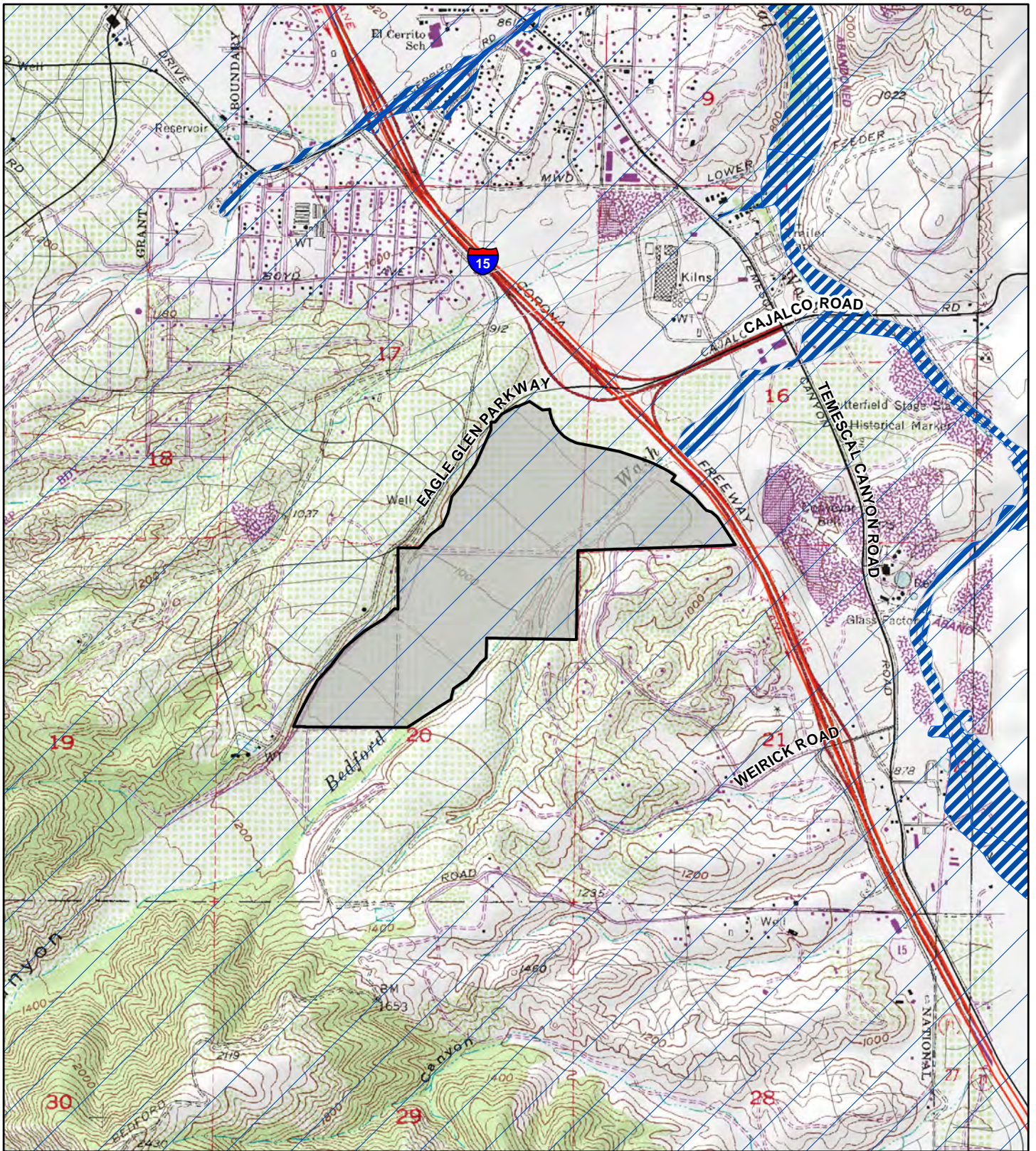
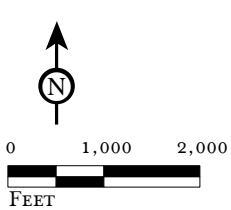


FIGURE 4.9.1

LSA



- Project
- Flood Zones**
- ▨ 100 Year Flood Zone
- ▨ 500 Year Flood Zone

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FEMA Flood Designations

SOURCE: USGS 7.5' Quad: Corona South (1988), CA; Thomas Bros., 2009; FEMA DFIRM Flood Data, 2008.

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4.9.5.3 Seismic-Related Impacts

Threshold	Would the project expose people or structure to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?
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A tsunami is a series of waves generated in a body of water by a pulsating or abrupt disturbance that vertically displaces water. Seiches are oscillations in enclosed bodies of water that are caused by a number of factors, most often wind or seismic activity. Lakes in seismically active areas are at risk from seiches. A mudslide (also known as a mudflow) occurs when there is fast-moving water and a great volume of sediment and debris that surges down a slope, stream, canyon, arroyo, or gulch. Mudslides are similar to flash floods and can occur suddenly without time for adequate warning. Mudflows can ruin substantial improvements with the force of the flow itself and the burying or erosion of improvements by mud and debris.

Inundation of Specific Plan area by a tsunami is highly unlikely as the site is located approximately 70 miles from the Pacific Ocean. Although not located adjacent to the Pacific Ocean, the site is located approximately 3.5 miles west from Lake Mathews. Since Lake Mathews is an enclosed body of water, Lake Mathews could be subject to a seiche during a seismic event. However, the probability that a seiche event would affect the Specific Plan area site is highly unlikely due to the distance from Lake Mathews. In addition, any water that would be released from Lake Mathews during a seismic event would follow the natural topography of the area along the Temescal Canyon Wash flowing from southeast to northwest. The topography within the Specific Plan area slopes relatively evenly from the west to east. Due to the lack of any natural extreme variations in topography, the City has not identified the Specific Plan Planning Area as being susceptible to landslide/slope stability hazards. Despite the lack of an identified slope stability hazard, drainage running through the site over time has created areas with significant topographic relief and bluffs within the project site. Slope instability, caving, and landsliding could be promoted or exacerbated by the proposed project; however, the Specific Plan defines the general guidelines for the development of on-site slopes and identifies slope setbacks for the entire Specific Plan area.

Subsequent development of structures and facilities within the Specific Plan area will require adherence to the siting, design, and construction standards identified by the City of Corona, the Uniform Building Code (UBC), and/or applicable geotechnical investigations. Because potential landslide and slope stability impacts are addressed through adherence to established guidelines and regulations, a less than significant impact related to this issue will occur. No mitigation measures are required.

4.9.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.9.6.1 Construction-Related Water Quality Impacts

Impact 4.9.6.1: *The proposed land use actions and potential subsequent land development that may occur have the potential to affect water quality during the construction phase or ground-disturbing activities.*

Threshold	Would the proposed project violate any water quality standards or waste discharge requirements during construction phases of the project in form of increased soil erosion, sedimentation, or stormwater discharges?
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The construction and grading phases of any portion of the Specific Plan area would require temporary disturbance of surface soils and removal of vegetative cover, which could potentially result in erosion and sedimentation on site. Erosion and sedimentation are major visible water quality impacts attributable to construction activities. Stockpiles and excavated areas on each individual site would be susceptible to high rates of erosion from wind and rain and, if not managed properly, could result in increased sedimentation in local drainage ways.

By volume, sediment is the principal component in most storm runoff. However, delivery, handling, and storage of construction materials and wastes, as well as use of construction equipment on site during the construction phase of the project would also introduce a risk for stormwater contamination that could affect water quality. Spills and leaks could occur from the use of heavy construction equipment and machinery or could originate from construction staging areas. Once released, substances such as fuels, oils, paints, and solvents would be transported to nearby surface waterways and/or to groundwater in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. The anticipated and potential pollutants in stormwater or urban runoff for various land uses are reflected in previously referenced Table 4.9.D.

Short-term stormwater pollutant discharges from each individual site within the Specific Plan area would be mitigated through compliance with the applicable NPDES permitting process, resulting in a less than significant impact. The NPDES permit program was established under Section 402 of the Clean Water Act, which prohibits the unauthorized discharge of pollutants, including municipal, commercial, and industrial wastewater discharges, from point sources to U.S. waters. Permittees must verify compliance with permit requirements by monitoring their effluent, maintaining records, and filing periodic reports. An NPDES permit would generally specify an acceptable level of a pollutant or pollutant parameter in a discharge (for example, a certain level of bacteria). The permittee may choose which technologies to use to achieve that level.

The implementation of NPDES permits including the new General Construction permit ensures that a state's mandatory standards for clean water and the federal minimums are met. Coverage with applicable permits would prevent sedimentation and soil erosion through implementation of an SWPPP and periodic inspections by RWQCB staff. An SWPPP is a written document that describes the construction operator's activities to comply with the requirements in the NPDES General Construction permit. Required elements of an SWPPP include (1) site description addressing the elements and characteristics specific to the project site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; and (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements. The SWPPP is intended to facilitate a process whereby the operator evaluates potential pollutant sources at the site and selects and implements BMPs designed to prevent or control the discharge of pollutants in stormwater runoff.

Development of the Specific Plan area is in excess of one acre; therefore, the proposed project would be required to obtain coverage under an NPDES General Construction permit, which includes the preparation of an SWPPP for construction discharges. During the construction period, the project would utilize a series of BMPs to reduce erosion and sedimentation. These measures may include the use of gravel bags, silt fences, hay bales, check dams, hydroseed, and soil binders. The construction contractor would be required to operate and maintain these controls throughout the duration of on-site construction activities. In addition, the construction contractor would be required to maintain an inspection log and have the log on site to be reviewed by the City and representatives of the RWQCB. To ensure that any future development within the Specific Plan area obtains coverage under the NPDES General Construction permit, **Mitigation Measures 4.9.6.1A through 4.9.6.1C** have been identified.

Mitigation Measures. Although adherence to NPDES requirements is required of all development within the City, the incorporation of these requirements as **Mitigation Measures 4.9.6.1A** through **4.9.6.1C** is designed to track both standard requirements and mitigation measures as part of the Mitigation Monitoring and Reporting Plan or Program (MMRP).

4.9.6.1A Prior to the first issuance of a grading permit by the City for any development within the Arantine Hills Specific Plan, the project proponent shall file a Notice of Intent (NOI) with the Santa Ana Regional Water Quality Control Board to be covered under the State National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharge of stormwater associated with construction activities. The project proponent shall submit to the City the Waste Discharge Identification Number as proof that the project's NOI to be covered by the General Construction Permit has been filed with the appropriate RWQCB.

4.9.6.1B Prior to the first issuance of a grading permit by the City for any development within the Arantine Hills Specific Plan, the project proponent shall submit to the City of Corona and receive approval for a project-specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural best management practices (BMPs) to control sediment and non-visible discharges from the site. Some of the BMPs to be implemented may include (but shall not be limited to) the following:

- Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary debris basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs would be periodically inspected during construction, and repairs would be made when necessary as required by the SWPPP.
- Materials that have the potential to contribute non-visible pollutants to stormwater must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas.
- All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate discharge from the site. Stockpiles would be surrounded by silt fences and covered with plastic tarps.
- The SWPPP would include inspection forms for routine monitoring of the site during the construction phase to ensure NPDES compliance.
- Additional BMPs and erosion control measures would be documented in the SWPPP and utilized if necessary.
- The SWPPP would be kept on site for the entire duration of project construction and will also be available to the local Regional Water Quality Control Board for inspection at any time.

In the event that it is not feasible to implement the above BMPs, the City of Corona can make a determination that other BMPs would provide equivalent or superior treatment either on site or off site.

4.9.6.1C The Construction Contractor shall be responsible for performing and documenting the application of BMPs identified in the project-specific SWPPP. Weekly inspections shall be performed on sediment control measures called for in the SWPPP. Monthly reports shall be maintained by the Contractor and available for City inspection. A more frequent inspection schedule may be required based on the condition of the site and as required in the NPDES General Construction Permit. In addition, the

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Contractor would also be required to maintain an inspection log and have the log on site available for review by the City of Corona and the representatives of the Regional Water Quality Control Board.

Level of Significance after Mitigation. While on-site grading activities and the development of the proposed on-site uses would increase the potential for the erosion of soils, adherence to the BMPs mandated by **Mitigation Measures 4.9.6.1A** through **4.9.6.1C** would reduce impacts associated with short-term (construction) stormwater discharges during project construction to a less than significant level.

4.9.6.2 Operational-Related Water Quality Impacts

Impact 4.9.6.2: *The proposed land use actions and potential subsequent land development that may occur have the potential to affect water quality during the operational phase.*

Threshold	Would the proposed project violate any water quality standards or waste discharge requirements during the operational phases of the project in the form of increased soil erosion, sedimentation, or urban runoff?
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During the operational phase of any urban use, the major source of pollution in stormwater runoff would be contaminants that have accumulated on the land surface over which runoff passes. Upon development of urban uses, storm runoff from the roadways, parking lots, and commercial and residential buildings can carry, and be tainted by, a variety of pollutants such as sediment, petroleum products, commonly utilized construction materials, landscaping chemicals, and (to a lesser extent) trace metals such as zinc, copper, lead, cadmium, and iron, which may lead to the degradation of stormwater in downstream channels. Runoff from landscaped areas could contain elevated levels of phosphorous, nitrogen, and suspended solids. Oil and other hydrocarbons from vehicles are also expected in stormwater runoff.

Pollutant concentrations in urban runoff are extremely variable and are dependent on storm intensity, land use, elapsed time since previous storms, and the volume of runoff generated in a given area that reaches receiving waters. Generally, pollutant concentrations are typically highest during the first major rainfall event after the dry season, known as the “first-flush.” The WQMP prepared for the proposed project identifies pollutants and hydrologic conditions of concern that may be associated with the implementation of the Specific Plan. Table 4.9.I identifies the receiving waters for post-development runoff from the site and if the receiving water is listed as impaired or has a total maximum daily load (TMDL) adopted for a certain type of pollutant. Table 4.9.J provides a summary of pollutants associated with proposed land uses within the Specific Plan area.

Table 4.9.I: Pollutant Stressors in Receiving Waters

Receiving Waters	Receiving Water Classification		303(d) Listing		Adopted TMDL Pollutants
	Proximate	Downstream	Listed?	Pollutant Causing Impairment	
Bedford Canyon Wash (HUD No. 801.31)	Yes	No	No	None	None
Temescal Creek – Reach 2 (HUD No. 801.32)	No	Yes	No	None	None
Temescal Creek – Reach 1 (HUD No. 801.25)	No	Yes	No	None	None

Table 4.9.I: Pollutant Stressors in Receiving Waters

Receiving Waters	Receiving Water Classification		303(d) Listing		Adopted TMDL Pollutants
	Proximate	Downstream	Listed?	Pollutant Causing Impairment	
Santa Ana River – Reach 3 (HUD No. 801.21)	No	Yes	Yes	Pathogens	Pathogens

Source: *Preliminary Water Quality Management Plan for Arantine Hills*, AEI-CASC Consulting, February 15, 2011.

Table 4.9.J: Specific Plan Potential Pollutants

Pollutants	Specific Plan Land Use	Is the Pollutant?	
		303(d) listed	TMDL?
Sediment/Turbidity	Landscape/Open Areas	No	No
Nutrients	Residential/Commercial Areas	No	No
Organic Compounds	Commercial areas	No	No
Trash and Debris	Residential/Commercial Areas	No	No
Oxygen-Demanding Substances	Residential/Commercial Areas	No	No
Bacteria and Viruses	Residential/Commercial Areas	Yes	Yes
Oil and Grease	Residential/Commercial Areas	No	No
Pesticides	Residential/Commercial Areas	No	No
Metals	Commercial Areas	No	No

Source: *Preliminary Water Quality Management Plan for Arantine Hills*, AEI-CASC Consulting, February 15, 2011.

As identified in Table 4.9.J, pollutants associated with the operations of the Specific Plan land uses include sediment/turbidity, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, pesticides, and metals. Comparison of Table 4.9.I and Table 4.9.J indicates that there are no pollutants associated with both the proposed project and the impairment of proximate receiving waters. Based on the WQMP, all downstream receiving waters to which a project directly or indirectly discharges have been identified. This includes receiving waters from the Specific Plan area to the Prado Dam. The selection of treatment controls for the proposed project will be based primarily on protection of proximate receiving waters.

The proximate receiving water for the Specific Plan area is the Bedford Canyon Wash. However, the project is tributary to the Santa Ana River Reach 3, which is impaired for pathogen indicators. Therefore, these indicators are pollutants of concern (POC) for the proposed project.¹ To ensure that land uses within the Specific Plan area would not impair Bedford Canyon Wash, or address the POC, the proposed project would incorporate BMPs during operation of these uses. Specifically, the proposed project would provide a regional water quality basin that would function for both detention and infiltration of stormwater runoff. As specific developments within the Specific Plan area are developed, updates to the Master WQMP for the Arantine Hills Specific Plan would be required to ensure that water quality treatment is being satisfied per City requirements.

The WQMP prepared for the Specific Plan area identifies BMPs required to be in place and operational after construction. The WQMP will address management of urban runoff in terms of the amount and quality of water leaving the project site, and will include site design criteria and techniques that will be implemented after construction to minimize and/or treat runoff from the site. This comprehensive water quality approach will be implemented throughout the project and will

¹ *Preliminary Water Quality Management Plan for Arantine Hills*, AEI-CASC Consulting, February 15, 2011.

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address a three-tier program for achieving water quality goals. The program approach focuses on pollution prevention, source control, and treatment control measures. Pollution prevention controls will be emphasized and will be used as the first line of defense and include measures such as education for property owners and tenants and occupants and common area landscape maintenance practices. Source control BMPs will be implemented to further reduce the amount of pollutants released into the environment. These measures could include concepts or techniques that minimize creation of impervious and/or directly connected impervious surfaces. Finally, treatment control BMPs will be implemented to further supplement the pollution prevention and source control measures by treating the water to remove pollutants before it is released from the project site.

As previously stated, implementation of the proposed Specific Plan would create a master-planned community that includes a balanced residential, commercial, and mixed-use development, as well as open space/recreation uses. No site-specific WQMP has been prepared at this time as no site-specific development project has been submitted to the City for approval. However, when land uses within the Specific Plan area are developed, typical BMPs and/or site-specific WQMPs will be implemented consistent with the goals contained in the master WQMP prepared for the project. It is anticipated that any commercial or residential development within Phase 1 would be required to incorporate on-site water quality features that would meet or exceed the approved WQMP's water quality requirements. Table 4.9.K identifies typical BMPs that could be included.

Table 4.9.K: Typical Best Management Practices (BMPs)

Commercial BMPs	Residential BMPs
<ul style="list-style-type: none"> • Maximize use of permeable areas by reducing the size of parking lots, drive aisles, and parking stalls to the smallest area practicable, while maintaining a consumer-friendly shopping complex consistent with local, state, and federal regulations. • Incorporation of landscaped buffers areas between sidewalks and streets. • The incorporation of vegetated swales and landscaped buffer strips throughout the site. • The incorporation of landscaping into design of on-site drainage. • Proper design and maintenance of landscape irrigation systems. • Implementation of on-site street sweeping and litter control programs. • Implementation of an inspection and maintenance program for on-site drainage facilities. • Implementation of an educational program for property owners, operators, tenants, and employees. 	<ul style="list-style-type: none"> • The incorporation of vegetated swales and landscaped buffer strips throughout the site. • Development and implementation of a street sweeping and catch basin cleaning program. • Use of native and/or non-invasive vegetation in landscaped areas. • Development and implementation of an Integrated Pest Management (IPM) Program for common area landscaping in multifamily residential areas. • Development and implementation of an educational program that provides information to residents on water quality issues including: <ul style="list-style-type: none"> ○ The use of chemicals (including household type) that should be limited to the property, with no discharge of specified wastes via hosing or other direct discharge to gutters, catch basins, and storm drains; ○ The proper handling of material such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals; and ○ The environmental and legal impacts of illegal dumping of harmful substances into storm drains and sewers.

Mitigation Measure. To ensure future development within the Specific Plan area does not affect water quality during long-term operations, the following measure has been identified:

4.9.6.2A Prior to the first issuance of a permit by the City for any project within the Specific Plan area (which includes the issuance of grading permits and building permits), the project proponent shall receive approval from the City of Corona, a project site - specific Water Quality Management Plan (WQMP). The WQMP shall specifically identify pollution prevention, source control, treatment control measures, and other BMPs that shall be used on site to control predictable pollutant runoff in order to reduce impacts to water quality to the maximum extent practicable.

Level of Significance after Mitigation. Any development within the City would be required to incorporate on-site drainage that would have hydrodynamic infrastructure components that would meet the City's and County's water quality requirements. Because adherence to the requirements of the NPDES permit, the SWPPP, and WQMP would be required by the City prior to, during, and after construction, potential operational water quality impacts resulting from stormwater and urban runoff would be reduced to a less than significant level.

4.9.6.3 Groundwater

Impact 4.9.6.3: *The proposed land use actions and potential subsequent land development that may occur may deplete groundwater supplies and lower the local groundwater table level.*

Threshold	Would the proposed project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?
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The availability of groundwater and issues involving the adequacy of recharge capability are regional in nature. The Groundwater Management Act¹ (AB 3030) provides a systematic procedure for an existing local agency to develop a GWMP. AB 3030 allows a local agency whose service includes a groundwater basin that is not already subject to groundwater management pursuant to law or court order to adopt and implement a groundwater management plan and includes plans to mitigate overdraft conditions, control brackish water, and to monitor and replenish groundwater.

As identified in the Water Supply Assessment (WSA) prepared for the proposed project, the City obtains its water from two sources. The primary source is groundwater from the Temescal, Bedford, and Coldwater Sub-basins. The secondary source is water imported by the MWDSC from the Colorado River and the SWP. The MWDSC wholesales its water to WMWD and then to the City.

Groundwater data for the Bedford Sub-basin are limited to a few wells and are not sufficient to analyze long-term trends. Nonetheless, one City-owned well located near the boundary of the Temescal Sub-basin has been used to plot groundwater elevations. The data indicate that groundwater elevations have been more stable than those in the Coldwater and Temescal Sub-basins. Water level fluctuations have generally been less than 60 feet in the last 40 years. The GWMP developed strategies for more sustainable management and use of groundwater resources to meet increasing future demands with decreasing groundwater levels in the regional groundwater basins. These strategies are grouped into the following management categories:

1. New and Replacement Water Supply Wells and Wellhead Treatment;
2. Groundwater Treatment Process Improvements;
3. Enhanced Groundwater Recharge;
4. Groundwater Monitoring Program;

¹ Sections 10750–10756 of the California Water Code.

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5. Expanded Use of Recycled Water;
6. Use of Imported Water;
7. Wastewater Pond Maintenance;
8. Coordination with Regulatory Agencies; and
9. Water Conservation and Demand Management.

The GWMP proposes that these management strategies be implemented through 2020 to assist in reducing demands for imported water and meeting projected demands. The City shares one or more of the three groundwater sub-basins with the City of Norco, Home Gardens County Water District, LLWD, and EVMWD. LLWD participated in the GWMP and has proposed a groundwater recharge project with recycled water in the Bedford Sub-basin.

Based on the WSA prepared for the proposed project, water demand for the proposed Specific Plan uses would total 709 AFY.¹ Although the WSA indicates that there is sufficient water supply to service the Specific Plan area, the WSA anticipated that additional groundwater supplies above existing conditions would be utilized. The region and the City depend on imported water to replenish and supplement groundwater supplies. In the event that imported water is not available, the City would rely solely on groundwater supplies to meet existing and future water demands. Further, the City's 2010 Urban Water Management Plan (UWMP) identifies the need for Corona to comply with the California Water Conservation Act of 2009 to reduce potable water demands by 10 percent in 2015 and 20 percent in 2020.

The proposed project would utilize water conservation project design features such as low-flush toilets, low-flow faucets, and drought-tolerant landscaping. In addition, the proposed project would use recycled water for landscaping and other outdoor uses. The use of recycled water (approximately 72 AFY) would reduce the total amount of potable water that would be required for the project. Utilizing a worst-case scenario in which imported water is not available to the City, the proposed project's potable water demand of 637 AFY of water may result in the further depletion of existing groundwater supplies, a potential lowering of the groundwater table levels, and a significant impact to groundwater levels.

Mitigation Measures. The following measures have been identified to reduce potable water demand of the proposed project:

4.9.6.3A Prior to the issuance of grading permits of any development within the Arantine Hills Specific Plan, the project proponent shall submit to the City for review and approval, a water conservation plan. The water conservation plan shall include but shall not be limited to the following:

- Drought-tolerant landscaping plan;
- Indoor project design features such as low-flush toilets and low-flow faucets;
- Outdoor project design features such as subsurface irrigation systems, rain sensors, drip irrigation, or high-efficiency sprinkler heads;
- Use of alternative water sources (e.g., reclaimed water); and
- Educational materials to be utilized by the project tenants.

4.9.6.3B Prior to the issuance of occupancy permits for any development within the Arantine Hills Specific Plan, the project proponent shall submit proof to the City that an

¹ *Water Supply Assessment - Arantine Hills Specific Plan Project*, City of Corona, September 2010.

educational program regarding water usage has been developed for use within the proposed project.

Level of Significance after Mitigation. Despite adherence to **Mitigation Measures 4.9.6.3A** and **4.9.6.3B**, the proposed project would still result in a new demand for water. Since the worst-case scenario examined in the WSA prepared for the proposed project assumes that no imported water would be available to supplement groundwater supplies, any increase in water demand within the City would result in the withdrawal of groundwater from the groundwater basins. Therefore, impacts associated with groundwater levels are significant and unavoidable.

However, it should be noted that the WSA and the 2010 UWMP conclude that adequate water is available in years 2015 and 2020 with the mandated 10 and 20 percent reduced water demands stipulated by the California Water Conservation Act of 2009. Overall water supplies are forecast to meet future demand based on the City's management of supply and demand as document in the 2010 UWMP consistent with the Urban Water Management Planning Act of 1983 (AB-797) and the Water Conservation Act of 2009.

4.9.6.4 Drainage Pattern and Capacity-Related Impacts

Impact 4.9.6.4: *The proposed land use actions and potential subsequent land development may substantially increase the rate of runoff causing substantial erosion, siltation, and flooding on site or offsite or create substantial sources of polluted runoff.*

Threshold	Would the proposed project substantially alter the existing local drainage patterns of the site and substantially increase the rate or amount of surface runoff in a manner which would result in substantial erosion, siltation, or flooding on site or off site? Would the proposed project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
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Several washes are located within the City, including Temescal Creek and Bedford Wash. During flood events, these washes flow into Temescal Creek before it joins with the Santa Ana River just north of the Prado Flood Control Basin, which holds surface water at Prado Dam. The Santa Ana River and the Prado Dam are the receiving waters for the City via Temescal Creek. The Santa Ana River flows west out of the Prado Dam, through the Santa Ana Mountains, and into Orange County until it eventually meets the Pacific Ocean. Runoff in the City is conveyed by several stormwater drains and channels that ultimately discharge into Temescal Creek.

Implementation of the proposed Specific Plan would create a master-planned community that includes a balanced residential, commercial, and mixed-use development, as well as open space/recreation uses. The Specific Plan would establish land use types, locations, and densities; a circulation concept; infrastructure and public facility improvements; development standards and design guidelines. It is anticipated that the development of these land uses within the Specific Plan area would include the construction of buildings, parking areas, sidewalks, roads and other infrastructure such as water, recycled water, and sewer infrastructure features. Because the development of the Specific Plan area would introduce a greater percentage of impervious surfaces, the post-development flow volumes that would be generated on site would be substantially higher than the pre-development flows without an adequate drainage system and a well planned post construction WQMP which would include addressing any hydrologic conditions of concern that could result from the proposed project.

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Conditions resulting from this change would include increased runoff volumes and velocity; reduced infiltration; increased flow frequency, duration, and peak; shorter time to reach peak flow; and degradation in water quality. The Specific Plan area currently has a low runoff coefficient, meaning that runoff during storms represents a relatively small portion of the total rainfall. The majority of the precipitation, particularly in smaller storms, infiltrates into the subsurface. The development of the Specific Plan area with impervious surfaces (such as roadways, parking lots, and buildings) would result in a condition in which nearly all rainfall becomes runoff.

The Arantine Hills Specific Plan conceptual drainage includes a system of drainage facilities and detention basins (see Figure 3.9). The Bedford Canyon Wash will be designed as a soft-bottom channel with slope protection on the north sides slopes to protect against scour. Bedford Canyon Wash from Street 'A' to the upstream boundary of the project will be widened in order to reduce the drainage flow velocity within the channel. Below Street 'A,' the wash will be transitioned to match the existing channel width. A multiple-arch culvert bridge or reinforced concrete boxes will be designed for the proposed Street 'E' crossing. A floodplain and sediment transport study was prepared for Bedford Canyon Wash. This study, along with other pertinent studies that may be required, will be submitted to the Riverside County Flood Control and Water Conservation District for review, approval, and consideration of acceptance of the Bedford Canyon Wash improvements associated with the proposed project. Drainage improvements are required to ensure that the proposed project will be protected from the 100-year flood.

As previously stated, implementation of the Specific Plan would result in the conversion of permeable surfaces to impermeable surfaces. The WQMP prepared for the proposed project indicates that the Specific Plan area would ultimately drain to two locations on the project site. These locations would include a regional basin located in Planning Area 15 and a local basin located in Planning Area 16. A comparison of pre-development and post development flow conditions for the Specific Plan area has been provided in Tables 4.9.L and 4.9.M.

Table 4.9.L: Pre-Development and Post-Development Pervious Conditions – Regional Basin

	2-year – 24-hour		10-year – 24-hour	
	Pre-condition	Post-condition	Pre-condition	Post-condition
Discharge (cfs)	8.93	8.58	16.64	15.32
Velocity (fps)	1.77	1.74	2.26	2.18
Volume (cubic feet)	241,031	474,804	448,947	474,804
Duration (minutes)	1,505	2,928	1,505	1,950

Source: *Preliminary Water Quality Management Plan for Arantine Hills*, AEI-CASC Consulting, February 15, 2011.

Table 4.9.M: Pre-Development and Post-Development Pervious Conditions – Local Basin

	2-year – 24-hour		10-year – 24-hour	
	Pre-condition	Post-condition	Pre-condition	Post-condition
Discharge (cfs)	0.88	0.80	3.76	3.55
Velocity (fps)	1.4	1.34	2.45	2.4
Volume (cubic feet)	23,191	39,204	50,316	17,424
Duration (minutes)	1,458	2,388	1,458	1,488

Source: *Preliminary Water Quality Management Plan for Arantine Hills*, AEI-CASC Consulting, February 15, 2011.

As identified in Tables 4.9.L and 4.9.M, the volumes and duration for the post-development conditions exceed the pre-development conditions on site. The proposed project would require the use of a detention/infiltration basin to function for both detention and water quality purposes. As identified in

the WQMP prepared for the proposed project, the flows coming from both the regional and local basin into Bedford Canyon Wash would be at a rate such that the post-development conditions do not exceed the pre-development conditions for the rainfall event year per City requirements. In addition, the post development velocities would not exceed the pre developed velocities and would minimize downstream erosion.

As previously identified, with the exception of the Bedford Canyon Wash that runs along the east side of the project and the small culverts under I-15 near the northwest and northeast sides of the project area, there are no other existing drainage facilities near or within the Specific Plan area. The master drainage plan prepared for the proposed project proposes a system of drainage channels and underground storm drains and basins to intercept and convey the storm flows generated by the project site and the off-site flows coming from the south. Figure 3.9 (in Chapter 3, Project Description) provides the proposed locations for this master drainage system within the Specific Plan area. The majority of the proposed underground drainage facilities would be placed under the streets. Open channels are proposed along the south, west, and north sides of the project site. As previously identified, detention basins are proposed at two locations in order to mitigate increases in stormwater runoff resulting from the development of the various planning areas.

As identified in Table 4.9.L and Table 4.9.M, while the implementation of the Specific Plan would contribute to a greater volume and higher velocities of stormwater flow, the master drainage system would accept and accommodate runoff that would result from project construction at or better than historic, or pre-development, conditions. Therefore, the post-development flows generated within the Specific Plan area would not exceed the capacity of the planned stormwater drainage systems. Mitigation Measure 4.9.6.4 has been created to ensure the potential drainage impacts would be reduced to a less than significant level.

Mitigation Measures. Previously referenced **Mitigation Measures 4.9.6.1A** through **4.9.6.1C** will reduce construction-related water quality impacts. Previously referenced **Mitigation Measure 4.9.6.2A** will reduce project operations water quality impacts. The following additional measure has been identified to reduce drainage impacts associated with erosion, siltation, or flooding from the proposed project:

4.9.6.4A Prior to the issuance of grading permits of any development within the Arantine Hills Specific Plan, the project proponent shall ensure that drainage facilities and/or improvements necessary for the protection of the project from the 100-year flood are identified and incorporated into the improvement plans that will be reviewed and approved by the City. A floodplain and sediment transport study prepared for Bedford Canyon Wash, along with other required drainage and/or hydraulic studies, shall be submitted to the Riverside County Flood Control and Water Conservation District for review, approval, and consideration of acceptance of the Bedford Canyon Wash improvements associated with the proposed development. Acceptance of Bedford Wash improvements by the Flood Control and Water Conservation District requires approval of the associated plans and pertinent drainage studies including the sediment transport study. These drainage improvements are required to ensure the proposed project will be protected from the 100-year flood.

Level of Significance after Mitigation. With implementation of **Mitigation Measure 4.9.6.4A**, the drainage system for the proposed project would accommodate off-site flows from Bedford Wash as well as the project's contribution to flows within Bedford Wash, resulting in less than significant impact associated with drainage system capacity and impacts from erosion siltation, or flooding. With implementation of previously referenced **Mitigation Measures 4.9.6.1A** through **4.9.6.1C** and **4.9.6.2A** requiring implementation of construction and project operational drainage and water quality

BMPs, associated construction and project operational water quality impacts would be reduced to a less than significant level.

4.9.7 Cumulative Impacts

Cumulatively, development within the watershed would result in an increase in impervious surfaces in addition to changes in land use and associated pollutant runoff characteristics. Increased impervious surfaces are likely to alter existing hydrology and increase potential pollutant loads. However, all development and future development in the City and throughout the Santa Ana RWQCB must obtain coverage under the NPDES permit program. Although continued growth is anticipated to occur in the City and surrounding areas, new development and significant redevelopment would have to minimize their individual impacts to water quality and pollutant transport through implementation of BMPs. Because these requirements would be imposed on all other developments, it is anticipated that each development would be required to mitigate its own specific impact on water quality and drainage. Therefore, if all other developments are required to mitigate for impacts to water quality, a less than significant cumulative impact to water quality would occur.

While cumulative development in the City and region would increase the demand for water, groundwater recharge policies and practices implemented by the City and other local agencies would ensure groundwater supplies are maintained at appropriate levels. Other regulatory mechanisms such as the water management plan conservation policies (such as education and outreach to residents and business owners) further ensure that cumulative impacts to groundwater levels are maintained at the appropriate levels. However, the region and the City depend to a certain extent on imported water supplies to replenish and supplement groundwater supplies. In the event that supplemental water supplies are not available, the region and the City would rely solely on groundwater supplies.

Cumulatively, water demands in the region and the City are expected to increase due to the development of future projects. Without a confirmed source of supplemental water, the use of groundwater supplies would increase cumulatively. The increased use of groundwater supplies would potentially lead to a degradation of water quality due to a reduced amount of water in the groundwater basins. Therefore, the proposed project, in conjunction with other reasonable and foreseeable projects, would have a significant and unavoidable cumulative impact on water quality and use due to the possible overdrafting of the underlying groundwater basin.

4.10 LAND USE AND PLANNING

This chapter addresses the consistency of the proposed project with the goals and policies of the City of Corona General Plan, the Municipal Code, and compatibility with other relevant regional plans. This chapter also identifies and evaluates the compatibility of the proposed project with existing land uses and the potential land use impacts that may result subsequent to approval of the project. The analysis contained in this chapter is based on the following reference documents:

- *City of Corona General Plan Update, City of Corona, March 2004;*
- *Land Use Element, City of Corona General Plan, City of Corona; adopted March 17, 2004.*
- *Compass Growth Vision 2004, Southern California Association of Governments, June 2004;*
- *City of Corona Municipal Code, City of Corona, updated March 2009;*
 - *Municipal Code, City of Corona, codified through Ordinance 3012, passed September 30, 2009;*
- *Southern California Association of Governments, 2006–2014 Regional Housing Needs Assessment;*
- *Southern California Association of Governments, 2008 Regional Comprehensive Plan;* and
- *California Housing Element Law (Government Code Sec. 65580 et seq.).*

4.10.1 Existing Setting

4.10.1.1 General Plan and Zoning Designations

The proposed project site encompasses approximately 274.8 acres located within the Bedford Canyon area bounded by Interstate 15 (I-15) to the northeast, Eagle Glen Parkway and the Eagle Glen Specific Plan area to the north, northwest, and west, residential uses in unincorporated Riverside County to the southeast, and the Cleveland National Forest to the south. Table 4.10.A identifies on-site and adjacent General Plan and zoning designations. The on-site and adjacent General Plan and zoning designations are illustrated in previously referenced Figures 3.3 and 3.4 (in Section 3.0 Project Description).

Table 4.10.A: On-Site and Adjacent Land Use Designations

Location	Current Land Uses	General Plan Land Uses	Zoning Designations
On-site	Vacant Agriculture	Agriculture (Possible Future Urban Use)	Agriculture
Northwest	Eagle Glen Specific Plan	Low Density Residential	Single Family Residential
Southeast	Unincorporated Rural Residential	Riverside County Rural Residential	Riverside County Rural Residential
Northeast	I-15 ROW planned for improvements	Agriculture (Possible Future Urban Use)	Agriculture
Southwest	Eagle Glen Golf Course	Open Space/Recreation	Eagle Glen Specific Plan - Open Space/Golf Course

Sources: City of Corona General Plan Land Use Map, adopted March, 2004.

The project, the Arantine Hills Specific Plan, proposes a community with residential land uses of varying intensities, supported by commercial and industrial uses, parks, and open spaces (see details in Chapter 3.0, Project Description). As per the City of Corona General Plan, the Arantine Hills Specific Plan area is designated as “Agriculture-Possible Future Urban Use.” As summarized in

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Table 4.10.A, the existing underlying General Plan land use designation is Agriculture and the underlying Zoning designation is Agriculture within the project limits. The Agriculture land use designation is intended to accommodate agricultural activities, such as citrus crops, and allow for the construction of housing and ancillary facilities in the future.¹ The Agricultural Zone is intended as a district for general agricultural purposes, with appropriate single-family residences and customary accessory buildings.²

The actions required by the City include approval of a General Plan Amendment for change in land use designation from “Agriculture (Possible Future Urban Use)” to the land uses proposed in the Specific Plan.

4.10.1.2 On-Site and Surrounding Land Uses

The proposed project site currently consists of fallow agricultural fields that once supported citrus groves cultivated by McMillan Farm Management. Currently, the project site is vacant. Additionally, the central portion of the project site consists of vacant undeveloped land.

North and west of the project site is located Eagle Glen Specific Plan, which includes residential, commercial, industrial, park, golf course, and agricultural uses. Land owned by the Riverside County Transportation Commission (RCTC) abuts the project site to the northeast. A neighborhood commercial center is located on Bedford Canyon Road, just north of Cajalco Road. The southern boundary of the project site is flanked by unincorporated County land and large scattered privately owned agricultural lots.

The Bedford Wash traverses the site through the eastern and central portions and continues in a southwesterly direction exiting the project limits at the southernmost boundary line. South of the project site, existing land uses consist of agricultural uses and rural residential uses within unincorporated Riverside County. I-15 is located east of the project site. Previously referenced Table 4.10.A and Figure 3.2 (in Section 3.0 Project Description) identify on-site and adjacent land uses.

4.10.2 Existing Policies and Regulations

4.10.2.1 State Regulations

State Housing Element Law (Government Code Section 65580 et seq.). California Government Code Section 65302(c) mandates that each city shall include a Housing Element in its General Plan. The Housing Element is required to identify and analyze existing and projected housing needs, and include statements of the City’s goals, policies, quantified objectives, and scheduled programs for the preservation, improvement, and development of housing. The City, in preparing its Housing Element, must consider economic, environmental, and fiscal factors, as well as community goals as set forth in the General Plan.

The City of Corona adopted its 2008–2014 Housing Element in August 2009 after the California Department of Housing and Community Development (HCD) review. The HCD issued a letter stating that the Housing Element complied with all provisions of State Housing Element law. HCD approval is referred to as “certification.”

Chapter V of the adopted Housing Element includes a number of implementation actions involving changes to the General Plan Land Use Element and/or the Development Code that are necessary to

¹ *City of Corona General Plan, City of Corona, Adopted March 17, 2004.*

² *City of Corona Municipal Code, Title 17 Zoning, City of Corona, passed through Ordinance 3012, September 30, 2009.*

ensure continued compliance with State law. One of the key requirements of State Housing Law is that each jurisdiction must provide adequate sites with appropriate zoning to accommodate its fair share of the region's housing need as determined by the Southern California Association of Governments (SCAG) through the Regional Housing Needs Allocation (RHNA) process.¹ As described in the Housing Element, Corona's assigned allocation for new housing during the 2006–2014 planning period was 3,307 units. Of these, 819 and 560 units (respectively) were identified as necessary for very-low and low-income categories². State law requires that a city must amend its General Plan and/or zoning regulations when it does not have adequate sites to accommodate the various types of housing that has been assigned in the RHNA.

In accordance with Government Code Section 65583 et seq. the minimum base residential density (i.e., excluding any density bonus) presumed to be adequate to facilitate development of lower-income housing is 30 units/acre where population is greater than 25,000.

In addition to the proposed changes to site-specific land use designations discussed above, the Housing Element implementation plan includes the following amendments to citywide land use regulations and procedures. These amendments are all required under State law.

- **Density Bonus Regulations.** Under current State Density Bonus Law (SB 1818 of 2004), cities and counties must provide a density increase up to 35 percent over the otherwise maximum allowable residential density under the Municipal Code and the Land Use Element of the General Plan (or bonuses of equivalent financial value) when builders agree to construct housing developments with units affordable to low- or moderate-income households. The Housing Element (Chapter V) contains Program 17 to add density bonus provisions to the Municipal Code to comply with the current provisions of state law. Pending completion of that update, state law supersedes the existing density bonus ordinance.
- **Single-Room-Occupancy (SRO) Regulations.** SRO facilities are small studio-type units that may provide affordable housing to lower-income individuals such as college students or persons with special needs. SROs are not currently defined in the Development Code. Program 12 in Chapter V of the Housing Element requires the City to revise the Code to establish appropriate locations and development standards for SROs.
- **Emergency Shelter and Transitional/Supportive Housing Regulations.** Senate Bill 2 of 2007 strengthened the planning requirements for emergency shelters and transitional/supportive housing. Unless adequate capacity is available to serve existing need, SB 2 requires that emergency shelters be allowed "by-right" (i.e., without a conditional use permit or other discretionary approval) in at least one zoning district. Emergency shelters are currently permitted by Board of Zoning Adjustment approval in the M-1, M-2 and M-3 Zones (Light, Medium and Heavy Manufacturing). The Housing Element (Chapter V) includes Program 14 to amend the Municipal Code in conformance with SB 2. The M-1 (Light Manufacturing) Zone is proposed to allow emergency shelters by-right.

SB 2 also requires that transitional and supportive housing be treated as a residential use that is subject to the same regulations and procedures as other residential uses of the same type in the same zone. Program 13 in the Housing Element requires the City to amend the Municipal Code in conformance with SB 2.

- **Reasonable Accommodation Procedures.** Senate Bill 520 of 2001 requires cities to remove constraints and make reasonable accommodation for housing occupied by persons with disabilities. In order to facilitate the processing of requests to reduce land use or architectural

¹ For a complete discussion of the RHNA process, please refer to Chapter IV, Section A, of the Housing Element.

² *Final Regional Housing Needs Assessment Allocation*, Southern California Association of Governments, adopted July 12, 2007.

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obstacles for such persons, Program 14 to adopt a Reasonable Accommodation Ordinance is included in the Housing Element.

4.10.2.2 Regional Plans

The SCAG is the designated metropolitan planning organization (MPO) for the Counties of Ventura, Orange, San Bernardino, Riverside, Imperial, and Los Angeles and is federally mandated to develop plans for transportation, growth management, housing, hazardous waste management, and air quality.

- **2008 SCAG Regional Comprehensive Plan (RCP).** The purpose of the RCP is to encourage local land use actions that could ultimately lead to development of an urban form that will help minimize development costs, save natural resources, and enhance quality of life in the region. The RCP is based on the growth management framework of the 2004 Compass Blueprint, and the goals of the plan aim at enabling individuals to spend less on housing, enable firms to be more competitive, minimize public and private development costs, preserve open space and natural resources, attain mobility and clean air quality, avoid economic and social polarization, and accommodate a diversity of life styles. The RCP is concerned with achieving a balance between the availability of jobs and the provision of housing on a subregional basis. The RCP identifies voluntary best practices to deal with growth and infrastructure challenges in an integrated and comprehensive way. It also includes goals and outcomes to measure progress toward a more sustainable region. Local governments are required to use the RCP as the basis for their own plans and are required to discuss the consistency of projects of “regional significance” with the RCP. The RCP includes nine chapters, each based on specific areas of planning or resource management. Each of the nine chapters contains goals, policies, implementation, and strategies to achieve the SCAG’s overall goals of improving the standard of living and quality of life, while enhancing equity and access to government.
- **2006–2014 SCAG Regional Housing Needs Assessment (RHNA).** The RHNA is a key tool for local governments to plan for anticipated growth. The RHNA quantifies the anticipated need for housing within each jurisdiction for the 8½-year period from January 2006 to July 2014. Communities then determine how they will accommodate this need through the process of updating the Housing Elements of their General Plans. The 2006–2014 RHNA was adopted by the SCAG in July 2007. The future need for housing is determined primarily by the forecasted growth in households in a community. Each new household, created by a child moving out of a parent’s home, by a family moving to a community for employment, and so forth, creates additional housing need. The housing need for new households is then adjusted to maintain a desirable level of vacancy to promote housing choice and mobility. An adjustment is also made to account for units expected to be lost due to demolition, natural disaster, or conversion to non-housing uses. The sum of these factors—household growth, vacancy need, and replacement need—determines the construction need for a community. Total housing need is then distributed among income categories on the basis of the county’s income distribution, with adjustments to avoid an over-concentration of lower-income households in any community.

Note: Other State and/or regional agencies have jurisdiction over issues such as air quality, biological resources and habitat, water quality, flood control, water supply, and wastewater treatment. Consistency of the proposed project with the policies and regulations of those agencies is addressed in the relevant topical chapters of this EIR.

4.10.2.3 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that are related to land use. Table 4.10.B (at the end of this chapter) identifies goals, objectives, and policies of the Land Use Element that are relevant to the proposed project and provides a consistency

analysis. The consistency analysis of SCAG's regional goals and policies is included in Table 4.10.C (also at the end of this chapter).

4.10.3 Methodology

The focus of the land use and planning analysis is on land use impacts that could result from implementation of the proposed project. Potential impacts are identified and evaluated based on existing land uses, land uses proposed as part of the project, land use designations, and standards and policies related to land use. Land use impacts are evaluated based on the thresholds of significance described below.

Potential land use conflicts or incompatibility during construction activities are usually the result of other environmental effects, such as the generation of noise or air pollutants during grading activities. Specific impacts and consistency issues associated with population and housing, transportation and circulation, noise, air quality, agriculture resources, hazards and hazardous materials, hydrology and water quality, biological resources, cultural and paleontological resources, aesthetics and visual resources, public services, and/or utilities and service systems are addressed in the respective EIR chapters for these topics.

4.10.4 Thresholds of Significance

Appendix G of the *CEQA Guidelines* recognizes the following significance thresholds related to land use and planning. Based on these thresholds, potential impacts could be considered significant if the proposed project would result in any of the following:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan, Specific Plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; and/or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.10.5 Less than Significant Impacts

The following potential impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.10.5.1 Physically Divide an Established Community

Threshold	Would the proposed project physically divide an established community?
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The proposed project is a planned community on vacant land that has been used in the past for agricultural activities. However, recent agricultural activity has not occurred on the project site (refer to Chapter 4.2 Agricultural Resources for a discussion on the proposed effects on agricultural resources).

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Based on the City's General Plan Land Use Map,¹ the nearest residential land uses within the City are located to the west and northwest of the proposed project site. To the west and northwest, the nearest existing residential use is located adjacent to the project site that are part of the Eagle Glen Specific Plan development, a golf-course residential development. However, the Eagle Glen community is located on elevations higher than the proposed project site and is separated by a vegetated bluff. Figure 3.2 (Chapter 3.0 Project Description) illustrates the location of the nearby residences within the project vicinity. The land uses surrounding the proposed project to the south is unincorporated rural residential, to the east is I-15, to the west lies open space and some agricultural parcels. Since the project is an infill project with development surrounding most of it, it will not divide an established community on site.

Because the existing residential uses surrounding the proposed project site are separated from the site by elevation and undeveloped natural areas (a bluff), implementation of the proposed project would not physically divide an established community. While the physical construction of barriers would occur (e.g., roadways, natural areas, open space), the division of an established community would not occur because the residential uses in the project vicinity are already separated by existing natural features. No impact would occur and no mitigation is required.

4.10.5.2 Conflict with Any Applicable Habitat or Natural Community Conservation Plan

Threshold	Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?
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Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The project site is located within the MSHCP area, Temescal Canyon Area Plan. Although not located within an MSHCP conservation or criteria area, the project will comply with the requirements of the MSHCP. The MSHCP is a comprehensive, multi-jurisdictional effort that includes Riverside County and fourteen cities to provide a regional approach to conservation planning. The proposed project will be consistent with the MSHCP. The MSHCP and its Implementation Agreement contain a fee mitigation program pursuant to which local agencies collect development impact fees and remit such fees to the Riverside Conservation Authority (RCA). These fees are in turn used to acquire lands which are suitable for habitat preservation for species covered by the MSHCP. A complete discussion and evaluation of MSHCP is contained in Section 4.4. Because the project will comply with the requirements of the MSHCP and result in a less than significant impact, no mitigation is required.

4.10.5.3 Conflict with Applicable Land Use Plans, Policies, or Regulations

Threshold	Would the proposed project conflict with any applicable land use plan, policy, or regulations of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?
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Section 15125 (d) of the *CEQA Guidelines* requires EIRs to “discuss any inconsistencies between the proposed project and applicable general plans and regional plans.” The objective of such a discussion is to find ways to modify the project, if warranted, to reduce any identified inconsistencies with relevant plans and policies. Pursuant to CEQA Section 15125 (d), this EIR chapter includes an evaluation of the consistency of the proposed project with pertinent goals and policies of relevant local and regional plans. Because certain plans address particular issue areas, such as air quality, transportation, biology, hazards, water quality, and water supply, the local and regional plans related to such topics are addressed in detail in other chapters of this EIR.

¹ City of Corona General Plan, City of Corona, March 16, 2007.

Tables 4.10.B and 4.10.C provide a consistency analysis for the proposed project as compared to the SCAG 2008 RCP and the City of Corona General Plan. By law, all activities undertaken by a planning agency must be consistent with the goals and policies of the agency's general plan. The *City of Corona General Plan*, updated in 2004, plays a central planning role in correlating all City land use issues, goals, and objectives into one set of development policies. The *Land Use Element* includes a *Land Use Map* and an associated set of land use designations, goals, policies, and guidelines.

As described in Tables 4.10.B and 4.10.C, all aspects of the proposed project would be consistent with each of the applicable policies of the City's General Plan with the exception of the following:

General Plan and Zoning Designation

Land Use Designation

The current land use designation for the project site is "Agriculture-Possible Future Urban Use" as per the City of Corona General Plan Land Use Map (Exhibit 3.3, Existing General Plan Land Use Designation). Since the project proposes land uses that range from low density residential to high density residential, general commercial, mixed uses (commercial-industrial and commercial-residential), parks, and open spaces as illustrated in the Arantine Hills Specific Plan, Exhibit 3.2, Proposed General Plan Land Use Designations, a General Plan Amendment will be required.

On adoption of the General Plan Amendment, the land use designations as per Arantine Hills Specific Plan will apply.

Zoning Designation

The project site is currently zoned as "Agricultural" as illustrated in Exhibit 3.4, Existing Zoning Designations in the City of Corona General Plan.

Adoption of the Arantine Hills Specific Plan will change the zoning designation for the site to the various zoning designations as indicated on Figure 3.4, Proposed Zoning Designations making the proposed project consistent with zoning. The change in zoning is not considered a significant land use impact; therefore, no mitigation is required.

Agricultural lands constitute less than one percent of the lands in the City of Corona. As stated in the General Plan, the agricultural lands are being used for other purposes and the ones that are in use are being downgraded. As of 2002, approximately 30 percent of the City was developed with housing, four percent for commercial and office uses, 12 percent for industrial uses, 37 percent for public, parks, and open spaces, and 17 percent was undeveloped or not committed as permanent open space. Less than one percent of the lands continue to be used for agricultural purposes. For further discussion of agricultural impacts, refer to Chapter 4.2 Agricultural Resources.

4.10.6 Significant Impacts

No significant impacts related to land use have been identified.

4.10.7 Cumulative Impacts

As discussed in the land use consistency analysis, with the exception of the issues described above, the proposed project would not conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Because each development project will be required to mitigate any inconsistencies among the various land use plans, it can be anticipated that, on a cumulative level, these projects would have a less than significant impact. No significant cumulative impacts would be expected with regard to dividing an established community, conflicting with applicable land use plans, policies, or regulations, or conflicting with an approved habitat conservation plan.

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Table 4.10.B: City of Corona General Plan Land Use Element Consistency Analysis

Goal/Policy/Action	Consistency Analysis/Evaluation
<p>Goal 1.1: A community that contains a diversity of land uses that supports the needs of and provides a high quality of life for its residents, sustains and enhances the City's economy and fiscal balance, is supported by adequate community infrastructure and services, and is compatible with the environmental setting and resources.</p> <p>Goal 1.1.1: Accommodate uses that support the diverse needs of Corona's residents including opportunities for living, commerce, employment, recreation, education, culture, entertainment, civic engagement, and social and spiritual activity that are in balance with natural open spaces.</p> <p>Goal 1.1.4: Accommodate the types, densities, and mix of land uses that can be adequately supported by transportation and utility infrastructure (water, sewer, etc.) and public services (schools, parks, libraries, etc.)</p>	<p><u>Consistent.</u> The proposed project provides a variety of housing, commercial, recreational, and other essential services that would support a high quality of life for its residents. The project also includes infrastructure necessary to support the proposed development. As part of the project, approximately 36.6 acres of land is designated as open spaces, including Bedford Canyon Wash and the bluff area adjacent to it for the purpose of protection of existing habitats, drainage courses, and vistas.</p>
<p>Goal 1.2: A cohesive and integrated City comprised of distinct and vital commercial and business districts and livable residential neighborhoods, which are correlated with supporting transportation and utility infrastructure and sustain natural open spaces, hillsides and canyons.</p>	<p><u>Consistent.</u> The project proposes residential areas with mixed use developments connected together with pedestrian pathways, bike lanes, and roadways. The project also includes planned open spaces (parks) and natural open spaces such as Bedford Canyon Wash and adjacent bluffs as open space.</p>
<p>Goal 1.3: A development pattern that retains and complements the City's important residential neighborhoods, commercial and industrial districts, and open spaces.</p>	<p><u>Consistent.</u> The project is a master-planned community designed with residential neighborhoods complemented by commercial, industrial, open spaces, and parks. The Arantine Hills Specific Plan is designed so compatible land uses, open spaces, landscaped manufactured slopes, and elevation changes serve as buffers between planned Arantine Hills community and surrounding land uses.</p>
<p>Goal 1.5: Distinct neighborhoods and districts that contribute to the identity, character, and image of Corona as a vital, livable, diverse, innovative and environmentally sustainable community.</p>	<p><u>Consistent.</u> As a master-planned community, the Arantine Hills Specific Plan incorporates design guidelines that will ensure high quality architecture and landscaping. It will provide a distinct identity as a neighborhood that is vital and livable while providing diverse land uses. Additionally, the project promotes the use of state-of-the-art information technology and communications facilities for community residents, business owners, and employees of businesses within Arantine Hills. The project also includes "green" and sustainable strategies for development within the Arantine Hills community.</p>
<p>Goal 1.6: A community of buildings and properties that are well maintained, sustaining Corona's physical and economic quality and character.</p>	<p><u>Consistent.</u> The proposed project, once built will have a Master Homeowners Association (MHOA) that will maintain all private communities and parkway areas with the street rights-of-way that are not under the City of Corona's maintenance. MHOA standards will maintain and regulate all maintenance throughout the community and establish regulations and enforcement procedures.</p>

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Table 4.10.B: City of Corona General Plan Land Use Element Consistency Analysis

Goal/Policy/Action	Consistency Analysis/Evaluation
<p>Goal 1.7: Residential neighborhoods that contain a diversity of housing and supporting uses to meet the needs of Corona's residents that are designed to enhance livability and a high quality of life.</p>	<p><u>Consistent.</u> The Arantine Hills Specific Plan provides low, medium, high density housing that will be developed consistent with the Specific Plan's design guidelines. All residential developments are connected to pedestrian walkways, and on-street bike lanes provide pedestrian connectivity making it possible to ride around for exercise and local transportation.</p>
<p>Goal 1.9: Development of new residential neighborhoods that complement existing neighborhoods and assure a high level of livability for their residents.</p>	<p><u>Consistent.</u> As discussed above, Arantine Hills is planned as a high quality, pedestrian-friendly residential and mixed-use development that complements the existing adjacent neighborhoods adjoining its northwest, west, and southern boundaries. The project provides for diverse residential options, retail and commercial opportunities, public parks, natural open spaces, and a multi-purpose trail along Bedford Canyon Wash.</p>
<p>Goal 1.11: A diversity of viable commercial districts and corridors that contain uses supporting resident, business, and visitor needs and contribute revenue to the City to fund essential services.</p>	<p><u>Consistent.</u> The master planned community includes commercial and industrial uses set amidst mixed uses that will provide jobs and essential services to the residents of Corona and Arantine Hills, as well as generate additional sales tax revenue for the City.</p>
<p>Goal 1.13: Vital and active districts that provide housing opportunities in proximity to commercial uses, services, entertainment, and public transit portals.</p>	<p><u>Consistent.</u> The Arantine Hills Specific Plan Mixed Use I Planning Area allows for integration of residential with office and retail commercial uses within the same structure/s or on the same site. Mixed Use I is located adjacent to medium and high density residential planning areas. Besides this proximity to residential land uses, the planned pedestrian and bikeways enhances the vitality and activity level linking residential areas to commercial and mixed-use areas within the community.</p>
<p>Goal 1.14: Economically vital districts that are characterized by and benefit from their integrated mix of industries, retail, and office uses.</p>	<p><u>Consistent.</u> Within the master-planned community, the Mixed-Use II Planning Area allows for integration of commercial, office, business park, research and development, and light industrial uses promoting economic vitality within the community.</p>
<p>Goal 1.15: A mix of governmental service, institutional, educational, recreational, and utility facilities that support the needs of Corona's residents and businesses.</p>	<p><u>Consistent.</u> As explained in the Arantine Hills Specific Plan, institutional, educational, recreational, and utility infrastructure can be developed within selected planning areas, supporting the needs of the community and the City.</p>
<p>Goal 1.16: Open spaces that provide Corona's residents with opportunities to enjoy the natural environment, provide visual "relief" from urban development, protect significant plant and animal habitats, and protect development from natural environmental hazards.</p>	<p><u>Consistent.</u> The Specific Plan provides 52 acres of open space and parks. Bedford Canyon Wash and the steep slopes adjacent to the wash will be maintained as open space. Bedford Canyon Wash will have a soft-bottom channel with protected slopes to function as a flood control facility. Other environmental hazards such as wildfires will be minimized with implementation of a fuel modification plan.</p>

Table 4.10.B: City of Corona General Plan Land Use Element Consistency Analysis

Goal/Policy/Action	Consistency Analysis/Evaluation
<p>Goal 1.22: Maintenance of existing agricultural operations as on open space of the City, while allowing for the possible of future development that would complement adjoining land uses.</p>	<p><u>Consistent.</u> As per the policies under this Goal, future development of urban uses is allowed on the project site through the formulation and processing of a Specific Plan. Arantine Hills Specific Plan is a master planned community that complements the existing Eagle Glen community to the north and west of the proposed project with varied residential, mixed uses-commercial and industrial planned amidst parks and open spaces with the type, density, and design character specified in the Specific Plan. Although there are no existing agricultural operations on the project site, open space will be permanently maintained consistent with this goal.</p>

Table 4.10.C: SCAG 2008 Regional Comprehensive Plan Consistency Analysis

Goal/Policy/Action	Consistency Evaluation
Land Use and Housing Chapter	
<p>Goal: <i>Focusing growth in existing and emerging centers and along major transportation corridors.</i></p>	<p><u>Consistent.</u> Creation of newly developed residential community will be consistent with this goal as the proposed site is along the I-15 transportation corridor.</p>
<p>Goal: <i>Creating significant areas of mixed-use development and walkable, “people-scaled” communities.</i></p>	<p><u>Consistent.</u> Creation of Arantine Hills Specific Plan community provides opportunities for mixed-use development, where people can work, shop, and reside which is consistent with this goal.</p>
<p>Goal: <i>Providing new housing opportunities, with building types and locations that respond to the region’s changing demographics.</i></p>	<p><u>Consistent.</u> Arantine Hills Specific Plan development provides new housing opportunities and higher-density building types, which provides opportunities to residents with varying incomes. The proposed project is consistent with this goal.</p>
<p>Outcome: <i>Increase the region’s first-time homebuyer affordability index so that the relationship of minimum qualifying income to entry level home price mirrors or surpasses the national average.</i></p>	<p><u>Consistent.</u> Development of the Mixed Use Planning Area with residential and commercial provides for entry-level residential type, which would be affordable by first-time homebuyers.</p>
<p>Outcome: <i>Significantly improve the efficiency of land use in the region’s urbanized areas by 2035.</i></p>	<p><u>Consistent.</u> The Arantine Hills Specific Plan would facilitate more efficient land use by developing the site with a range of housing, industrial uses, commercial and parks/open space. The Arantine Hills Specific Plan also includes two mixed-use planning areas, allowing for mixed-use development, which is consistent with this goal.</p>
<p>Policy LU-4: <i>Local governments should provide for new housing, consistent with State Housing Element law, to accommodate their share of forecast regional growth.</i></p>	<p><u>Consistent.</u> Since Arantine Hills Specific Plan is a mixed use residential development, it would provide additional housing units in the City of Corona, which is consistent with this goal and consistent with the City’s certified Housing Element.</p>

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Table 4.10.C: SCAG 2008 Regional Comprehensive Plan Consistency Analysis

Goal/Policy/Action	Consistency Evaluation
<p>Policy LU-4.1: <i>Local governments should adopt and implement General Plan Housing Elements that accommodate housing needs identified through the RHNA process. Affordable housing should be provided consistent with RHNA income category distributions adopted for each jurisdiction. To provide housing, especially affordable housing, jurisdictions should leverage existing State programs such as HCD's Workforce Incentive Program and density bonus law and create local incentives (e.g., housing trust funds, inclusionary zoning, tax-increment-financing districts in redevelopment areas and transit villages) and partnerships with non-governmental stakeholders.</i></p>	<p><u>Consistent.</u> City of Corona's Housing Element 2008–2014 was adopted in August 2009. State law mandates local communities to provide for their portion of the regional demand for housing units. The number of units to be accommodated, or a local jurisdiction's portion of the regional demand, is determined by the SCAG. The City of Corona's assigned allocation for new housing during the 2006–2014 planning period was 3,308 units. Of these, 819 and 560 units (respectively) were identified as necessary for very-low and low-income categories.¹</p> <p>In order to provide affordable housing opportunities, City of Corona has identified various land use and funding strategies within the Housing Element 2008–2014, including density bonus program, mortgage revenue bonds, and local incentives to provide affordable housing to various types of population in the City. The proposed regulations and procedures pertaining to density bonus, single-room occupancy, emergency shelter/transitional-supportive housing, and reasonable housing accommodations for people with disabilities would also facilitate compliance with Housing Element law, consistent with this goal.</p> <p>The Arantine Hills Specific Plan will provide a variety of housing that will be available to people of a range of income categories.</p>

¹ Final Regional Housing Needs Assessment Allocation, Southern California Association of Governments, adopted July 12, 2007.

4.11 MINERAL RESOURCES

This chapter evaluates potential impacts related to the loss of the availability of known mineral resources that may result from the proposed actions of the proposed project. This chapter is based in part on the following, which are incorporated by reference:

- *City of Corona General Plan*, City of Corona; adopted March 17, 2004.
- *Mineral Land Classification of the Temescal Valley Area, Riverside County, California*, California Department of Conservation Division of Mines and Geology, 1991.

4.11.1 Existing Setting

The City of Corona is located within the Orange County-Temescal Valley Area Production-Consumption (P-C) designated by the state. Portions of the City of Corona are designated by the California Department of Conservation as a “Construction Aggregate Resource Area” and are classified as MRZ-2 areas. The mineral resources found in these areas generally consist of clay and construction aggregates: crushed rock, sand, and gravel. Currently, the active mines within the City of Corona are mostly located directly east of I-15 and south of SR-91. Despite the substantial amount of mineral extraction that has occurred in the past, these mines still have a long life to provide crushed rock, sand, and gravel.

4.11.2 Policies and Regulations

4.11.2.1 State Regulations

Surface Mining and Reclamation Act. The Surface Mining and Reclamation Act of 1975 (SMARA) requires classification of land into mineral resource zones (MRZs) according to the known or inferred mineral potential of the area. Construction aggregate resources (sand and gravel) deposits were the first commodity selected for classification by the State Mining and Geology Board. Once mapped, the State Mining and Geology Board is required to designate for future use those areas that contain aggregate deposits that are of prime importance in meeting the region’s future need for construction-quality aggregates. There are three key objectives of SMARA regulations:

- Adverse environmental effects are prevented or minimized, and mined lands are reclaimed to a usable condition that is readily adaptable for alternative uses;
- The production and conservation of minerals are encouraged, while consideration is given to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and
- Residual hazards to the public health and safety are eliminated.

The primary objective of the SMARA is for each jurisdiction to develop policies that will conserve important mineral resources, where feasible, that might otherwise be unavailable when needed. The SMARA requires that once policies are adopted, local agency land use decisions must be in accordance with its mineral resource management policies. These decisions must also balance the mineral value of the resource to the market region as a whole, not just their importance to the local jurisdiction. Under SMARA, areas are categorized into four MRZs as follows:

MRZ-1 Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their production.

MRZ-2 Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.

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MRZ-3 Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

MRZ-4 Areas where available information is inadequate for assignment to any other MRZ zone.

4.11.2.2 Local Policies

City of Corona General Plan Policies. Table 4.11.A identifies policies contained in the *City of Corona General Plan* that apply to the protection of mineral resources.

Table 4.11.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies	Project Consistency
City of Corona General Plan Environmental Resources Element	
Policy 10.14.1: Permit the extraction of mineral resources in designated resource areas identified in the “Mineral Resource” (MR) Overlay Zone. The purpose of the Overlay Zone is to identify the existence or the possibility that a property contains mineral resources and may be mined. All mineral resource areas shall have an appropriate General Plan designation.	This policy applies to City procedures for designating land proven to have significant mineral resources. The project does not interfere with City procedures associated with mineral resource designations. The project is consistent with this policy.
Policy 10.15.2: In evaluating and designating General Plan land use classifications outside the City's limits, but in the City's Sphere of Influence, all land use designations and pre-zoning shall be consistent with the mineral resource designations shown on the Mineral Overlay Map of the General Plan.	The project does not interfere with City procedures associated with mineral resource designations. The project is consistent with this policy.
Policy 10.16.2: Surface mining shall be precluded in all areas of the City that are designated by a General Plan designation as incompatible land uses as identified in Table 3 (Compatibility Matrix).	This project does not include a mineral extraction and processing operation component. Therefore, the project would not conflict with this policy.
Policy 10.16.7: Existing development, including commercial and residential, shall be protected from adverse environmental effects caused by mining through enforced use permit conditions and mitigation measures.	The project is required to adhere to this City policy. The project is consistent with this policy because it is not located adjacent to or in the vicinity of any active mining operations.
Policy 10.16.8: Any proposed development, including land divisions and dwelling unit construction, located adjacent to or within 1,000 feet of the boundary of an MR Overlay Zone, shall provide a suitable buffer or other design considerations, based upon topographic, geologic, aesthetic or seismic and other factors related to the property and proposed uses thereon.	The project is required to adhere to this City policy. The project is consistent with this policy because it is not located adjacent to or in the vicinity of any active mining operations or an MR Overlay Zone.

In addition to the identified General Plan policies, the City has refined the state's Mineral Resource Maps. The City is only required to take action on areas that have been designated by the state as MRZ-2. To meet the local needs of the community, the City has developed three new designations that act as an overlay to the state's four MRZ zones. These three additional categories developed by the City are as follows:

Category A Areas where state-designated MRZ-2 districts exist, but due to urbanization or previous commitment to development, the City has determined not to protect as a mineral resource area.

Category B Mineral resources that do not have a state designation of MRZ-2, but have been determined by the City to be a mineral resource that should be preserved.

Category C Mineral resources that do not have a state designation of MRZ-2, but have been determined by the City to be a “potential” mineral resource, and that further investigation is warranted. (Category C was included for those areas that do not have a state designation of MRZ-2, but sufficient evidence exists to indicate that the site may have a “potential” mineral resource. This category was developed to advise the public and developers that this area, subject to further evaluation, has the potential for mineral resources and could be subject to mineral extraction at a later date. Upon further investigation, this designation could be upgraded to Category B.)

The project site is classified as MRZ-3, (state designation), which is identified as a mineral zone that contains deposits whose significance cannot be evaluated from available data. In addition, the project site is not designated as a Mineral Overlay Zone as determined by the City.¹

4.11.3 Methodology

The California Geological Survey (CGS) provides objective geologic expertise and information about California’s diverse non-fuel mineral resources. Maps, reports, and other data products developed by CGS in recognizing, developing, and protecting important mineral resources were used to locate mineral extraction areas in the project area. In addition, the City of Corona’s General Plan was used to determine the location of possible mineral extraction areas in the project area.

4.11.4 Thresholds of Significance

Appendix G of the *State CEQA Guidelines* recognizes the following thresholds related to mineral resources. Based on these significance thresholds, potential impacts to mineral resources could be considered significant if the proposed project:

- Resulted in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State; and/or
- Resulted in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plans.

4.11.5 Less Than Significant Impacts

The following potential impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.11.5.1 Loss of Statewide, Regional, or Locally Important Mineral Resources

Thresholds	Would the proposed project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?
------------	--

¹ *City of Corona Zoning Atlas*, City of Corona Geographic Information Services, June 12, 2009.

Would the proposed project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plans?

The project site is classified as MRZ-3, which is identified as a mineral zone that contains deposits whose significance cannot be evaluated from available data. In addition, no mineral extraction activity is currently occurring or planned on or within the vicinity of the project site.¹ The development of project site with residential uses, commercial uses, institutional uses, and open space would not result in the loss of identified regional or local mineral resources, conversion of an identified mineral resource use, or conflict with existing mineral resource extraction activities. Therefore, the development of project site would not result in a loss of statewide, regional, or locally important mineral resources. No impacts associated with this issue would occur and no mitigation is required.

4.11.6 Significant Impacts

No significant impacts related to mineral resources have been identified.

4.11.7 Cumulative Impacts

CEQA requires that an EIR discuss and analyze the project's incremental effects to determine if they are cumulatively considerable. The discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. In addition, the discussion must demonstrate practicality and reasonableness.

The cumulative area for mineral resources is the Orange County-Temescal Valley Area P-C Region. As population levels increase in the region, greater demand for aggregate and other mineral materials will be placed on mineral resources, especially sand and gravel. Similarly, development pressures in areas where these materials are known or expected to occur would result in the loss of availability of these mineral resources. However, because the project site is not identified as a significant source of sand/gravel deposits and development subsequent to the adoption of the proposed land use actions on any of the sites would not decrease the local or regional availability of mineral resources, potential future development of any of the sites would have no significant cumulative mineral resources impact.

¹ *Figure 4.15-13 City of Corona Sphere of Influence South Sphere Geology/Mineral, City of Corona General Plan Technical Background Report, EIP Associates, March 2004.*

4.12 NOISE

This chapter has been prepared to evaluate the potential noise impacts and mitigation measures for the implementation of the proposed project. This analysis is intended to satisfy the City’s requirements for a project-specific noise impact analysis by examining the short-term and long-term impacts of the proposed project on sensitive uses adjacent to the proposed project site and by evaluating the effectiveness of mitigation measures incorporated as part of the project design. This chapter is based in part on the following documents that are included by reference:

- *Arantine Hills EIR Noise Analysis*, Urban Crossroads, May 13, 2011 (Appendix K-1 to this EIR).
- *Arantine Hills Specific Plan Existing Plus Project Supplemental Letter*, Urban Crossroads, July 28, 2011 (Appendix K-2 to this EIR)

In addition to these project-specific technical studies, the analysis contained in this section is also based on the following reference documents:

- *City of Corona General Plan*, City of Corona, adopted March 17, 2004.
- *City of Corona General Plan Final EIR*, City of Corona, March 2004.
- *City of Corona General Plan Technical Background Report*, City of Corona, March 2004.
- *City of Corona Municipal Code*, City of Corona.

4.12.1 Existing Setting

4.12.1.1 Existing Noise Environment

The project site is currently vacant and bounded by single-family homes and Eagle Glen Parkway to the west and northwest, I-15 to the northeast, and the Cleveland National Forest is to the south. Rural residential development within unincorporated Riverside County is located to the southeast. Short-term and long term noise level measurements were taken to establish existing baseline noise levels in the project area. Tables 4.12.A and 4.12.B provide a summary of the long-term and short-term noise monitoring locations. Figure 4.12.1 illustrates the noise monitoring locations.

Table 4.12.A: Long-Term Noise Monitoring Location Summary

Receptor Location ¹	Location Description	Primary Noise Source	Daytime Hourly Noise Levels (L _{eq} dBA)	Nighttime Hourly Noise Levels (L _{eq} dBA)	Daily Noise Levels (dBA CNEL)
L-1	Northern portion of the proposed project near the Cajalco Road and Bedford Canyon Road intersection.	Traffic on Cajalco Road and I-15	54.8–60.0	54.0–60.7	64.2
L-2	Northeast portion of the proposed project site approximately 300 feet from the fence line adjacent to I-15.	Traffic on I-15	65.7–68.3	65.3–71.0	73.8
L-3	Western portion of the project site near the Eagle Glen Parkway and Castlepeak Drive intersection.	Traffic on Eagle Glen Parkway/	48.4–59.1	45.8–50.0	56.6

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Table 4.12.A: Long-Term Noise Monitoring Location Summary

Receptor Location ¹	Location Description	Primary Noise Source	Daytime Hourly Noise Levels (L _{eq} dBA)	Nighttime Hourly Noise Levels (L _{eq} dBA)	Daily Noise Levels (dBA CNEL)
L-4	Southwestern portion of the proposed project site near the existing terminus of Bennett Avenue.	Traffic on Eagle Glen Parkway/ Ambient	47.2–55.8	47.8–50.3	55.8
L-5	Southern portion of the proposed project site near the Eagle Glen Golf Club Maintenance area.	Activities at the golf club maintenance area/ Ambient	49.8–60.5	49.3–51.5	58.7

Note: ¹ Long-Term noise level measurement locations L1 through L5 were monitored for a period of 24 hours.
Source: *Arantine Hills EIR Noise Study*, Urban Crossroads, May 2011.

Table 4.12.B: Short-Term Noise Monitoring Location Summary

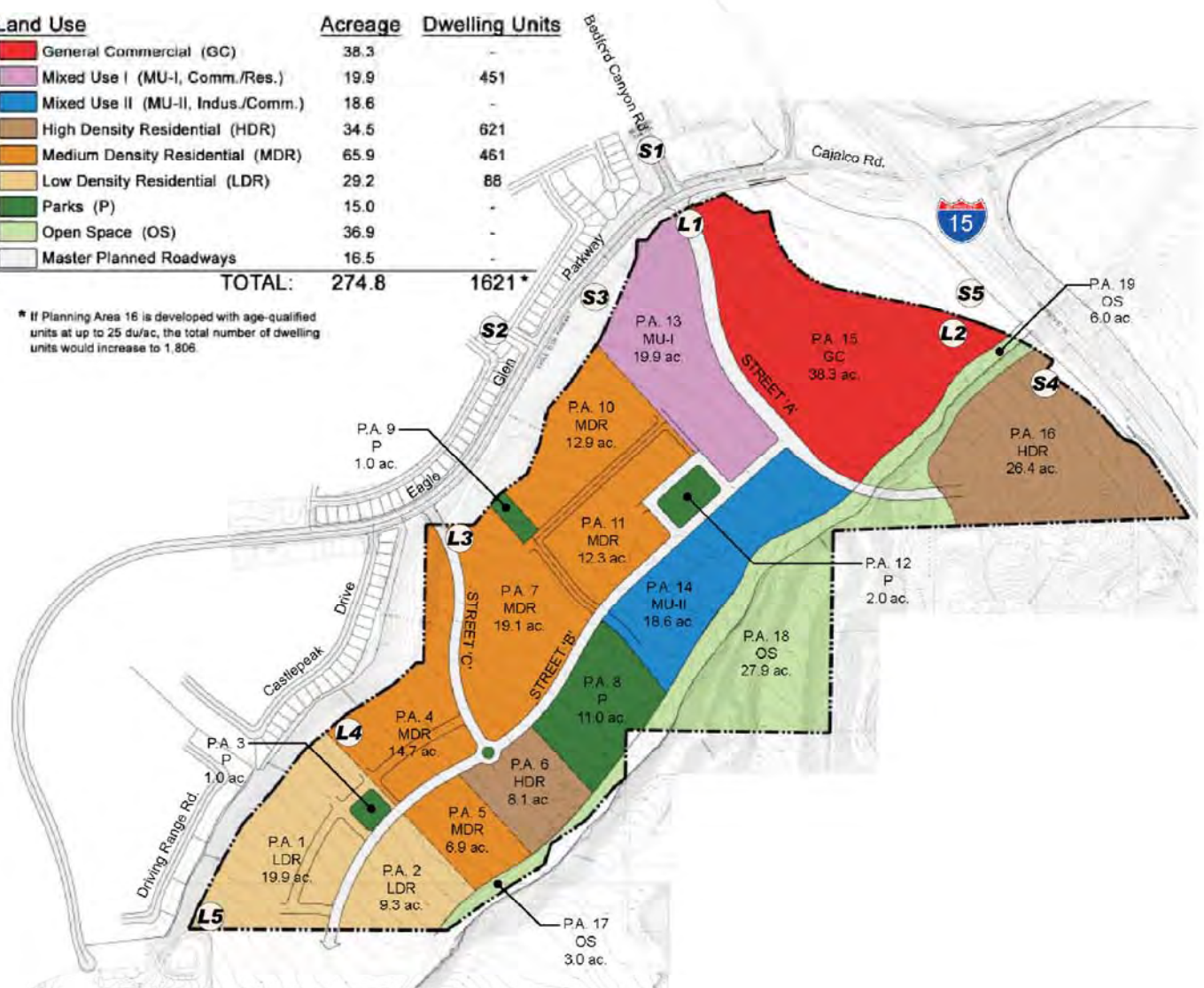
Receptor Location ¹	Location Description	Primary Noise Source	Noise Level (L _{eq} dBA)
S-1	50 feet west of the Bedford Canyon Road centerline near the rear-yards of the existing single-family homes north of the proposed project site.	Traffic on Bedford Canyon Road	60.5
S-2	50 feet west of the Masters Drive centerline near the rear-yards of the existing single-family homes north of the proposed project site.	Traffic on Masters Drive	60.6
S-3	50 feet south of the Eagle Glen Parkway centerline north of the proposed project site.	Traffic on Eagle Glen Parkway	64.7
S-4	Approximately 200 feet west of I-15 centerline at the elevated property on the eastern portion of the proposed project site.	Traffic on I-15	71.5
S-5	100 feet west of I-15 fence line on the northwest portion of the proposed project site.	Traffic on I-15	70.1

Note: ¹ Short-Term noise measurement locations S1 through S5 were monitored for a time period of 10 minutes.
Source: *Arantine Hills EIR Noise Study*, Urban Crossroads, May 2011.

As identified in Tables 4.12.A and 4.12.B, traffic on I-15 and Cajalco Road/Eagle Glen Parkway is the major source contributing to area ambient noise levels. Occasional natural sounds such as wind and birds also contribute to the ambient noise in the project vicinity. In addition, the results of the noise level monitoring indicate that the ambient noise levels in the study area currently exceed the City of Corona exterior noise levels for residential uses. Certain land uses are considered more sensitive to noise than others. Examples include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The nearest existing sensitive receptors in the vicinity of the Specific Plan area are residences to the west of the proposed site, across Eagle Glen Parkway, at distances ranging from 150 to 420 feet.

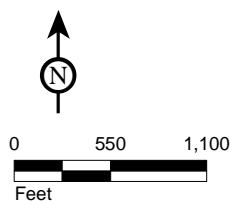
Land Use	Acreage	Dwelling Units
General Commercial (GC)	38.3	-
Mixed Use I (MU-I, Comm./Res.)	19.9	451
Mixed Use II (MU-II, Indus./Comm.)	18.6	-
High Density Residential (HDR)	34.5	621
Medium Density Residential (MDR)	65.9	461
Low Density Residential (LDR)	29.2	88
Parks (P)	15.0	-
Open Space (OS)	36.9	-
Master Planned Roadways	16.5	-
TOTAL:	274.8	1621*

* If Planning Area 16 is developed with age-qualified units at up to 25 du/ac, the total number of dwelling units would increase to 1,806.



LEGEND:
L1 - L5 = LONG-TERM NOISE MONITORING LOCATION
S1 - S5 = SHORT-TERM NOISE MONITORING LOCATION

L S A



SOURCE: Arantine Hills Specific Plan, 2011.

I:\CCR0901\Reports\EIR\fig4-12-1_Noise_Monitoring_Locs.mxd (05/07/12)

FIGURE 4.12.1

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Noise Monitoring Locations

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4.12.1.2 Existing Traffic Noise

The Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions along major arterials within the City limits. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the L_{dn} values. Table 4.12.C provides the existing traffic noise levels on roadways adjacent to the Specific Plan area. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and the model printouts are provided in Appendix K of this EIR.

Table 4.12.C: Existing Traffic Noise Levels

Roadway Segment	ADT	CNEL at 100 feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
California Drive – west of Masters Drive	4,100	57.4	RW	RW	67	145
California Drive – east of Masters Drive	8,300	60.1	22	47	101	218
El Cerrito Road – west of Bedford Canyon Road	19,200	63.9	39	85	183	395
El Cerrito Road – Bedford Canyon Road to I-15 Freeway	19,400	64.1	RW	RW	RW	RW
El Cerrito Road – I-15 to Temescal Canyon Road	8,500	60.7	RW	51	111	238
Bennett Avenue – Eagle Glen Parkway to Masters Drive	1,400	52.5	RW	RW	RW	68
Bennett Avenue – north of Masters Drive	900	50.7	RW	RW	RW	52
Georgetown Drive – west of Bedford Cayon	2,200	54.3	RW	RW	RW	90
Eagle Glen Parkway – Bennett Avenue to Masters Drive	7,700	60.4	RW	50	107	230
Eagle Glen Parkway – Masters Drive to Bedford Canyon Road	11,000	61.6	RW	59	127	274
Cajalco Road – Bedford Canyon Road to I-15	17,300	65.2	48	104	223	481
Cajalco Road – I-15 to Grand Oaks	12,300	64.0	40	85	184	396
Cajalco Road – Grand Oaks to Temescal Canyon Road	11,500	63.5	RW	80	171	369
Cajalco Road – east of Temescal Canyon Road	10,900	63.7	RW	82	176	379
Masters Drive – north of California Drive	4,500	57.7	RW	RW	70	151
Masters Drive – California Drive to Bennett Avenue	7,800	60.0	RW	RW	100	215
Masters Drive – Bennett Avenue to Eagle Glen Parkway	5,900	58.7	RW	RW	82	176
Bedford Canyon Road – El Cerrito Road to Georgetown Drive	6,000	59.2	RW	RW	89	192

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Table 4.12.C: Existing Traffic Noise Levels

Roadway Segment	ADT	CNEL at 100 feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Bedford Canyon Road – Georgetown Drive to Eagle Glen Parkway	6,000	59.2	RW	41	89	192
Temescal Canyon Road – north of Cajalco Road	10,400	63.2	35	75	162	350
Temescal Canyon Road – south of Cajalco Road	13,000	63.7	38	82	177	382

Note: RW = Location of the respective noise contour falls within the right-of-way of the road.
 Source: *Arantine Hills EIR Noise Study, Urban Crossroads*, May 2011.

As identified in Table 4.12.C, existing traffic noise along all segments currently do not exceed the City of Corona 65 dBA CNEL standard for noise sensitive residential areas at 100 feet from each roadway's centerline.

4.12.2 Policies and Regulations

4.12.2.1 Federal Regulations

Federal Noise Control Act of 1972. The U.S. Environmental Protection Agency's (EPA's) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA Levels). The EPA Levels recommended that the L_{dn} should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In addition, the EPA Levels identified 5 dBA as an "adequate margin of safety" for a noise level increase relative to a baseline noise exposure level of 55 dBA L_{dn} (i.e., there would not be a noticeable increase in adverse community reaction with an increase of 5 dBA or less from this baseline level). The EPA did not promote these findings as universal standards or regulatory goals with mandatory applicability to all communities, but rather as advisory exposure levels below which there would be no risk to a community from any health or welfare effect of noise. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

Federal Transit Administration. The Federal Transit Administration (FTA) has developed methodology and significance criteria to evaluate incremental noise impacts from surface transportation modes (i.e., on road motor vehicles and trains) as presented in *Transit Noise Impact and Vibration Assessment* (FTA Guidelines). These incremental noise impact criteria are based on EPA findings and subsequent studies of annoyance in communities affected by transportation noise. The FTA extended the EPA's 5 dBA incremental impact criterion to higher ambient levels. As baseline ambient levels increase, smaller and smaller increments are allowed to limit expected increases in community annoyance. For example, in residential areas with a baseline ambient noise level of 50 dBA L_{dn} , a less-than-5 dBA increase in noise levels would produce a minimal increase in community annoyance levels, while at 70 dBA L_{dn} , only a 1 dBA increase could be accommodated before a significant annoyance increase would occur. The FTA has

also developed criteria for judging the significance of vibration impacts based on annoyance levels expected in communities exposed to vibration from transportation sources and construction activity.

Federal Aviation Administration. Federal Aviation Administration (FAA) regulations (i.e., *Part 150, Airport Noise Compatibility Planning*) prescribe the methodology governing the development, submission, and review of airport noise exposure maps and noise compatibility programs for communities near airports. The noise exposure maps use average annual L_{dn} /CNEL contours around the airport as the primary noise descriptor. To the FAA, all land uses are considered compatible when aircraft noise effects are less than 65 dBA L_{dn} /CNEL. At higher noise exposures, increasing restrictions are applied to development within the aircraft noise contours depending upon the noise-sensitivity of the land use and the degree of noise attenuation required in the structures' interior spaces.

4.12.2.2 State Regulations

State of California Building Standards Code. The State of California has adopted noise standards in areas of regulation not preempted by the Federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. Title 24 of the California Code of Regulations, also known as the California Building Standards Code, establishes building standards applicable to all occupancies throughout the state. The code provides acoustical regulations for both exterior-to-interior sound insulation, as well as sound and impact isolation between adjacent spaces of various occupied units. Title 24 regulations state that interior noise levels generated by exterior noise sources shall not exceed 45 dB L_{dn} , with windows closed, in any habitable room for general residential uses.

State of California Noise Insulation Standards. The California Noise Insulation Standards (*California Code of Regulations, Title 25, section 1092*) establish uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses and dwellings other than detached single-family dwellings. Specifically, *Title 25* states that interior noise levels attributable to exterior sources shall not exceed 45 dBA L_{dn} /CNEL (i.e., the same levels that the EPA *Levels* recommends for residential interiors) in any habitable room of new dwellings. Acoustical studies must be prepared for proposed multiple unit residential and hotel/motel structures where outdoor L_{dn} /CNEL is 60 dBA or greater. The studies must demonstrate that the design of the building will reduce interior noise to 45 dBA L_{dn} /CNEL, or lower. Dwellings are to be designed so that interior noise levels will meet this standard for at least ten years from the time of building permit application.

State of California General Plan Guidelines 2003. Though not adopted by law, the *State of California General Plan Guidelines 2003*, published by the California Governor's Office of Planning and Research (OPR), provides guidance for the compatibility of projects within areas of specific noise exposure. The designation of a level of noise exposure as "*Normally Acceptable*" for a given land use category implies that the exterior and interior noise levels would be acceptable to the occupants without the need for any noise abatement measures outside or special structural acoustic treatment for the interior spaces. The OPR *Guidelines* identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the EPA *Levels* influenced the recommendations of the OPR *Guidelines*, most importantly in the choice of noise exposure metrics (i.e., L_{dn} or CNEL) and in the upper limits for the Normally Acceptable outdoor exposure of noise-sensitive uses.

State of California Vehicular Code. Recent studies have shown that the most objectionable feature of traffic noise is the sound produced by vehicles equipped with illegal or faulty exhaust systems. In addition,

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such vehicles are often operated in a manner that causes tire squeal and excessively loud exhaust noise. A number of California State vehicle noise regulations can be enforced by local authorities as well as the California Highway Patrol. These include § 23130, § 23130.5, § 27150, and § 38275 of the California Vehicle Code, as well as excessive speed laws, which may be applied to curtail traffic noise:

- § 23130 and § 23130.5 establish maximum noise emission limits for the operation of all motor vehicles at any time under any conditions of grade, load, acceleration, or deceleration;
- § 27150 requires motor vehicles to be equipped with an adequate muffler to prevent excessive noise; and
- § 38275 requires off-highway motor vehicles to be equipped with an adequate muffler to prevent excessive noise.

The California Highway Patrol and the Department of Health Services (through local health departments) are available to aid local authorities in code enforcement and training pursuant to proper vehicle sound level measurements.

4.12.2.3 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that apply to noise and noise sources within the City. Table 4.12.D identifies goals and policies that apply to the proposed project.

Table 4.12.D: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
City of Corona General Plan Noise Element		
<i>Goal 11.5: Prevent and mitigate the adverse impacts of excessive ambient noise exposure on residents, employees, visitors, and “noise sensitive” land uses within the City of Corona.</i>		
Policy 11.5.1	Require that in areas where existing or future ambient noise levels exceed an exterior noise level of 65 dB(A) L_{dn} , all development of new housing, health care facilities, schools, libraries, religious facilities, and other “noise sensitive” land uses shall include satisfactory buffering and/or construction mitigation measures to reduce noise exposure to levels within acceptable limits.	The project is consistent with this policy. Refer to Section 4.12.6.1.
Policy 11.5.2	Require new industrial and new commercial land uses or the major expansion of such uses to demonstrate that ambient noise levels will not exceed an exterior noise level of 65 dB(A) L_{dn} on areas containing “noise sensitive” land uses as depicted on Table 4.	The project is consistent with this policy. Refer to Sections 4.12.6.2, 4.12.6.3, and 4.12.6.4.
Policy 11.5.3	Require development in all areas where the existing or future ambient noise level exceeds 65 dB(A) L_{dn} to conduct an acoustical analysis and incorporate special design measures in their construction, thereby, reducing interior noise levels to the 45 dB(A) L_{dn} level, as depicted on Table 5.	The project is consistent with this policy. Refer to Sections 4.12.6.2, 4.12.6.3, and 4.12.6.4.
Policy 11.5.4	Encourage existing “noise sensitive uses,” including schools, libraries, health care facilities, and residential uses in areas where existing or future noise levels exceed 65 dB(A) L_{dn} to incorporate fences, walls, landscaping, and/or other noise buffers and barriers, where appropriate and feasible.	The project is consistent with this policy. Refer to Sections 4.12.6.2, 4.12.6.3, and 4.12.6.4.
Policy 11.5.5	Require development that generates increased traffic and substantial increases in ambient noise levels adjacent to noise sensitive land uses, to provide appropriate mitigation measures in	The project is consistent with this policy. Refer to Sections 4.12.6.1, 4.12.6.2, 4.12.6.3,

Table 4.12.D: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
	accordance with the acceptable limits of the City Noise Ordinance.	and 4.12.6.4.
Policy 11.5.6	Require construction activities that occur in close proximity to existing “noise sensitive” uses, including schools, libraries, health care facilities, and residential uses to limit the hours and days of operation in accordance with City Noise Ordinance.	The project is consistent with this policy. Refer to Section 4.12.6.1.
<i>Goal 11.7: Provide for the reduction of noise spillover or encroachment where the noise environment from commercial and industrial land uses is unacceptable; and protect and maintain adjoining residential areas and other “noise sensitive” areas having acceptable noise environments.</i>		
Policy 11.7.1	Provide for the reduction in noise impacts from commercial and industrial noise sources as controlled and enforced through the Community Noise Ordinance.	The project is consistent with this policy. Refer to Section 4.12.6.4.
Policy 11.7.2	Require that new commercial structures located adjacent to existing and planned residential areas shield HVAC units so as to limit adverse noise impacts to the greatest extent possible.	The project is consistent with this policy. Refer to Section 4.12.6.4.
Policy 11.7.3	Require that parking areas for commercial and industrial land operations be set back from adjacent residential areas to the maximum extent feasible or be buffered and shielded by walls, fences, berms, and/or adequate landscaping.	The project is consistent with this policy. Refer to Section 4.12.6.4.
Policy 11.7.5	Require that automobile and truck access to commercial or industrial land uses abutting existing or planned residential areas be located at the maximum practical distance from residential areas.	The project is consistent with this policy. Refer to Section 4.12.6.4.

City of Corona Municipal Code. Section 17.84.040 (D)(2) of the City of Corona Municipal Code limits the hours of construction to between 7:00 a.m. and 8:00 p.m., Monday through Saturday and between the hours of 10:00 a.m. and 6:00 p.m. on Sundays and federal holidays. No construction activities are permitted outside of these hours.

City of Corona Noise Ordinance. The City’s Noise Ordinance also identifies noise standards for regulating the impact of stationary and transportation related noise sources to a neighboring private property. Table 4.12.E identifies the noise standards for stationary noise sources.

Table 4.12.E: Corona Noise Ordinance Stationary Noise Source Standards

Type of Land Use	Maximum Allowable Noise Levels			
	Exterior Noise Level		Interior Noise Level	
	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
Single-, Double- and Multifamily Residential Other Sensitive Land Uses	55 dBA	50 dBA	45 dBA	35 dBA
Commercial Uses	55 dBA	50 dBA	45 dBA	35 dBA
Industrial, Manufacturing or Agricultural	65 dBA	60 dBA	Not applicable	Not applicable
Single-, Double- and Multifamily Residential	75 dBA	70 dBA	Not applicable	Not applicable

The Noise Ordinance states that for stationary noise sources:

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- (a) *Each of the noise limits specified here shall be reduced by 5 dBA for impulse or simple tone noises; provided, however, that if the ambient noise level exceeds the resulting standards, the ambient shall be the standard.*
- (b) *If the measurement location is on the boundary between two different zones, the lower noise level standard applicable to the zone shall apply.*
- (c) *If the intruding noise is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the source is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of the day the noise level is measured. The reasonableness of temporarily discontinuing the noise generation by an intruding noise source shall be determined by the Code Enforcement officer for the purpose of establishing the existing ambient noise level at the measurement location.*
- (d) *Exterior noise:*
 - 1. *It shall be unlawful for any person, entity or operation at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property to exceed:*
 - a. *The noise standard for a cumulative period of more than 30 minutes in any hour;*
 - b. *The noise standard plus 5 dB for a cumulative period of more than 15 minutes in any hour;*
 - c. *The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour;*
 - d. *The noise standard plus 15 dB for a cumulative period of more than one minute in any hour; or*
 - e. *The noise standard plus 20 dB for any period of time.*
 - 2. *In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to the category shall be increased to reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.*
- (e) *Interior noise. It shall be unlawful for any person at any location within the incorporated area of the city to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such a person which causes the noise level when measured within any other residential dwelling unit or sensitive land use to exceed:*
 - 1. *The noise standard for a cumulative period of more than five minutes in any hour;*
 - 2. *The noise standard plus 5 dB for a cumulative period of more than one minute in any hour; or*
 - 3. *The noise standard plus 10 dB, or the maximum measured ambient, for any period of time.*

Table 4.12.F identifies the noise standards for transportation related sources under the City's Noise Ordinance.

Table 4.12.F: Corona Noise Ordinance Transportation Noise Source Standards

Type of Land Use	Maximum Allowable Noise Levels	
	Exterior Noise Level	Interior Noise Level
	(Private Outdoor Living Areas)	
Residential (Roadway)	65 CNEL	45 CNEL
Residential (Airport)	65 CNEL	45 CNEL
Other sensitive land uses (Roadway)	65 CNEL	45 CNEL
Other sensitive land uses (Airport)	65 CNEL	45 CNEL
Hotels/Motels (Roadway)	65 CNEL	45 CNEL
Hotels/Motels (Airport)	65 CNEL	45 CNEL

The Noise Ordinance states that for transportation related noise sources:

- (a) **Roadway noise.** *A noise study shall be performed prior to the construction of new master planned roads, roadway improvements, rail lines and/or prior to the construction of residential or sensitive land uses adjacent to existing or master planned roads or railways. The noise study shall identify the existing and future noise contours for the roadway and propose mitigation measures to reduce the noise impacts to a maximum interior noise level of 45 dBA CNEL for residential and sensitive land uses.*
- (b) **Airport noise.** *Sensitive land uses, site-built homes and institutional uses are prohibited in airport noise contours above 65 dBA CNEL. All subdivisions within two miles of the Corona Municipal Airport or within the 5 dBA CNEL contour shall show and record an avigation easement for the benefit of the airport. The avigation easement shall provide notification to potential buyers and occupants of the presence of the easement and the potential for over flights and aircraft noise.*

Special provisions related to noise identified in the City's Noise Ordinance are as follows:

- (1) **Mechanical equipment in residential zones.** *Upon application for a building permit to install mechanical equipment such as air conditioners and pool equipment in a residential zone, the equipment shall be setback at least ten feet from an adjoining property line except where a five foot block sound wall is maintained extending a distance of two feet on each side of such equipment and situated either between such equipment and the property line or on said property.*
- (2) **Noise devices.** *In accordance with Chapter 9.24, no loudspeaker, bells, gongs, buzzers, mechanical equipment or other sounds, attention-attracting or communication device associated with any use adjacent to residential or sensitive land uses shall be discernable beyond the boundary line of the parcel, except fire protection devices, burglar alarms and church bells. Noise generated by these sources shall be enforced by the Police Department.*

Section 17.84.040 (F) of the City's Municipal Code states that noise measurements shall be taken of the ambient noise level and any alleged offensive noise. If the measurement location is on the boundary of two different noise zones, the lower noise level standard shall apply. Additionally, the specific sound level meter required in noise measurements must meet the American National Standards Institute's S1.4 – 1971 for Type 1 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data. If the ambient noise level exceeds the standard for a

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particular zone, the ambient noise level recorded shall be the standard. If an alleged intruding noise source is continuous and cannot be reasonably discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the alleged intruding noise source is in operation shall be compared directly to the applicable noise level standard.

Section 17.84.050 of the City's Municipal Code discusses vibration and states that "it shall be unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point on any affected property adjoining the property on which the vibration source is located. For the purposes of this section, the perception threshold shall be presumed to be more than 0.05 inches per second RMS vertical velocity."

City of Corona Public Health and Safety Element. Noise sources in the City are identified in the Public Health and Safety Element of the City of Corona General Plan. The General Plan indicates that the dominant noise sources in the City are transportation related primarily from the two major regional freeways that bisect the City: I-15 and SR-91. Other noise sources identified by the City include railroad traffic noise along the Burlington Northern/Santa Fe (BNSF) Railroad main line that bisects the City just south of SR-91. Additionally, occasional aircraft noise from Corona Municipal Airport contributes to noise within the City; however, the City determined that this airport is not a substantial source of noise at any sensitive receptor land use, and noise from the airport does not affect most of the City. Stationary sources of noise identified in the City's General Plan include common building or home mechanical equipment, such as air conditioners, ventilation systems, or pool pumps, and industrial facilities, such as manufacturing plants, or processing plants. The Public Health and Safety Element makes reference to the State of California Title 24 exterior and interior noise guidelines and standards with respect to noise-sensitive land uses. The City enforces the provisions of the State Noise Insulation Standards (Title 24) which specifies that the combined indoor noise exposure level for residential uses (e.g., single family, duplex, and multiple family spaces) shall not exceed 45 dBA CNEL with closed windows.

4.12.3 Methodology

4.12.3.1 Characteristics of Sound

Noise is usually defined as unwanted sound; it consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep. To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect our ability to hear.

4.12.3.2 Measurement of Sound

There are many ways to rate sound for various time periods. An appropriate rating of ambient noise¹ affecting humans, accounts for the annoying effects of sound by penalizing noises that occur during quiet periods of time, such as late night/early morning, through weighted averaging metric. Single-event or peak noises are measured by a simple peak noise measurement. Table 4.12.G defines noise measurements that are typically used in noise analyses.

¹ Ambient noise is the totality of noise in a given place and time; usually a composite of sounds from varying sources at varying distances. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Table 4.12.G: Noise Measurement Definitions

Unit of Measurement		Description
dB	Decibel	Units for measuring the volume of sound, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. For example, 10 decibels are 10 times more intense than one decibel and 20 decibels are 100 times more intense. A 10-decibel increase in sound level is perceived by the human ear as a doubling of the loudness of the sound.
dBA	A-Weighted Decibel	A sound pressure level that has been weighted to quantitatively reduce the effect of the high and low frequency noise. It was designed to approximate the response of the human ear to sound.
CNEL	Community Noise Equivalent Level	The CNEL value represents noise as measured by an A-weighted sound level. The metric includes a 4.8-decibel penalty during relaxation hours (7 p.m. to 10 p.m.) and a 10-decibel penalty for sleeping hours (10 p.m. to 7 a.m.). CNEL is similar to L_{dn} (which does not include the evening penalty).
L_{dn}	Day-Night Average Noise	The 24 hour average sound level, expressed in a single decibel rating, for the period from midnight to midnight obtained after the addition of a 10.0-decibel penalty to sound levels for the periods between 10 p.m. and 7 a.m.
L_{eq}	Equivalent Noise Level	Total sound energy of time-varying noise over a sample period.
L_{max}	Maximum Noise Level	L_{max} is the highest exponential time-averaged sound level that occurs during a stated time period. It reflects peak operating conditions and addresses the annoying aspects of intermittent noise.
L_{01} , L_{10} , L_{50} , L_{90}	Percentile Noise Exceedance Levels	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.

Source: LSA Associates, Inc., July 2011.

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard-site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance. Table 4.12.H describes attenuation levels of various types of noise sources.

Table 4.12.H: Attenuation Levels and Type of Noise Sources

Decrease in Sound for Each Doubling of Distance	Type of Noise Source	Description/Example
6.0 decibels	Single-point source	Stationary equipment
4.5 decibels	Line source	Highway traffic or railroad operations in a relatively flat environment with absorptive vegetation
3.0 decibels	Line source	Highway traffic or railroad operations in a hard-site environment

Source: LSA Associates, Inc., July 2010.

4.12.3.3 Definition of Noise

Noise impacts fall into three categories:

- Audible (3.0 dB or greater);
- Potentially audible (between 1.0 and 3.0 dB); and

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- Inaudible (less than 1.0 dB).

Audible noises are increases in noise levels noticeable to humans and generally refer to a change of 3.0 dB or greater, because this level has been found to be barely perceptible in exterior environments. Potentially audible refers to a change in the noise level between 1.0 and 3.0 dB, which is noticeable only in laboratory environments. Changes in noise levels of less than 1.0 dB are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant. As described in the *Arantine Hills Specific Plan Existing Plus Project Supplemental Letter*, the noise criteria utilized for the proposed project is based on well documented criteria and research into human response to community noise. In a community noise assessment, changes in noise levels greater than 3 dBA are often identified as “barely perceptible,” while changes of 5 dBA are “readily perceptible.” Studies have shown that a relative noise impact of 5 dBA triggers community reaction (e.g., sporadic complaints to widespread complaints to several legal threats to vigorous action). In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dBA. However, in a community setting the noise exposure is extended over a long time period, and changes in noise levels occur over years rather than the immediate comparison made in a laboratory setting. While a 1 dBA increase may be perceptible to a minority of very noise sensitive people, noise increases of up to 3 dBA are barely perceptible to most people. Therefore, a “readily perceptible” 5 dBA increase in long-term noise levels is used as a threshold of significant change in this noise analysis.

4.12.3.4 Fundamentals of Groundborne Vibration

Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable. However, without the effects associated with the shaking of a building, there is less adverse reaction. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. Building damage is not a factor for normal projects, with the occasional exception of blasting and pile driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by up to 10 decibels. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with groundborne vibration and noise from these sources are usually localized to within about 100 feet of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet, as described in the FTA Transit Noise and Vibration Impact Assessment (May 2006). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed that the roadway surface in the project vicinity will be smooth enough that groundborne vibration from street traffic will not exceed the impact criteria; however, operation of the proposed project could result in groundborne vibration that could be perceptible and annoying. Groundborne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than groundborne noise.

Groundborne vibration has the potential to disturb people as well as to damage buildings. Although it is rare for traffic-induced groundborne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitude to damage nearby buildings (FTA, May 2006).

Factors that influence groundborne vibration and noise include the following:

- *Vibration Source:* Vehicle suspension, wheel types and condition, track/roadway surface, track support system, speed, transit structure, and depth of vibration source.
- *Vibration Path:* Soil type, rock layers, soil layering, depth to water table, and frost depth.

- *Vibration Receiver*: Foundation type, building construction, and acoustical absorption.

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground compared to at ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock concentrates the vibration energy close to the surface and can result in groundborne vibration problems at great distances. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

4.12.3.5 Noise Level Evaluation

Evaluation of noise impacts associated with the proposed project includes the following:

- Determination of the short-term construction noise impacts on off-site noise-sensitive uses;
- Determination of the long-term noise impacts, including vehicular traffic and stationary noise sources, on on-site and off-site noise-sensitive uses; and
- Determination of the required mitigation measures to reduce long-term noise impacts from all sources.

4.12.4 Thresholds of Significance

Based on Appendix G of the *State CEQA Guidelines*, a project may have a significant noise-related effect on the environment if it would result in any of the following:

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the Planning Area to excessive noise levels; and/or
- For a project within the vicinity of a private airstrip, exposure of people residing or working in the Planning Area to excessive noise levels.

A project would normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of the community in which it is located. The applicable noise standards governing the proposed project sites are the criteria in the City of Corona's Noise Element of the General Plan and Municipal Code.

Noise impacts in the context of the City's General Plan or Municipal Code would be potentially significant if transportation-related noise increases caused by the project create an exterior noise level impact at a private exterior living area greater than 65 dBA CNEL per the City's Noise Element, or applicable City Development Code Standards at private residential living areas are exceeded, as follows:

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- 50 dBA L_{eq} between 10:00 p.m. and 7:00 a.m. for more than 30 minutes.
- 55 dBA L_{eq} between 7:00 a.m. and 10:00 p.m. for more than 30 minutes.

Based on the City's General Plan and noise standards, project-related temporary or periodic operational noise increases would be considered potentially significant if:

- Ambient conditions are within applicable standards established by the City and the project causes an increase in noise levels at any sensitive receptor to exceed the applicable standard for more than 30 minutes (cumulatively) during a one-hour period; or
- Ambient conditions exceed the applicable standards established by the City and the project causes an increase in noise levels at any sensitive receptor by an audible amount (3 dB or more) for more than 3 minutes (cumulatively) during a one-hour period.

For the purpose of this study, the permanent noise increases attributable to the project would be considered potentially significant if:

- Ambient conditions are within the normally acceptable community noise exposure levels identified above and the project causes an increase in noise levels such that the combined noise level would exceed the normally acceptable community noise exposure at any sensitive receptor; or
- Ambient conditions exceed the normally acceptable community noise exposure level identified above and the mitigated project impacts causes an increase in noise levels such that the combined noise level would increase the ambient noise at any sensitive receptor by an audible amount (3 dB or more).

Long-term cumulative off-site impacts from traffic noise are measured against two criteria. The project would contribute to a cumulatively significant impact if both of the following criteria are met:

- Future traffic noise levels must create a "readily perceptible" increase of 5 dBA CNEL or more compared to existing conditions on a roadway segment adjacent to a noise sensitive land use.
- The resulting future with project noise level must exceed the criteria level for the noise sensitive land use. In this case, the criteria level is 65 dBA CNEL for residential land uses. The Project would considerably contribute to this increase if it contributes a "barely perceptible" 3 dBA CNEL or more to the increase.

4.12.5 Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.12.5.1 Groundborne Vibration Impacts

Threshold	Would the proposed project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
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The development of the proposed Specific Plan would result in the construction and operation of residential, commercial, and light industrial uses. Depending on the equipment and methods used, soil type, and the distance to affected structures, construction activity can result in varying degrees of ground vibration within the project site. The nearest existing sensitive receptors in the vicinity of the Specific Plan area are residences to the northwest of the proposed site, across Eagle Glen Parkway, at distances ranging from 150 feet to 420 feet. Groundborne vibration from grading equipment such as earthmovers

and haul trucks at distances of more than 10 feet does not create vibration amplitudes that cause structural damages. Construction activities that would occur adjacent to these existing residences are not anticipated to generate significant groundborne vibration impacts since the existing adjacent residential uses are located more than 50 feet from the project site. Impacts associated with this issue are anticipated to be less than significant and no mitigation is required.

4.12.5.2 Airport Noise Impacts

Threshold	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, results in exposure of people residing or working in the project area to excessive noise levels. For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.
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There are no public use or private airports within two miles of the project site. The nearest local airport to the project site is the Corona Municipal Airport (CMA), approximately 6.5 miles northwest of the project site. The project site is not located within an airport land use plan.¹ Due to the distance of the project site from the CMA, the potential development of the site with residential, commercial, and light industrial uses would not result in the exposure of people residing or working in the project area to airport-related noise. Therefore, no impacts associated with this issue would occur and no mitigation is required.

4.12.5.3 Off-Site Traffic-Related Noise

Threshold	Would the proposed project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? Would the proposed project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
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The following analysis provides anticipated traffic noise levels (with and without project) for existing year (2011), future year (2014), future year (2019), and build out year (2035) for roadway segments adjacent to the project site. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and the model printouts are provided in Appendix K of this EIR.

Table 4.12.I provides the anticipated existing year 2011 traffic noise levels (with and without project) for roadway segments adjacent to the project site.

Table 4.12.I: Existing Year (2011) Off-Site Project Related Traffic Noise Levels

Roadway Segment	CNEL at 100 feet (dBA)		Increase in Noise Levels With Project (dBA)	Significant Impact? ¹
	Without Project	With Project		
California Drive				
West of Masters Drive	56.8	57.9	1.1	No
East of Masters Drive	59.9	60.5	0.6	No

¹ Map CO-1 Compatibility Map for Corona Municipal Airport, Riverside County Airport Land Use Compatibility Plan Policy Document, Riverside County Airport Land Use Commission, adopted October 2004.

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Table 4.12.I: Existing Year (2011) Off-Site Project Related Traffic Noise Levels

Roadway Segment	CNEL at 100 feet (dBA)		Increase in Noise Levels With Project (dBA)	Significant Impact? ¹
	Without Project	With Project		
El Cerrito Road				
West of Bedford Canyon Road	63.6	64.0	0.4	No
Bedford Canyon Road to I-15	63.7	63.9	0.2	No
I-15 to Temescal Canyon Road	60.1	60.5	0.4	No
Bennett Avenue				
Eagle Glen Parkway to Master Drive	52.2	52.2	0.0	No
North of Bedford Canyon Road	50.2	50.2	0.0	No
Georgetown Drive				
West of Bedford Canyon Road	54.1	54.7	0.6	No
Eagle Glen Parkway				
Bennett Avenue to Masters Drive	59.6	61.9	2.3	No
Masters Drive to Bedford Canyon Road	61.2	63.6	2.4	No
Cajalco Road				
Bedford Canyon Road to I-15	64.8	68.4	3.6	No
I-15 to Grand Oaks	63.4	64.5	1.1	No
Grand Oaks to Temescal Canyon Road	63.1	64.2	1.1	No
East of Temescal Canyon Road	62.8	63.6	0.8	No
Masters Drive				
North of California Drive	57.2	57.7	0.5	No
California Drive to Bennett Avenue	59.6	61.0	1.4	No
Bennett Avenue to Eagle Glen Parkway	58.4	60.4	2.0	No
Bedford Canyon Road				
El Cerrito Road to Georgetown Drive	58.5	60.0	1.5	No
Georgetown Drive to Eagle Glen Parkway	58.5	60.2	1.7	No
Temescal Canyon Road				
North of Cajalco Road	62.4	62.6	0.2	No
South of Cajalco Road	63.3	63.6	0.3	No

¹ A significant impact is considered both a level above 65 dBA CNEL and an increase of 5.0 dBA CNEL or greater.
Source: *Arantine Hills Specific Plan Existing Plus Project Supplemental Letter*, Urban Crossroads, Inc. July 2011.

As identified in Table 4.12.I, under existing year 2011 without projects conditions, no roadway segments identified exceed the 65 dBA CNEL level. Under the existing year 2011 plus project scenario, one roadway segment (Cajalco Road between Bedford Canyon Road and I-15) would exceed the 65 dBA CNEL level and result in an increase of 3.5 dBA CNEL from existing conditions. These levels are calculated to show the potential transportation related noise increase with the addition of the proposed project and are not meant to provide specific noise level impacts at any noise-sensitive private living area. As identified in the Noise Study conducted for the proposed project (Appendix K), there are no current or planned noise-sensitive uses along Cajalco Road from Bedford Canyon Road to I-15. Project-related noise levels at this location would be below the 5 dBA “readily perceptible” threshold. For all other roadway segments under this scenario, the project’s incremental vehicular-source noise contributions are considered to be “barely perceptible” (less than 3.0). Impacts are less than significant and no mitigation is required.

Table 4.12.J provides the anticipated future year 2014 traffic noise levels (with and without project) for roadway segments adjacent to the project site.

Table 4.12.J: Future Year 2014 Off-Site Project Related Traffic Noise Levels

Roadway Segment	CNEL at 100 feet (dBA)		Increase in Noise Levels With Project (dBA)	Significant Impact? ¹
	Without Project	With Project		
California Drive				
West of Masters Drive	57.4	57.8	0.4	No
East of Masters Drive	60.1	60.5	0.4	No
El Cerrito Road				
West of Bedford Canyon Road	63.9	64.0	0.1	No
Bedford Canyon Road to I-15	64.1	64.2	0.1	No
I-15 to Temescal Canyon Road	60.7	60.8	0.1	No
Bennett Avenue				
Eagle Glen Parkway to Master Drive	52.5	52.5	0.0	No
North of Bedford Canyon Road	50.7	50.7	0.0	No
Georgetown Drive				
West of Bedford Canyon Road	54.3	54.7	0.4	No
Eagle Glen Parkway				
Bennett Avenue to Masters Drive	60.4	62.3	1.9	No
Masters Drive to Bedford Canyon Road	61.6	63.0	1.4	No
Cajalco Road				
Bedford Canyon Road to I-15	65.2	66.5	1.3	No
I-15 to Grand Oaks	64.0	64.5	0.5	No
Grand Oaks to Temescal Canyon Road	63.5	64.0	0.5	No
East of Temescal Canyon Road	63.7	63.9	0.2	No
Masters Drive				
North of California Drive	57.7	58.0	0.3	No
California Drive to Bennett Avenue	60.0	60.7	0.7	No
Bennett Avenue to Eagle Glen Parkway	58.7	59.8	1.1	No
Bedford Canyon Road				
El Cerrito Road to Georgetown Drive	59.2	59.7	0.5	No
Georgetown Drive to Eagle Glen Parkway	59.2	59.8	0.6	No
Temescal Canyon Road				
North of Cajalco Road	63.2	63.2	0.0	No
South of Cajalco Road	63.7	63.9	0.2	No

¹ A significant impact is considered both a level above 65 dBA CNEL and an increase of 5.0 dBA CNEL or greater.
Source: *Arantine Hills EIR Noise Analysis*, Urban Crossroads, Inc. May 2011.

As identified in Table 4.12.J, the increase in noise on these roadway segments are anticipated to range from 0.0 dBA CNEL to 1.9 dBA CNEL. These noise increases are small and would not be discernable to the human ear in an outdoor environment over a long period of time. No roadway segments identified would have a significant impact as no roadways result in an increase of 5.0 dBA CNEL or greater and result a level above 65 dBA CNEL. Therefore, impacts associated with traffic noise for the future year

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2014 scenario are less than significant. No mitigation measures are required for the future year 2014 scenario for traffic-related noise.

Table 4.12.K provides the anticipated future year 2019 traffic noise levels (with and without project) for roadway segments adjacent to the project site.

Table 4.12.K: Future Year 2019 Off-Site Project Related Traffic Noise Levels

Roadway Segment	CNEL at 100 feet (dBA)		Increase in Noise Levels With Project (dBA)	Significant Impact? ¹
	Without Project	With Project		
California Drive				
West of Masters Drive	58.0	58.9	0.9	No
East of Masters Drive	60.3	60.9	0.6	No
El Cerrito Road				
West of Bedford Canyon Road	64.3	64.6	0.3	No
Bedford Canyon Road to I-15	64.7	64.8	0.1	No
I-15 to Temescal Canyon Road	61.3	61.6	0.3	No
Bennett Avenue				
Eagle Glen Parkway to Master Drive	52.5	52.5	0.0	No
North of Masters Drive	51.1	51.1	0.0	No
Georgetown Drive				
West of Bedford Canyon Road	54.5	55.0	0.5	No
Eagle Glen Parkway				
Bennett Avenue to Masters Drive	61.2	62.9	1.7	No
Masters Drive to Bedford Canyon Road	62.0	64.1	2.1	No
Cajalco Road				
Bedford Canyon Road to I-15	65.3	68.4	3.1	No
I-15 to Grand Oaks	64.6	65.5	0.9	No
Grand Oaks to Temescal Canyon Road	63.9	64.9	1.0	No
East of Temescal Canyon Road	64.5	65.0	0.5	No
Masters Drive				
North of California Drive	58.2	58.5	0.3	No
California Drive to Bennett Avenue	60.3	61.5	1.2	No
Bennett Avenue to Eagle Glen Parkway	59.0	60.8	1.8	No
Bedford Canyon Road				
El Cerrito Road to Georgetown Drive	60.0	61.1	1.1	No
Georgetown Drive to Eagle Glen Parkway	60.0	61.2	1.2	No
Temescal Canyon Road				
North of Cajalco Road	63.9	64.1	0.2	No
South of Cajalco Road	64.1	64.4	0.3	No

¹ A significant impact is considered both a level above 65 dBA CNEL and an increase of 5.0 dBA CNEL or greater.
Source: *Arantine Hills EIR Noise Analysis*, Urban Crossroads, Inc. May 2011.

As identified in Table 4.12.K, under future year 2019 conditions, one roadway segment (Cajalco Road between Bedford Canyon Road and I-15) would exceed the 65 dBA CNEL level and result in an increase of 3.1 dBA CNEL from existing conditions. These levels are calculated to show the potential transportation

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related noise increase with the addition of the proposed project and are not meant to provide specific noise level impacts at any noise-sensitive private living area. As identified in the Noise Study conducted for the proposed project (Appendix K), there are no current or planned noise sensitive uses along Cajalco Road from Bedford Canyon Road to I-15. Project-related future (2019) noise levels at this location would be below the 5 dBA “readily perceptible” threshold. For all other roadway segments under this scenario, the project’s incremental vehicular-source noise contributions are considered to be “barely perceptible” (less than 3.0). Impacts are less than significant and no mitigation is required.

Table 4.12.L provides the anticipated build out year 2035 traffic noise levels (with and without project) for roadway segments adjacent to the project site.

Table 4.12.L: Build Out Year 2035 Off-Site Project Related Traffic Noise Levels

Roadway Segment	CNEL at 100 feet (dBA)		Increase in Noise Levels With Project (dBA)	Significant Impact? ¹
	Without Project	With Project		
California Drive				
West of Masters Drive	59.9	60.5	0.6	No
East of Masters Drive	61.0	61.5	0.5	No
El Cerrito Road				
West of Bedford Canyon Road	65.3	65.6	0.3	No
Bedford Canyon Road to I-15	66.2	66.3	0.1	No
I-15 to Temescal Canyon Road	63.1	63.4	0.3	No
Bennett Avenue				
Eagle Glen Parkway to Masters Drive	53.2	53.2	0.0	No
North of Masters Drive	52.2	52.2	0.0	No
Georgetown Drive				
West of Bedford Canyon Road	55.2	55.6	0.4	No
Eagle Glen Parkway				
Bennett Avenue to Masters Drive	63.8	64.8	1.0	No
Masters Drive to Bedford Canyon Road	63.2	64.8	1.6	No
Cajalco Road				
Bedford Canyon Road to I-15	65.6	68.6	3.0	No
I-15 to Grand Oaks	66.5	67.1	0.6	No
Grand Oaks to Temescal Canyon Road	65.3	66.0	0.7	No
East of Temescal Canyon Road	67.2	67.5	0.3	No
Masters Drive				
North of California Drive	59.7	60.0	0.3	No
California Drive to Bennett Avenue	61.5	62.5	1.0	No
Bennett Avenue to Eagle Glen Parkway	60.0	61.5	1.5	No
Bedford Canyon Road				
El Cerrito Road to Georgetown Drive	62.3	63.0	0.7	No
Georgetown Drive to Eagle Glen Parkway	62.2	63.0	0.8	No
Temescal Canyon Road				
North of Cajalco Road	66.4	66.5	0.1	No
South of Cajalco Road	65.4	65.6	0.2	No

¹ A significant impact is considered both a level above 65 dBA CNEL and an increase of 5.0 dBA CNEL or greater. Source: *Arantine Hills EIR Noise Analysis*, Urban Crossroads, Inc. May 2011.

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As identified in Table 4.12.L, under future year 2035 conditions, one roadway segment (Cajalco Road between Bedford Canyon Road and I-15) would exceed the 65 dBA CNEL level and result in an increase of 3.0 dBA CNEL from existing conditions. These levels are calculated to show the potential transportation related noise increase with the addition of the proposed project and are not meant to provide specific noise level impacts at any noise sensitive private living area. As identified in the Noise Study conducted for the proposed project (Appendix K), there are no current or planned noise-sensitive uses along Cajalco Road from Bedford Canyon Road to I-15. Project-related future (2035) noise levels at this location would be below the 5 dBA “readily perceptible” threshold. For all other roadway segments under this scenario, the project’s incremental vehicular-source noise contributions are considered to be “barely perceptible” (less than 3.0). Impacts are less than significant and no mitigation is required.

4.12.6 Significant Impacts

The following impacts were determined to be potentially significant. In each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.12.6.1 Construction Noise

Threshold	Would the proposed project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? Would the proposed project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
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Short-term noise impacts on the Specific Plan site would be associated with excavation, grading, and erecting of buildings on site during construction of the future development. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area today but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. There will be a relatively high single-event noise exposure potential at a maximum level of 87 dBA L_{max} with trucks passing at 50 ft. However, the projected construction traffic is anticipated to be small when compared to the existing traffic volumes on affected streets, and its associated long-term noise level change will not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project site. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site. Therefore, the noise levels vary 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 4.12.M lists maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 feet between the equipment and a noise receptor.

Table 4.12.M: Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Range of Maximum Sound Level Measured at 50 ft (dBA)	Suggested Maximum Sound Level for Analysis at 50 ft (dBA)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jackhammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-End Loaders	77–90	86
Hydraulic Backhoes	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86

dBA = A-weighted decibel

ft = feet

L_{max} = maximum noise level

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek, & Newman, 1987.

The site preparation phase, which could include excavation and grading activities, tends to generate the highest noise levels as earthmoving equipments generates the most noise. Earthmoving equipment includes machinery such as backfillers, bulldozers, draglines, front loaders, 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. As identified in the Noise Study prepared for the proposed project, noise levels generated by heavy construction equipment can range from approximately 68 dBA L_{max} to noise levels in excess of 100 dBA L_{max} when measured at 50 feet.

As previously identified, the nearest existing sensitive receptors in the vicinity of the Specific Plan area are residences to the west of the proposed site, across Eagle Glen Parkway, at distances ranging from 150 feet to 420 feet. For the purpose of this analysis, an overall grading noise level of 89 dBA L_{max} at 50 feet will be used as the worst-case maximum exterior noise level that is typical with the use of standard grading equipment. Using a drop off rate of 6 dBA L_{max} per doubling of distance, noise levels at 100 feet are estimated at 83 dBA L_{max} , at 200 feet 77 dBA L_{max} , and at 400 feet 71 dBA L_{max} . This is a worst-case scenario when grading equipment is located nearest to these homes.

The City of Corona Development Code Section 17.84.040 limits construction activity to the hours of 7:00 a.m. to 8:00 p.m. from Monday to Saturday and from 10:00 a.m. to 6:00 p.m. on Sundays and Federal holidays. Therefore, construction activities that would occur within the Specific Plan area would be required to adhere to these Development Code requirements.

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However, due to the nature of the project, it is not possible to calculate the specific noise impacts at the specific plan level without grading plans and the location of the potential noise sources. **Mitigation Measure 4.12.6.1A** would ensure that the evaluation of specific noise impacts associated with construction noise is identified and mitigation measures recommended.

Mitigation Measure. The following measures have been identified to reduce potential construction related noise impacts to noise-sensitive receptors:

- 4.12.6.1A** Prior to the approval of a tentative tract map for each residential area or approval of commercial or industrial uses within the Specific Plan area, the project proponent shall prepare, submit, and receive approval from the City, a final noise analysis. This final noise analysis shall be completed at the tract map level for each residential area or commercial/industrial area when the precise grading and the architectural plans are available to ensure that all noise sensitive areas will meet the City of Corona noise standards. The final noise analysis shall include but shall not be limited to the following:
- Construction Noise Mitigation Program. The program shall include noise monitoring at selected noise sensitive locations, monitoring complaints procedures, identification of haul routes (if applicable), and identification and mitigation of the major sources of noise.
 - Construction Contractor Requirements. These requirements shall include contract provisions regarding construction equipment noise features and equipment staging procedures.

Level of Significance After Mitigation. Adherence to **Mitigation Measures 4.12.6.1A** would reduce potential short-term construction noise impacts associated to a less than significant level. It is anticipated that construction noise impacts will be adequately mitigated through implementation of the Construction Noise Mitigation Program and Contractor Requirements by limiting construction to the hours permitted by the City's Development Code, designating vehicle and equipment staging areas at sufficient distances from sensitive receptors, and requiring proper maintenance of contractor vehicle and equipment exhaust/muffler systems.

4.12.6.2 On-site Traffic-Related Noise Impacts

Impact 4.12.6.2: *The proposed land use actions and potential subsequent land development that may occur have the potential to expose noise-sensitive receptors to traffic noise above City standards.*

Threshold	Would the proposed project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? Would the proposed project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
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Currently the portions of the project site are exposed to significant traffic noise levels from Eagle Glen Parkway and I-15. The future traffic related noise impacts to the noise sensitive portions of the project site are anticipated to be generated by traffic on the internal roads such as Street "A", Street "B", and Street "C" as well as traffic on Eagle Glen Parkway and I-15. As identified in the Noise Study conducted for the proposed project, the future unmitigated 65 dBA CNEL contours are within the right-of-way for Street "B" and Street "C" and do not reach the Planning Area 7 and 10 boundary lines along Eagle Glen Parkway from Bennett Avenue to Masters Drive. For Eagle Glen Parkway from Masters Drive to Bedford Canyon Road and Street "A", the 65 dBA CNEL contours extend slightly into the adjacent planning areas. Since

the location of the nearest homes in PA 13 and 14 are not yet known, any potential mitigation measures would be made once a final site plan is provided. Should any noise sensitive exterior living areas be located within the 65 dBA CNEL contour, exterior mitigation such as noise barriers may be required. Based on the location of the traffic noise contours produced by I-15, portions of PA 16 will be located within both the 65 dBA CNEL and 70 dBA CNEL traffic noise contours. For all noise-sensitive residential units that are located between the 65 dBA CNEL traffic noise contour and I-15, exterior mitigation at private exterior living areas including private patios and balconies may be necessary depending on the site layout, grading information, and location of intervening buildings. This is a potentially significant impact and mitigation is required.

Mitigation Measure. The following measure has been identified to reduce potential on-site project related traffic noise impacts to noise-sensitive receptors:

4.12.6.2A Prior to the approval of a tentative tract map for each residential area or approval of commercial or industrial uses within the Specific Plan area within the 65 dBA CNEL and 70 dBA CNEL noise contours for Eagle Glen Parkway from Masters Drive to Bedford Canyon Road, "A" Street, and I-15, the project proponent shall prepare, submit, and receive approval from the City, a final noise analysis. This final noise analysis shall be completed at the tract map level for each residential area or commercial/industrial area when the precise grading and the architectural plans are available to ensure that all noise sensitive areas will meet the City of Corona noise standards.

Level of Significance After Mitigation. Adherence to **Mitigation Measure 4.12.6.2A** would reduce potential on-site traffic noise impacts associated with subsequent development on the project site to a less than significant level. It is anticipated that roadway noise impacts onto the residential areas of the proposed project will be adequately mitigated through implementation of noise attenuation barriers and properly locating outside balconies and backyards at sufficient distances from roadways generating high levels of traffic noise.

4.12.6.3 On-site Stationary Noise Impacts

Impact 4.12.6.3: *The proposed land use actions and potential subsequent land development that may occur have the potential to expose noise-sensitive receptors to stationary noise above City standards.*

Threshold	<p>Would the proposed project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</p> <p>Would the proposed project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?</p>
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The operation of the commercial center areas may create noise impacts to the adjacent residential areas. Typical noise impacts associated with the operation of the commercial center include truck maneuvering and unloading, air conditioning units, trash compactors and speakerphones. It is not possible to calculate the specific noise impacts at the specific plan level without grading plans and the location of the potential noise sources. Because on-site stationary noise impacts cannot be calculated at this time, impacts are considered potentially significant and mitigation is required.

Mitigation Measure. The following measure has been recommended to reduce potential on-site project related stationary noise impacts to noise-sensitive receptors:

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4.12.6.3A Prior to the approval of a tentative tract map for each residential area adjacent to commercial or industrial uses within the Specific Plan area, the project proponent shall prepare, submit, and receive approval from the City, a final noise analysis. This final noise analysis shall be completed at the tract map level for each residential area or commercial/industrial area when the precise grading and the architectural plans are available to ensure that all noise sensitive areas will meet the City of Corona noise standards.

Level of Significance After Mitigation. Adherence to **Mitigation Measure 4.12.6.3A** would reduce potential on-site stationary noise impacts associated with subsequent development on the project site to a less than significant level. It is anticipated that noise impacts onto the residential areas of the proposed project will be adequately mitigated through implementation of noise attenuation barriers, properly locating outside balconies and backyards at sufficient distances from high noise generation source, and properly designing and locating high noise generation sources to minimize their impact on sensitive receptors.

4.12.7 Cumulative Impacts

The cumulative area for noise impacts is the area analyzed in the traffic section. The noise analysis contained in this section provides an assessment of short-term construction-related impacts. Although it is not possible to predict if contiguous properties may be constructed at the same time and create cumulative noise impacts that would be greater than if developed at separate times, it is unlikely that adjacent properties will be developed at the same time as the proposed project. However, in the unlikely event that adjacent properties are developed at the same time as the proposed project, implementation of the stated mitigation measures would reduce the cumulative impacts of the proposed project to less than significant levels. The noise analysis contained in this section also provides a general assessment of on-site operational noise levels on adjacent sensitive uses, both existing and future. On-site operational noises are individual noise occurrences and are not additive in nature.

Cumulative traffic volumes were developed from the addition of traffic generated by approved and pending projects to opening year with project traffic volumes. Cumulative noise impacts associated with roadway noise have been addressed based on the cumulative traffic volumes. The increases over existing traffic volume are attributable to cumulative development projects in the project vicinity and region. As stated earlier, the baseline condition represents a noise environment that, in light of approved and continuing development in the project area, is not likely to be replicated. Comparing cumulative noise levels that would occur both with and without the project, the proposed project would not expose sensitive uses located adjacent to area roadways to excessive noise levels. Therefore, the proposed project's contribution to cumulative noise impacts at sensitive uses would not be significant.

4.13 POPULATION AND HOUSING

This chapter describes and discusses the existing population and housing conditions and growth trends within the City of Corona and potential impacts of the proposed project, including an analysis of the project's consistency with the applicable policies and regulations. Information within this chapter was largely derived from available data from the 2010 Census¹ with population and housing forecast data compiled from the California Department of Finance (DOF), Southern California Association of Governments (SCAG) 2008 Integrated Growth Forecast,² and City General Plan.

4.13.1 Existing Setting

4.13.1.1 Population and Housing Growth Trends

Table 4.13.A identifies historical and projected population and household growth in Corona between 1990 and 2035. The most recent growth projections adopted by the SCAG in 2008 suggest that population growth in Corona during the 2015–2035 period will be slower than that which occurred during the past 20 years. Similarly, the household growth rate is expected to be slower than that which occurred during the past 20 years.

Table 4.13.A: City of Corona Population and Households, 1990–2035

Year	Population	Avg. Annual Increase	Households*	Avg. Annual Increase	Source
1990	76,095	—	23,920	—	Census 1990
2000	124,966	4,887	37,839	1,392	Census 2000
2010	152,374	2,738	44,950	711	Census 2010
<i>2020</i>	<i>157,556</i>	<i>518</i>	<i>46,773</i>	<i>94</i>	SCAG
<i>2025</i>	<i>161,749</i>	<i>839</i>	<i>47,575</i>	<i>160</i>	SCAG
<i>2030</i>	<i>165,260</i>	<i>702</i>	<i>48,434</i>	<i>172</i>	SCAG
<i>2035</i>	<i>167,900</i>	<i>528</i>	<i>49,456</i>	<i>204</i>	SCAG

*Households are equivalent to occupied housing units
Data in *ITALICS* represent forecasts

4.13.2 Existing Policies and Regulations

4.13.2.1 Regional Regulations

Southern California Association of Governments Growth Projections. SCAG growth projections are used by the SCAG's Modeling Section to forecast travel demand and air quality for planning activities such as the Regional Transportation Plan (RTP), the Air Quality Management Plan (AQMP), the Regional Transportation Improvement Program (RTIP), and the Regional Housing Plan.

The SCAG's Forecasting Section is responsible for producing socioeconomic projections and developing, refining and maintaining the SCAG's regional and small area forecasting models. Using the base year socioeconomic forecasts, the Forecasting Section develops future forecasts in 5-year intervals. The Forecasting Section works closely with the Plans and Programs Technical Advisory Committee, the Department of Finance (DOF), sub-regions, local jurisdictions, the public, and other major stakeholders.

¹ <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

² <http://www.scag.ca.gov/forecast/index.htm>

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4.13.2.2 State Regulations

Regional Housing Needs Assessment (RHNA). State law mandates local communities to provide for their portion of the regional demand for housing units. The number of units to be accommodated, or a local jurisdiction’s portion of the regional demand, is determined by the SCAG. The RHNA is not a mandate to construct the full number of housing units assigned a region; rather, the RHNA allocation process establishes short-term construction needs and the fair distribution of housing needs among income groups. The housing construction “targets” identified in the RHNA obligate jurisdictions to take steps to (1) provide an adequate amount of residential land to accommodate RHNA housing needs; (2) maintain a Zoning Ordinance that is permissive enough to allow the development of a variety of housing to meet the special needs of the population; (3) focus housing resources to meet the needs of very-low and low-income housing needs; and (4) exercise authority to remove barriers or legal constraints to the construction of affordable housing.

The City of Corona’s assigned allocation for new housing during the 2006–2014 planning period was 3,307 units. Of these, 819 and 560 units (respectively) were identified as necessary for very-low and low-income categories.¹

4.13.2.3 Local Policies

City of Corona General Plan Policies. The City’s General Plan includes policies and goals that are associated with population and housing. Table 4.13.B identifies goals and policies that would be applicable to the proposed project.

Table 4.13.B: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
City of Corona General Plan Housing Element	
Goal 3.1: Promote and maintain a balance of housing types and corresponding affordability levels to provide for the community’s demands for housing within all economic segments of the City.	
<p>Policy 3.1.3 Promote specific plans that provide a variety of housing types and densities based on the suitability of the land, including the availability of infrastructure, the provision of adequate City services and recognition of environmental constraints. <i>(Imp H5, H9, H17, H19)</i></p>	<p>The project is consistent with this policy. The project is a Specific Plan that would provide a range of housing types and densities adjacent to existing development (Eagle Glen) where existing infrastructure is already present.</p>
<p>Policy 3.1.4 Provide sites for residential development, available in response to market demands, so that scarcity of land does not unduly increase the cost or decrease the availability of housing for all segments of the community. <i>(Imp H5, H9, H11, H17, H19, H20, H21, H22)</i></p>	<p>The project is consistent with this policy. The project is a Specific Plan that would provide a range of housing types and densities adjacent to existing development where existing infrastructure is already present. The proposed project site was previously utilized for agricultural uses and implementation of the proposed project would be consistent with the City’s vision of the gradual conversion of agricultural uses to urban uses.</p>

¹ *Final Regional Housing Needs Assessment Allocation*, Southern California Association of Governments, adopted July 12, 2007.

Table 4.13.B: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
<i>Goal 3.3: Maintain high quality residential development standards to ensure the establishment of livable neighborhoods with lasting safety and aesthetic value, and to promote the maintenance and preservation of historic neighborhoods.</i>	
Policy 3.3.3 Provide public services and improvements that enhance and create neighborhood stability. <i>(Imp H8)</i>	The project is consistent with this policy. The proposed project would incorporate a mix of land uses, recreational uses, open spaces, and would concentrate development to promote greater efficiency and pedestrian/bicycling activity.
Policy 3.3.5 Enact design review for new residential developments to ensure the construction of livable and aesthetically pleasing neighborhoods. <i>(Imp H8)</i>	The project is consistent with this policy. The proposed project would be required to undergo design review by the City prior to project approval.

4.13.3 Methodology

The impact discussion focuses on the direct growth in population and housing associated with the proposed project. The project's potential to induce population growth is also assessed in terms of the creation of new employment opportunities and an evaluation of potential impacts to the City's job-to-housing ratio.

The purpose of this chapter is to provide a general understanding of how implementing the project could affect population growth and housing demand. While these impacts would not cause a direct physical change to the environment, it is important to understand the project's effect on population and housing for the following reasons:

- Population growth generated by the project could create indirect impacts, such as increased traffic, air quality, noise, and increased demand for public services. CEQA requires the evaluation of indirect impacts. These impacts are discussed in the respective sections of this EIR relating to those issues.
- Understanding the impacts to population and housing from implementing the project will help assess the adequacy of the policies intended to provide a balance between employment growth and the availability of housing to meet the needs of current and future workers.
- Understanding the impacts to housing demand from implementing the project will help assess the adequacy of local policies intended to provide additional affordable housing for low- and moderate-income households.

4.13.4 Thresholds of Significance

According to CEQA Guidelines Appendix G, potential impacts related to population and housing are considered significant if implementation of the proposed project results in any of the following:

- Inducement of substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displacement of substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; and/or
- Displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere.

4.13.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.13.5.1 Induce Substantial Population Growth

Threshold	Would the proposed project result in the inducement of substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
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CEQA Guidelines identify a project as growth-inducing if it would foster economic or population growth or the construction of additional housing either directly or indirectly, in the surrounding environment (*CEQA Guidelines* §15126.2(d)). New employees of commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. Direct employment impacts reflect the initial or first-round increases in jobs and wages which result from the creation of on-site jobs. Indirect impacts occurring as a consequence of the direct impacts, elsewhere within the project area, may result from the production of goods and services required to support the proposed on-site uses, and/or the production of goods and services required to meet consumer demand generated by wages paid to new employees.

A project could also indirectly induce growth by reducing or removing barriers to growth or by creating a condition that attracts additional population or new economic activity. Under CEQA, growth inducement is not necessarily considered detrimental, beneficial, or of little significance to the environment. Typically, the growth-inducing potential of a project would be considered significant if it fosters growth or a concentration of population in excess of what is assumed in pertinent master plans, land use plans, or in projections made by regional planning agencies (e.g., SCAG). Significant growth impacts could also occur if the project provides infrastructure or service capacity to accommodate growth beyond the levels currently permitted by local or regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way.

As identified in previously referenced Table 4.13.A, the City’s population has grown steadily over the past decades. SCAG population projections estimate the City’s population will reach nearly 157,556 persons by 2020 and nearly 165,260 persons by 2030. See Table 4.13.C.

Table 4.13.C: Population, Housing, and Employment Forecasts

	2015	2025	2035
Population			
City of Corona	154,631	161,749	167,900
Riverside County	2,509,330	3,089,999	3,596,680
SCAG	18,080,071	19,621,179	20,923,491
Housing Units			
City of Corona	46,304	47,575	49,456
Riverside County	811,486	1,008,909	1,183,097
SCAG	5,755,472	6,303,649	6,738,155

Table 4.13.C: Population, Housing, and Employment Forecasts

	2015	2025	2035
Employment			
City of Corona	77,460	90,657	105,046
Riverside County	911,381	1,168,769	1,413,522
SCAG	7,913,913	8,501,302	9,032,373

Source: *Regional Transportation Plan Growth Forecast*, Southern California Association of Governments, adopted March 6, 2008.

Implementation of the proposed project would include a General Plan Amendment to change the land use designation of Agriculture – Possible Future Urban Use to a variety of land uses including Low-, Medium-, and High-Density Residential, General Commercial, Mixed-Use I and II, Parks, and Open Space General as depicted in Exhibit 3-2 in the Arantine Hills Specific Plan. Implementation of the proposed project could result in the development of up to 1,806 dwelling units. Utilizing the DOF factor of 3.23 people per household¹ and, assuming every resident was a new citizen of the City, these residential uses would result in a population increase of up to 5,236 people.²

The “jobs-to-housing ratio” measures the extent to which job opportunities in a given geographic area are sufficient to meet the employment needs of area residents. Since most residents of the region are employed somewhere in the region, the standard used for comparison is the jobs-to-housing ratio of the southern California region. A sub-area of the region with a jobs-to-housing ratio lower than the overall standard would be considered a “jobs-poor” area, indicating that many of the residents must commute to places of employment outside the sub-area. The projected 2015 jobs-to-housing ratio for the City, subregion (Riverside County), and region (SCAG) are 1.67, 1.12, and 1.36, respectively (Table 4.13.D). As the projected 2015 jobs-to-housing ratio for the City is higher than both the subregional and regional ratio, the City is “jobs rich” (meaning less residents must commute outside the City for employment in 2015). Development of the property as proposed would result in an additional 1,621 or 1,806 residential units in the City and an additional 1,925 jobs in the City (discussed in further detail in the proceeding paragraph). The projected jobs-to-housing ratio in 2015 and 2035 (Table 4.13.D) within the City is 1.67 and 2.12, respectively, consistent with the current projected ratios. The increase in dwelling units and jobs associated with development of the proposed project would not significantly affect the jobs-to-housing balance in the City.

Table 4.13.D: Projected Future Jobs-to-Housing Ratios

	2015 Jobs-to-Housing Ratio*	2035 Jobs-to-Housing Ratio
City	1.67	2.12
Riverside County	1.12	1.19
SCAG	1.36	1.34

*Using Southern California Association of Governments’ most recently adopted forecasts, the housing and employment estimates for 2015 are the closest to the year the project is anticipated to be completed for which the SCAG provides information; therefore, the 2015 estimates are used to calculate the jobs-to-housing ratio.

The development of the on-site mixed commercial/industrial and retail commercial uses would create jobs in the local economy. The General Commercial planning area within the Arantine Hills Specific Plan proposes approximately 396,400 square feet of development. There are two mixed use planning areas (Mixed Use I and Mixed Use II) within the Arantine Hills Specific Plan. The Mixed Use I planning area proposes approximately 118,000 square feet of commercial uses while the Mixed Use II planning area proposes approximately 230,900 square feet of industrial/commercial uses. As a conservative measure, this analysis assumes that approximately half of the maximum square footage

¹ State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2011, with 2010 Benchmark*. Sacramento, California, May 2011.

² 3.23 people/household × 1,621 dwelling units = 5,236 people.

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(59,000 square feet) allowed under the Mixed Use I planning area would be developed with office uses while the other half (59,000 square feet) would be developed with retail uses. This analysis assumed that the maximum square footage (230,900 square feet) allowed under the Mixed Use II planning area would be developed with business park uses. Based on an employee generation factor of 1 employee for every 268 square feet of regional retail commercial uses, 1 employee for every 1,548 square feet of light industrial uses, and 1 employee for every 629 square feet of other commercial uses,¹ the proposed project would generate up to 1,925 job opportunities.² The new employment opportunities resulting from development of the proposed uses would maintain the City's current jobs-to-housing ratio by providing jobs to local residents. While the place of residence of the persons accepting employment provided by the proposed uses is uncertain, due to the City's projected jobs-to-housing ratio, it is reasonable that a large percentage of these jobs would be filled by persons already living within the City or project area; therefore, no significant increase in population of the City would result from the development or operation of the proposed on-site uses. With respect to public services, the project would be required to pay development impact fees used to fund capital costs associated with constructing new public service facilities and purchasing equipment for new public service facilities. The potential increase in population would not significantly affect existing public services. In the absence of a significant impact, no mitigation is required.

The proposed project site was historically utilized for citrus production (grapefruit). Existing single-family residential uses are located directly north and northwest of the project site, west of I-15. Additionally, rural residential uses and single-family residential uses are located within unincorporated Riverside County south of the project site. With implementation of the General Plan Amendment and Zone Change designation, the development of the proposed uses would be consistent with the City's pattern of development.

As previously identified, the implementation of the proposed project would potentially result in a population growth of 5,236 persons within the City. This potential population growth anticipated with project implementation would not induce growth beyond the level of growth the City is anticipating with respect to utilities and infrastructure. However, as described in the Utilities and Service Systems section (Section 4.17), the projected population growth associated with the proposed project would exceed the existing capacity at the City's WRF3. The expansion of WRF3 is currently programmed as a project within the City's Capital Improvement Program (CIP) for 2010/2011. As identified in the CIP, improvements slated for WRF3 include the addition of 2.0 million gallons per day (mgd) of capacity. Upon its expansion, WRF3 would have a total daily treatment capacity of 3.0 mgd. The CIP also states that WRF3 expansion is part of the Sewer Master Plan and is identified as Project T-16A.³ It is anticipated that the expansion of WRF3 would be completed by the time Phase 3 of the proposed project is in operation.

A combination of funding sources is utilized for the construction of public infrastructure features such as sewer facilities. Typically, project proponents install internal facilities within the project site. For sewer facilities, such as the City's WRF3 that are affected by the proposed project, a fair-share amount is typically contributed by the project proponent to the City's sewer program, usually in form of a Development Impact Fee (DIF). In the City of Corona, a sewer capacity fee is assessed for urban development. This sewer capacity fee is necessary for construction of incremental expansions of the sewage system to mitigate the impact of individual projects on the existing system. Funds received as part of a citywide development mitigation program can be spent on any sewer infrastructure projects

¹ *Table II-B Average Employees Per Acre – Average of Riverside and San Bernardino Counties*, Employment Density Study Summary Report, Summary California Association of Government, The Natelson Company, Inc., October 31, 2001.

² 1 employee/268 square feet of regional retail commercial use × 396,400 square feet of regional retail commercial uses = 1,479 employees plus 1 employee/1,548 square feet of light industrial use × 115,450 square feet of light industrial uses = 75 employees plus 1 employee/629 square feet of other commercial use × 233,450 square feet of other commercial use = 371 employees. 1,479 + 75 + 371 = 1,925 employees.

³ *City of Corona Capital Improvement Program – Project Cost Listing*, City of Corona, <http://www.discovercorona.com/CityOfCorona/media/Media/Finance/CIP%20Documents/FY%202010-11%20Adopt/10WtrRclm.pdf>, website accessed May 3, 2011.

within the city’s jurisdiction that have been listed in the city’s program documentation (e.g., a capital improvement plan). The timing of the improvements is established through the City’s Engineering Department to ensure that construction and needed improvements occurs prior to or concurrent with the time at which the identified sewer facility or sewer mainline is forecast to exceed existing capacity.

Although the project site is vacant and agricultural land, surrounding roadway facilities (Eagle Glen Parkway and Temescal Canyon Road) contain the necessary public utilities (water, recycled water, sewer, storm drainage, electrical, natural gas, and transportation services) to support the project. As the proposed project site would extend utilities from the existing developed areas to the west and south, the improvements necessary for development of the site would not facilitate growth that has not been anticipated in the project area, no significant growth-inducing effect would occur. In the absence of a significant impact, no mitigation is required.

4.13.5.2 Displace Substantial Housing/People

Threshold	Would the proposed project displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?
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The project site is currently undeveloped and zoned by the City as “Agriculture.” The project site is also designated in the City’s General Plan as “Agriculture – Possible Future Urban Use.” The project site has not been historically utilized for residential uses, and no residential structures are currently located within the project limits with the exception of a mobile trailer used by an on-site property caretaker associated with the project site’s past history of agricultural use. The construction and operation of the proposed on-site uses would neither displace existing housing or residents nor require the construction of replacement housing elsewhere in the City. In the absence of any residential displacement or a substantial change in the availability of residential units, no significant impact related to this issue would occur. No mitigation is required.

4.13.6 Potentially Significant Impacts

No potentially significant impacts related to population and housing have been identified.

4.13.7 Cumulative Impacts

The project includes development of a variety of uses including residential, commercial, industrial, and office uses. Commercial, industrial, and office uses are typically developed to provide a sound and diversified economic base and ample employment opportunities for the citizens of Corona. The proposed project together with other commercial and residential developments within Corona will serve an existing demand for employment, while also meeting the cumulative demand of employment that will result from the City’s projected future population. The General Plan Amendment and Zone Change would result in consistency with the City’s vision of its development as the existing General Plan designation for the proposed site is “Agriculture – Possible Future Urban Use.” Implementation of the proposed project would not result in a cumulatively significant population or housing impact, nor would the proposed uses significantly induce growth in areas where growth was not previously anticipated.

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4.14 PUBLIC SERVICES

This chapter evaluates public services (fire, police, and schools) for the proposed project. The analysis considers existing public services and facilities in the project vicinity and evaluates the impacts to service providers that would result from the potential construction and operation of the Specific Plan. The analysis contained in this chapter is based in part on the following documents:

- City of Corona General Plan Final EIR, City of Corona, March 2004; and
- *Infrastructure and Public Service Element*, City of Corona General Plan, City of Corona; adopted March 17, 2004.

4.14.1 Existing Setting

4.14.1.1 Fire Protection Services

The City of Corona Fire Department (CFD) provides fire protection, prevention, and emergency medical services throughout the City. As identified in Table 4.14.A, the CFD has seven stations serving the City. All fire stations are staffed with one Captain, one Engineer, one Firefighter/, and one Firefighter or Firefighter Apprentice. The closest station to the project site is Station 7 located at 3777 Bedford Canyon Road, located approximately 0.28 mile north of the project site.

Table 4.14.A: City of Corona Fire Stations

Station No.	Address	Equipment	Staff
Station 1	540 Magnolia Avenue	3 Engine Companies, Engine Company Communications Van (State-owned), and Brush Engine Company	4
Station 2	225 East Harrison Street	2 Engine Companies (City-owned), Engine Company (State-owned), and Command Truck	5
Station 3	790 South Smith Street	Engine Company, 2 Truck Companies (with ladder), and Brush Engine	8
Station 4	915 North McKinley Street	Engine Company (with ladder), Reserve Engine Company, Hazmat Vehicle, and Water Tender	4
Station 5	1200 Canyon Crest Drive	Engine Company	4
Station 6	110 W. Upper Drive	Engine Company and Mobile Command Post	4
Station 7	3777 Bedford Canyon Road	Engine Company and Truck Company (with ladder)	8

Source: City of Corona General Plan Technical Background Report, City of Corona, March 2004, Corona Fire Department, October 20, 2010.

The CFD is funded largely through the City's General Fund, with other funding coming from fees for services, a fee charged to the local ambulance company, the EMS Subscription program, and developer impact fees charged to all new development, which go toward facilities and equipment. The CFD currently employs 121 people in fire services throughout the area's fire stations and headquarters along with other strategic facilities for additional fire services support.¹ The CFD strives to maintain a response time as follows:

¹ City of Corona, California, *Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2010*, City of Corona Finance Department, 2010.

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*Respond to emergencies with the first company arriving on scene of priority incidents within six minutes, 85% of the time.*¹

The current response time data indicate that CFD personnel are arriving on scene within six minutes 86 percent of the time.²

Fire protection and paramedic services are also provided to the City through formal mutual aid agreements with the following agencies: City of Norco, City of Riverside, Riverside County, Orange County, and San Bernardino County Fire Departments, as well as with the United States Forest Service and the California Department of Forestry and Fire Protection. The CFD also participates in the State of California Master Mutual Aid Agreement. Mutual Aid is initiated through the area coordinator when a local fire department requests help from outside fire departments after local units are on the scene.

4.14.1.2 Police Protection Services

The Corona Police Department (CPD) provides local police services within the City of Corona including crime investigation, offender apprehension, community awareness programs, and other services such as traffic control. The CPD conducts ongoing assessments to determine future funding, staffing, and equipment needs. Police operations are provided from the main office located at 730 Corporation Yard Way, approximately 6.0 miles north of the Specific Plan area. The CPD is currently staffed for the 2010–2011 fiscal year with 176 sworn officers,³ resulting in an officer-to-resident ratio of 1.17 sworn officers per 1,000 residents.

The CPD is divided into three Divisions: Field Services, Investigation Services, and Support Services. In addition to the main police station, the Zone 2 Office at 340 N. McKinley Street provides a satellite office for field officers and a volunteer staff for children identification fingerprinting:

The Temescal Public Safety Facility located at 3777 Bedford Canyon Road is a joint Police Department and Fire Department facility that includes living quarters, office facilities, and an apparatus garage. The CPD operates its Southeast Substation, two patrol zones, volunteer program, and helicopter program supervision from this facility.

The proposed project site is within Zone 5 of the CPD's service area.⁴ Within Zone 5, 19 violent crimes and 181 property crimes were reported during 2010. Violent crimes are further broken down as follows: homicide (0), rape (2), robbery (6), and aggravated assault (11). Property crimes are further broken down as follows: commercial burglaries (8), residential burglary (38), vehicle burglary (117), and vehicle theft (18).⁵ Response times are categorized by emergency response, immediate response, and routine response (a call of non-emergent nature). Based on CPD data, the average response time for emergency response times is 4 minutes and 45 seconds. The CPD states that there are no established target response times but considers a response time of 5 minutes and under an adequate response time for emergency calls.⁶

¹ City of Corona Fire Department Fiscal Year 2010/11 Budget, City of Corona Finance Department, 2010.

² Corona Fire Department, October 2010

³ City of Corona Police Department Fiscal Year 2010/11 Budget, City of Corona Finance Department, 2010.

⁴ City of Corona Police Department, <http://www.ci.corona.ca.us/cfm?section=City%20Departments&page=&viewpost=2&ContentId=54>, website accessed March 24, 2011.

⁵ Crime Statistics, City of Corona, <http://www.ci.corona.ca.us/cfm?section=City%20Departments&page=&viewpost=2&ContentId=337>, website accessed March 24, 2011.

⁶ Telephone conversation with Karen Alexander, Corona Police Department, April 29, 2011.

Law enforcement services within Corona are funded through a variety of sources, including the General Fund, development impact fees, asset forfeiture funds, traffic offender funds, and various grants. Grants include Supplemental Law Enforcement Service Funds (SLESF), COPS grants, the Edward Byrne JAG Grant, and Office of Traffic Safety grants. Impact fees are updated on a regular basis and are intended to accommodate an adequate level of police service within Corona.

4.14.1.3 School Services

The City of Corona is served primarily by the Corona-Norco Unified School District (CNUSD), with the exception of the northeastern portion of the City limits, which is served by the Alvord Unified School District. The CNUSD provides education for the students of Corona, Norco, and several unincorporated areas of Riverside County. Headquarters for the CNUSD are located at 2820 Clark Avenue in Norco. The CNUSD currently has 32 elementary schools, seven intermediate/middle schools, five comprehensive high schools, a middle college high school, and three alternative schools serving Corona, Norco, and surrounding areas.¹ In addition to public schools, the City has twelve private schools including parochial schools (such as St. Edward Catholic School), preschools, kindergartens, pre-K through eighth grade schools, and four early childhood/daycare centers.

Estimated student enrollment and capacity figures for public schools in and near the Arantine Hills Specific Plan are provided in Table 4.14.B.

Table 4.14.B: School Facilities in the Vicinity of the Specific Plan

School Name	Address	Approximate Distance to Specific Plan Area (miles)	Student Enrollment 2009–2010
Elementary Schools			
Anthony Elementary	2665 Gilbert Avenue	2.2	896
Eisenhower Elementary	3355 Mountain Gate Drive	3.9	1,071
Foothill Elementary	2601 South Buena Vista Avenue	4.0	1,027
Franklin Elementary	2650 Oak Avenue	4.8	894
Orange Elementary	1350 Valencia Road	1.7	1,073
Temescal Valley Elementary	22950 Claystone Avenue	2.5	825
Wilson Elementary	1750 Spyglass Drive	0.5	1,099
Intermediate/Middle Schools			
Citrus Hills Intermediate	3211 South Main Street	3.1	1,652
El Cerrito Middle	7610 El Cerrito Road	1.1	932
High Schools			
Centennial High	1820 Rimpau Avenue	3.0	3,053
Santiago High	1395 Foothill Parkway	1.8	3,303

Sources: *Education Data Partnership – Fiscal, Demographic, and Performance Data on California’s K–12 Schools*, <http://www.ed-data.k12.ca.us/welcome.asp?>, website access April 19, 2011.

4.14.1.4 Recreation and Parks

A complete existing setting regarding recreation and parks is contained in Section 4.15 of this EIR.

¹ Corona-Norco Unified School District, <http://www.cnusd.k12.ca.us>, website accessed April 19, 2011.

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4.14.2 Policies and Regulations

4.14.2.1 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that pertain to public services. Table 4.14.C identifies applicable goals and policies that apply to the proposed project.

Table 4.14.C: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
City of Corona General Plan Police and Fire Services Element		
<i>Goal 9.1: Ensure that there is an adequate service level of law enforcement provided for all residents, visitors, and businesses throughout the City of Corona.</i>		
Policy 9.1.1	Ensure that police staffing and facilities are expanded commensurably to serve the needs of the City's growing population and business community.	The project would be consistent with this policy as discussed in Section 4.14.5.2.
Policy 9.1.2	Identify and provide sites for police facility location(s) in subsequent Specific Plans based on community need, phasing, and timing.	The project would be consistent with this policy as discussed in Section 4.14.5.2.
Policy 9.1.3	Assess the impacts of incremental increases in community development density and intensity and subsequent impacts on traffic congestion, municipal infrastructure capacity, and emergency response times. Ensure through the design review process that new development and re-development will not result in a reduction of law enforcement services below acceptable, safe levels.	The project would be consistent with this policy as discussed in Section 4.14.5.2.
Policy 9.1.5	Require development projects to contribute fees based on their proportional impact and demand for police services.	The project would be consistent with this policy as discussed in Section 4.14.5.2.
<i>Goal 9.2: Ensure that there is an adequate service level of fire protection provided for all residents, visitors, and businesses throughout the City of Corona.</i>		
Policy 9.2.1	Ensure that fire staffing and facilities are expanded commensurably to serve the needs of the City's growing population and business community so as to maintain a targeted 5-minute or less response time.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
Policy 9.2.2	Identify and provide sites for fire facility location(s) in subsequent Specific Plans based on community need, phasing, and timing.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
Policy 9.2.4	Assess the impacts of incremental increases in community development density and intensity and subsequent impacts on traffic congestion, municipal infrastructure capacity, fire hazards, and emergency response times. Ensure through the design review process that new development and re-development will not result in a reduction of fire protection services below acceptable, safe levels.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
Policy 9.2.5	Require development projects to contribute fees based on their proportional impact and demand for fire services.	The project would be consistent with this policy as discussed in Section 4.14.5.1.

Table 4.14.C: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies	Project Consistency
<i>Goal 9.4: Require that all existing and new development/redevelopment address provision of police and fire protection in an active and preventative manner.</i>	
Policy 9.4.2 Require all new commercial, industrial, institutional, multiple-unit residential and mixed-use developments to install fire protection systems and encourage the use of automatic sprinkler systems where not otherwise required by existing codes and ordinances.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
Policy 9.4.3 Request, wherever appropriate, that all existing development install and maintain fire protection devices including automatic sprinkler systems.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
Policy 9.4.4 Require all existing and new development to install and maintain adequate smoke detection and carbon monoxide detection systems, in accordance with State statutory requirements.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
Policy 9.4.5 Require, through the development review process, that all structures and facilities conform to Federal, State and City regulatory standards and applicable safety guidelines.	The project would be consistent with this policy as discussed in Section 4.14.5.1.
City of Corona General Plan Parks, Schools, and Libraries Element	
<i>Goal 8.14: Provide superior educational opportunities for children and all members of the Corona community.</i>	
Policy 8.14.4 Require that residential development pay fees to school districts for the acquisition of school sites.	The project would be consistent with this policy as discussed in Section 4.14.5.3.

4.14.3 Methodology

Fire and police service funding impacts were evaluated by identifying compliance with local goals and policies. Response time impacts were evaluated by comparing existing and anticipated average responses through response time goals.

The evaluation of school service impacts included the identification of the existing capacity of schools within the vicinity of the project based on CNUSD information and the number of students that would be generated by potential residential uses. A comparison of existing capacity and potential capacity with students resulting from the build out of the Specific Plan was made.

4.14.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts related to public services are based on *CEQA Guidelines* (2010). A project would have a significant impact on public services if it would result in any of the following:

- Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
 - Fire protection;
 - Police protection;

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- Schools; and/or
- Parks.

4.14.5 Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards and policies would reduce potential impacts to a less than significant level.

4.14.5.1 Fire Protection

Threshold	Would the proposed project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered fire protection?
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Currently, the project site is undeveloped and does not generate any need for fire protection services for urban uses. The proposed Specific Plan includes the potential development of up to 1,621 dwelling units (or 1,806 if PA 16 is developed with age restricted units) and approximately 745,300 square feet of commercial, industrial, and institutional uses. Future development facilitated by the implementation of the Specific Plan would increase the demand for fire protection, prevention, and emergency medical services as the construction of uses would result in the habitation and employment of people on site. As identified in Section 4.8.6.2 (Wildland Fires), the majority of the project site is identified as “Non-wildland/non urban” by the CDFFP. However, the southeastern portion of the project site is identified as a “Very High Fire Hazard” Severity Zone. Adjacent land to the east and south of the project site are also identified as a “Very High Fire Hazard” Severity Zone and State Responsibility Area (SRA) “Very High Fire Hazard Severity Zone” by the CDFFP.¹ Additional discussion as it relates to wildland fires and the project site is provided in Section 4.8.6.2 of this EIR.

Time is the critical component in fire/medical emergencies. Reductions in the emergency response time or the distance between fire/medical facilities and the site of an emergency would result in improved service, and saved lives and property. As previously identified, the nearest fire station to the project site would be located 0.28 mile away. In general, existing service is considered adequate to meet the needs of the City’s current population with available resources.²

In its review of new development plans, the CFD and City evaluate project plans on its ability to provide proper fire protection to the development. Additionally, any future development that could occur with implementation of the proposed Specific Plan would be required to pay service and development fees to the City. Such fees would be used to fund capital costs associated with acquiring land for new fire stations, constructing new fire stations, purchasing fire equipment for new fire stations, and providing for additional staff as needed and as identified by the City.

In addition, all future development within the Specific Plan area would be designed, constructed, and operated per applicable fire prevention/protection standards established by CFD and/or the City, or State. Such requirements may include (but shall not be limited to) provisions for smoke alarms; sprinklers; building and emergency access; adequate emergency notification; and hydrant sizing, pressure, and siting. The development of the proposed commercial uses would not cause fire staffing, facilities, or equipment to operate at a deficient level of service. Additionally, because the proposed project would be required to pay development impact fees to fund future fire facilities and services,

¹ *Wildland Fire Hazard Zones*, California Department of Forestry and Fire Protection, 1985.

² Corona Fire Department, October 2010.

impacts associated with fire protection services and facilities are less than significant and no mitigation is required.

4.14.5.2 Police Protection

Threshold	Would the proposed project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered police protection?
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Implementation of the Specific Plan could result in the development of up to 1,621 dwelling units (or 1,806 if PA 16 is developed with age restricted units). Utilizing the Department of Finance factor of 3.23 people per household¹ and, assuming every resident was a new citizen of the City, these residential uses would result in a population increase of up to 5,236 people.² The development and operation of the residential uses within the Specific Plan area would increase demand for police protection services. Potential impacts would take the form of a need for expanded police protection services through an increase of occurrence of calls for service. However, based on telephone conversations with the City of Corona Police Department (CPD), existing response times are 5 minutes or less for priority phone calls. In addition, the CPD is in the process of redistricting police response zones in order to improve these existing response times in the southern portion of the City, which includes the project site.³

Similarly, the development and operation of up to 745,300 square feet of retail, restaurant, office, and service uses would increase demand for police protection services. Initially, crimes of grand theft and malicious mischief during construction would be the major crime problem. Typical law enforcement calls from large commercial venues similar to that proposed in the Specific Plan include shoplifting, theft from businesses, burglary, vehicle theft, check forgery, and vandalism. Potential impacts would take the form of a need for expanded police protection services routinely associated with commercial growth. While commercial and institutional uses would generate new employment opportunities within the area, it is anticipated that most of the new jobs would likely be filled by residents of the City and surrounding area.

Although development that could occur under the Specific Plan would likely result in an increase of calls for police service, police protection services are not dependent on facilities in order to effectively patrol a beat. An expansion of, or intensification of development within a beat does not necessarily result in the need for additional facilities if police officers and patrol vehicles are equipped with adequate telecommunications equipment in order to communicate with police headquarters. However, if the geographical area of a beat is expanded, population increases, or intensification/redevelopment of an existing beat results in the need for new police officers, new or expanded facilities could be needed. As previously identified, response times to police calls vary because police response is based on the severity or nature of the call itself.

The City monitors staffing levels to ensure that adequate police protection continues to be provided as individual development projects are proposed and on an annual basis as part of the City Council's budgeting process. Therefore, due to the continual monitoring of police staffing levels by the City, the proposed project would not result in a significant reduction in police response times.

Funding for new police facilities commensurate with the increased demand for services in the City of Corona would be provided from capital improvement fees levied on new development. The City collects fees to offset impacts associated with new development. These development impact fees (DIFs) are one-time charges applied to new development and are imposed to raise revenue for the

¹ State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2011, with 2010 Benchmark*. Sacramento, California, May 2011.

² 3.23 people/household x 1,621 dwelling units = 5,236 people.

³ Telephone conversation with Karen Alexander, Corona Police Department, July 27, 2011.

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construction or expansion of capital facilities located out of the project boundaries of a new development that benefit the area. DIFs enable the City or agency to collect fair-share fees from new development projects to fund new infrastructure and services. In the City, developers are also required to pay development fees per square foot of development to offset impacts associated with increased demand on law enforcement services. DIFs are collected for specific infrastructure needs and are deposited into different accounts representing these requirements.

Development that could occur with the implementation of the Specific Plan would be designed and operated per applicable standards required by the City for new development in regard to public safety. In addition, the project would be required to pay development fees used to fund capital costs associated with constructing new public safety structures and purchasing equipment for new public safety structures. Accordingly, impacts associated with police services with the proposed project would be less than significant and no mitigation is required.

4.14.5.3 School Facilities

Threshold	Would the proposed project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered school facilities?
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The development of the Specific Plan could potentially result in the construction and operation of up to 1,621 dwelling units (or 1,806 if PA 16 is developed with age restricted units) and approximately 745,300 square feet of commercial, office, and light industrial uses. If subsequent development occurs on the Specific Plan site, such development would result in an increase of residents in the City who would utilize City school services and facilities. The Specific Plan area is located within the jurisdictional boundaries of the CNUSD and within the attendance boundaries of Temescal Valley Elementary, partially within the attendance boundaries of Citrus Hill Intermediate and partially within El Cerrito Middle School, and partially within the attendance boundaries of Centennial High School and Santiago High School.¹ Table 4.14.D identifies existing school enrollment and associated school capacity for CNUSD schools that would serve the Specific Plan area. Table 4.14.E identifies potential number of students that could be generated under the proposed Specific Plan.

Table 4.14.D: Corona-Norco Unified School District Enrollment Capacity for Schools that may Serve the Proposed Specific Plan

School	2009–2010 School Enrollment ¹	School Capacity ²	Percentage of Capacity Utilized?
Temescal Valley Elementary School	825	1,225 ^{3,4}	67.3%
Citrus Hill Intermediate School	1,652	1,631	101.3%
El Cerrito Middle School	932	1,645 ^{3,5}	56.6%
Centennial High School	3,053	2,310	132.1%
Santiago High School	3,303	2,432	135.8%

Notes:

- ¹ Education Data Partnership – Fiscal, Demographic, and Performance Data on California’s K–12 Schools, <http://www.ed-data.k12.ca.us/welcome.asp?>, website access April 19, 2011.
- ² Unless otherwise noted, school capacity is based off of *General Plan Technical Background Report* (March 2004).
- ³ Based on assumption that each classroom can hold up to 35 students.
- ⁴ Temescal Valley Elementary School 2009–2010 School Accountability Report Card, March 2011.
- ⁵ El Cerrito Middle School 2009–2010 School Accountability Report Card, March 2011.

¹ Corona-Norco Unified School District, <http://www.cnugd.k12.ca.us>, website accessed April 19, 2011.

Table 4.14.E: Potential Number of Students Generated By Development of the Proposed Specific Plan

Grade Level	Student Generation Rate	Potential Number of Students Generated ¹				
		Phase 1 ²	Phase 2 ³	Phase 3 ⁴	Phase 4 ⁵	Total
Single-Family Dwelling Unit						
Elementary School (K–5)	0.4075 student/unit	—	—	36	—	336
Middle School (6–8)	0.1094 student/unit	—	—	10	—	10
High School (9–12)	0.2092 student/unit	—	—	18	—	18
Single-Family Attached Dwelling Unit						
Elementary School (K–5)	0.0892 student/unit	28	—	13	—	41
Middle School (6–8)	0.0478 student/unit	15	—	7	—	22
High School (9–12)	0.0892 student/unit	28	—	13	—	41
Multiple-Family Dwelling Unit						
Elementary School (K–5)	0.4374 student/unit	261	—	—	208	469
Middle School (6–8)	0.1386 student/unit	83	—	—	66	149
High School (9–12)	0.1600 student/unit	96	—	—	76	172
Total		511	—	97	350	958

¹ Based on the assumption that all units are occupied by new residents to the City, that no multiple-family units are senior living units, that the high-density residential units are all multiple-family units, all medium-density residential units are single-family attached units (e.g., townhomes and duplexes), and that all low-density residential units are single-family detached units.

² Phase 1 includes a total of 907 dwelling units (310 Medium-Density Units, 597 High-Density Units).

³ Phase 2 would only develop general commercial uses; no residential units would be built in this phase.

⁴ Phase 3 includes a total of 239 dwelling units (88 Low-Density Units, 151 Medium-Density Units).

⁵ Phase 4 includes a total of 475 dwelling units (475 High-Density Units).

Sources: Email correspondence with Nancy Baker, Facilities Supervisor, Corona-Norco USD, April 20, 2011.

Unlike residential development where it is possible to ascertain impacts to a particular school or school district, because employees at commercial uses and institutional uses¹ could reside in any number of school districts with their children attending a collection of schools, it is difficult to determine with any level of certainty what the potential impacts to a particular school or school district would be. If commercial and institutional uses are developed within the Specific Plan area, it is anticipated that the majority of employees from these land uses already reside in the local area. Therefore, the children of these employees are already enrolled in local schools and increases in the local student population and the corresponding effects on school services and facilities are anticipated to be minimal.

Based on the identified student generation rates and assuming that all units were occupied by new residents and are not designated for senior uses, development of the proposed Specific Plan could generate up to 546 new elementary students, 181 new middle school students, and 231 new high school students. These 958 new K–12 students would attend Temescal Valley Elementary School, Citrus Hill Intermediate School, El Cerrito Middle School, Centennial High School, and Santiago High School. As indicated in Table 4.14.D, the majority of the schools that would serve the Specific Plan area are currently operating at above capacity to support additional students. However, it is anticipated that additional portable classrooms as well as future school facilities would be added by

¹ An institutional land use typically provides for a range of activities related to human development and community services. Institutional land uses can consist of public and private educational facilities, daycare centers, nursery schools, community services (e.g., civic and government facilities, fire and emergency services, law enforcement, health facilities, and community service organizations), public utility or communications services, and religious facilities.

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CNUSD to ensure that adequate classroom space is provided for students within the CNUSD. The construction of new school facilities in the future would require appropriate environmental review under CEQA.

In addition, CNUSD currently assesses a fee for construction projects within its boundaries. These fees are used within the CNUSD to finance school facilities that are needed as a result of new development projects. The CNUSD currently charges new residential development \$4.13 per assessed square foot, \$2.97 per assessed square foot for residential additions, \$0.47 per assessed square foot for new commercial/industrial development, and \$0.47 for new senior housing development.¹ In the event that CNUSD changes development fees in the future, development occurring within the Specific Plan area would still be required to pay such fees.

Per California Government Code (§ 65995[h]), “The payment or satisfaction of a fee, charge, or other requirement levied or imposed ... are hereby deemed to be full and complete mitigation of the impacts ... on the provision of adequate school facilities.” Since school fees are uniformly applied to all development in the City and are required to be paid prior to project development, the payment of such fees would ensure that no significant impact on existing school facilities would occur. Because the payment of required school fees provides “full and complete” mitigation for school-related impacts, no additional measures are required.

4.14.5.4 Parks and Recreational Facilities

Threshold	Would the proposed project result in substantial adverse physical impacts associated with the provision of or need for new or physically altered park facilities?
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Park and recreational facilities as they pertain to the proposed Specific Plan are analyzed in Chapter 4.15 (Recreation and Parks) of this EIR.

4.14.6 Significant Impacts

All potential public services impacts have been determined to be less than significant. Therefore, no significant impacts associated with public services would occur.

4.14.7 Cumulative Impacts

The cumulative areas for police and fire protection services are the service areas for the CFD and CPD. The need for the public services and associated facilities is measured by service area population, or the number of residents and workers within the City’s service area. Service population, as well as the type and density of development, determines the need for new or expanded police and services. Utilizing statistical information, local planning policies, and by interacting with other agencies, fire and police service providers can delineate past patterns, emerging trends, and future issues of concern. Once identified, service providers can redeploy resources to meet future needs.

As additional development occurs in the City of Corona and region, there may be an overall increase in the demand for law enforcement and fire protection services, including personnel, equipment, and/or facilities. Increases in demand are routinely assessed by these agencies as part of the annual monitoring and budgeting process. New development within the service areas of the CFD and CPD would be required to adhere to conditions established by fire and police service providers, and pay

¹ *Developer Fees*, Corona-Norco Unified School District, <http://www.cnusd.k12.ca.us/page/333>, website accessed January 11, 2012.

the applicable fees to ensure adequate staffing and equipment levels. Therefore, the cumulative impact on police and fire services in the City would be less than significant.

The cumulative area for school-related issues encompasses the area of the school district (CNUSD) that would provide school services/facilities in the project area. The proposed project in addition to future cumulative development (especially residential development) forecast in the City's General Plan would increase the demand for school facilities and services. However, new school facilities would be constructed as needed to accommodate the growth in the local student population. Additionally, school districts are engaged in planning new facilities in anticipation of future local and regional growth. Each district requires the payment of development fees to provide for new school services and/or facilities. As every new development is mandated to provide the fees applicable to the school district affected, the cumulative impact on school services in the City and region would be less than significant.

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4.15 RECREATION AND PARKS

This chapter of the EIR analyzes the impact of the proposed Specific Plan on existing local and regional recreational services or the need to construct or expand additional recreational facilities due to the implementation of the proposed project. This section is based in part on the following reference document, which is incorporated by reference:

- *City of Corona General Plan*, City of Corona; adopted March 17, 2004.

4.15.1 Existing Setting

The City's Department of Parks and Community Services provides community services and recreational and leisure time opportunities and is separated into two divisions: Parks and Community Services. The Parks Division is responsible for the planning, development, and maintenance of the City's parks and recreation facilities. Additionally, it administers the Urban Forestry Landscape Management, and Airport Administration Programs. The Community Services Division is responsible for the Youth and Family Services and Community Services Programs. It manages adult and youth sports, classes, special events, childcare, after-school programs, summer programs and aquatic programs, community classes, community involvement programs, senior recreation programs, and reservations for ball fields, picnics, and facilities.

4.15.1.1 City of Corona Local Parks

The City's parklands include a variety of park types and uses ranging in size from mini-parks such as Contreras Park (0.3 acre) to Butterfield Park (64.0 acres). The City's park types and uses are described below:

- **Mini Parks:** Special park facilities of less than 2 acres; often consist of vista points, greenbelts, rest areas, or picnic areas. Currently, four parks are categorized as mini parks.
- **Neighborhood Parks:** Parks in this category typically include passive or active recreational activity areas with fields, courts, and/or picnic areas. These parks vary in size from about 5 to 20 acres and can serve a population up to 5,000. The majority of Corona's parklands are neighborhood parks.
- **Community Parks:** These parks are 20 to 50 acres, serve several neighborhoods, and can include both passive and active recreation facilities. Community Parks in Corona include Santana Park, Promenade Park, and Citrus Park.
- **Regional Parks:** These parks are 50 to 100 acres and are also included in the City's classification of parklands. Major parks often include active recreation facilities and serve a greater proportion of the population than community parks. Butterfield Park is the City's only major park.

The City's Parks and Community Services Department is responsible for developing the department's Five-Year Capital Improvement Program, implementing all park and Community Development Block Grant (CDBG) projects, and managing the design and construction elements of open space and trail space development.

The City's General Plan designates open space uses within the City as either Open Space/General, or Open Space/Recreation, or Park. As of 2002, the City had approximately 1,894 acres of Passive Open Space uses designated (which includes golf courses, natural hiking areas, etc.).¹ As identified

¹ *City of Corona General Plan*, City of Corona, March 2004.

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in the City’s General Plan Final EIR,¹ the designation of additional open space uses under the General Plan would occur in the western portion of the City, south of Green River Road, while recreational open space land uses would occur in the southeastern portion of the City, south of Cajalco Road. Table 4.15.A summarizes the acreages and features of recreational facilities within the City.

Table 4.15.A: City Recreation Facilities

Name	Address	Acreage	Amenities
Regional and Community Parks			
Butterfield Park	1886 Butterfield Stage Drive	64.0	Softball Field, Soccer Field, Jogging Course, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms Drinking Fountains, Concessions, Open Grass Area, Dog Park
Citrus Community Park	1250 Santana Way	20.0	Softball Field, Soccer Field, Playground Equipment, Picnic Area, Restrooms, Splash Pad, Open Grass Area
City Park	930 East 6 th Street	17.0	Volleyball Court, Soccer Field, Basketball Court, Swimming Pool, Horseshoe Pit, Skate Facility, Bandshell, Playground Equipment, Picnic Area, Restrooms, Open Grass Area
Eagle Glen Community Park	4190 Bennett Avenue	13.0	Softball Field, Tennis Court, Soccer Field, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Open Grass Area
Mountain Gate Community Park	3100 South Main Street	21.0	Softball Field, Tennis Court, Basketball Court, Jogging Course, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restroom, Drinking Fountains, Bicycle Racks
Promenade Park	615 Richey Street	20.0	Softball Field, Basketball Court, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Drinking Fountains
Santana Regional Park	598 Santana Way	45.0	Softball Field, Tennis Court, Soccer Field, Restrooms, Drinking Fountains
El Cerrito Sports Complex	Intersection of I-15 and El Cerrito Road	26.0	Soccer Fields, Softball Fields, Playground Equipment, Tennis Courts, Basketball Courts, Covered Shelter, Picnic Area, Restrooms, Drinking Fountains, Snack Bars
Major and Community Parks Total Acreage		226	
Mini and Neighborhood Parks			
Auburndale Park	1045 Auburndale Street	2.0	Tennis Court, Basketball Court, Swimming Pool, Barbeque, Covered Shelter, Picnic Area, Restrooms
Border Park	2400 Border Avenue	2.5	Tennis Court, Volleyball Court, Barbeque, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains
Brentwood Park	1646 Dawnridge Drive	13.0	Softball Field, Volleyball Court, Basketball Court, Jogging Course, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Rack

¹ City of Corona General Plan Final Environmental Impact Report, City of Corona, March 2004.

Table 4.15.A: City Recreation Facilities

Name	Address	Acreage	Amenities
Buena Vista Park	2515 Buena Vista Street	10.0	Softball Field, Soccer Field, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountain
Chase Park	1415 East Chase Drive	5.1	Playground, Open Grass Area
Contreras Park	902 Railroad Street	0.3	Basketball Court, Horseshoe Pit, Barbeque, Picnic Area, Drinking Fountain
Cresta Verde Park	640 Collett Avenue	5.4	Softball Field, Basketball Court, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Rack
Fairview Park	1804 Fairview Drive	5.0	Softball Field, Basketball Court, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountain
Griffin Park	2804 Griffin Way	13.0	Open Grass Area
Husted Park	1200 Merrill Street	3.3	Softball Field, Tennis Court, Volleyball Court, Basketball Court, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains
Jameson Park	1155 Valencia Road	13.0	Drinking Fountains
Joy Park	Intersection of Joy Street and East Grand Boulevard	0.3	Barbeque, Picnic Area, Drinking Fountain
Kellogg Park	1635 Kellogg Avenue	3.5	Tennis Court, Horseshoe Pit, Barbeque, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Rack
Lemon Heights Park	Intersection of Lincoln Avenue and Mountain Gate Drive	5.0	Undeveloped park site with Benches, Open Grass Area
Lincoln Park	Intersection of Lincoln Avenue and Citron Street	5.0	Jogging Course, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains
Mangular Park	2200 Mangular Avenue	4.0	Tennis Court, Playground Equipment, Drinking Fountain
Merrill Park	Intersection of 10 th Street and West Grand Boulevard	0.3	Barbeque, Picnic Area
Ontario Park	Intersection of Ontario Avenue and Via Pacifica	5.0	Softball Field, Basketball Court, Jogging Course, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restroom, Drinking Fountain, Bicycle Rack
Parkview Park	2094 Parkview Drive	6.3	Softball Field, Barbeque, Picnic Area, Drinking Fountain
Ridgeline Park	2850 Ridgeline Drive	5.0	Softball Field, Barbeque, Covered Shelter, Picnic Area, Restrooms, Drinking Fountains
Rimpau Park	1156 East Ontario Avenue	4.2	Picnic Area, Barbeque, Covered Shelter, Playground, Restrooms, Open Grass Area
River Road Park	1100 West River Road	5.0	Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Rack
Rock Vista Park	2481 Steven Drive	6.0	Softball Field, Soccer Field, Drinking Fountain

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Table 4.15.A: City Recreation Facilities

Name	Address	Acreage	Amenities
Serfas Club Park	2575 Green River Road	5.0	Softball Field, Basketball Court, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains
Sheridan Park	300 South Sheridan Street	3.0	Softball Field, Basketball Court, Horseshoe Pit, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains
Spyglass Park	790 Spyglass Drive	5.0	Restrooms
Stagecoach Park	2125 Stagecoach Road	11.9	Playground Equipment
Tehachapi Park	Intersection of Tehachapi Drive and St. Helena Drive	4.0	Basketball Court, Barbeque, Covered Shelter, Playground Equipment, Picnic Area
Victoria Park	312 9 th Street	2.5	Barbeque, Playground Equipment, Picnic Area, Restrooms, Drinking Fountain, Bicycle Rack
Village Park	860 Village Loop Drive	5.0	Softball Field, Barbeque, Playground Equipment, Picnic Area, Restrooms, Telephone, Drinking Fountains
Neighborhood Parks Total Acreage		158.6	
Special-Use Parks			
<i>Fresno Canyon</i>	<i>Intersection of Palisades Drive and Green River Road</i>	<i>5.5</i>	<i>Undeveloped park site</i>
<i>Prado Sports Complex</i>	<i>Location has not been identified</i>	<i>42</i>	<i>Information Not Available</i>
Sage Open Space	Intersection of Sage Avenue and West Ontario Avenue	8.3	Open Area
Special Use Parks Total Acreage		55.8	
Facilities			
Auburndale Recreation Center	1045 Auburndale Street	0.07	Tennis Court, Basketball Court, Swimming Pool, Barbeque, Covered Shelter, Picnic Area, Restrooms
Brentwood Park Center	1646 Dawnridge Drive	0.02	Softball Field, Volleyball Court, Basketball Court, Jogging Course, Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Rack
City Hall Child Care Center	550 South Vicentia Avenue	0.15	Classrooms, Kitchen, Play Area
Civic Center Gym	502 South Vicentia Avenue	6.0	Softball Field, Soccer Field, Basketball Court, Restrooms, Telephone, Drinking Fountains, Bicycle Racks
Corona Municipal Airport	1901 Aviation Drive	96.0	Aviation-related Businesses, Restaurant
Fiesta Bandshell	930 East 6 th Street	0.02	Volleyball Court, Soccer Field, Basketball Court, Swimming Pool, Horseshoe Pit, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Racks
Historic Civic Center Community Room	815 West 6 th Street	0.05	Tables, Chairs, Kitchen
Historic Civic Center Theater	815 West 6 th Street	0.11	Stage, Stationary Seating

Table 4.15.A: City Recreation Facilities

Name	Address	Acreage	Amenities
River Road Community Center	1100 West River Road	0.06	Barbeque, Covered Shelter, Playground Equipment, Picnic Area, Restrooms, Drinking Fountains, Bicycle Rack
Senior Center	921 South Belle Avenue	0.14	Community Rooms, Kitchen
Victoria Park Community Center	312 9 th Street	0.08	Barbeque, Playground Equipment, Picnic Area, Restrooms, Drinking Fountain, Bicycle Rack
Facilities Total Acreage		95.5	

Sources: *City of Corona General Plan Technical Background Report*, City of Corona, March 2004
 City of Corona Parks and Facilities web site, <http://discovercorona.com/index.cfm?section=City%20Departments&page=Parks%20%26%20Comm%20Services&viewpost=2&ContentId=49>, site accessed March 2, 2011, email correspondence with Olivia Sanchez, Assistant to the Parks and Community Services Director, March 23, 2010.

4.15.2 Policies and Regulations

4.15.2.1 State Regulations

Quimby Act (California Government Code 66477). This State policy requires the dedication of land and/or imposes a requirement of fees for park and recreational purposes as a condition of approval of tentative map or parcel map.

4.15.2.2 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that aim to provide for and maintain recreational facilities. Table 4.15.B identifies applicable goals and policies that apply to the proposed project.

Table 4.15.B: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies	Project Consistency
City of Corona General Plan Parks, Schools, and Libraries Element	
Goal 8.2: Provide an appropriate range of active and passive parkland facilities to meet park acreage standards and to meet the recreational needs of Corona's population.	
Policy 8.2.1 Establish and maintain a standard of 4 acres of parkland per 1,000 residents in the City. Specific standards are as follows: 2.0 acres/1,000 for community parks; 2.0 acres/1,000 for (a combination of) neighborhood, major, and special use parkland.	The project would be consistent with this policy as discussed in Section 4.15.5.1.
Policy 8.2.2 Develop, upgrade, and rehabilitate parks to in a manner whereby neighborhood recreational needs are satisfied by neighborhood parks, and that citywide recreational needs are satisfied by community and major parks.	The project is required to adhere to this City policy. The project is consistent with this policy.
Goal 8.3: Increase the amount of parkland inventory within the City of Corona through the planning and development process.	

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Table 4.15.B: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies	Project Consistency
<p>Policy 8.3.1 Require developers of new residential developments of five or more dwelling units to provide on-site recreational or open space amenities and/or a contribute fees for the development citywide public recreation facilities meeting demands generated by the development's resident population. Where there are insufficient lands to provide on-site recreational/open space amenities, the developer will be required to provide the City of Corona with cash-in-lieu that would be used to develop or upgrade nearby recreation facilities and offset user demand.</p>	<p>The project would be consistent with this policy as discussed in Section 4.15.5.1.</p>
<p>Policy 8.3.6 Require a parks and recreation component in Specific Plans for new residential communities that:</p> <ul style="list-style-type: none"> • Identifies park sites in accordance with approved service standards. • Defines park types, design guidelines, landscape standards, and appropriate programming for park facilities based on user demand assessments and community input. • Integrates parks with neighborhood centers and schools • Physically links parkland and facilities through an integrated system of greenspaces, utility corridors, bicycle lanes, and trailways. • Defines programming needs for park sites consistent with the demographic trends in the City of Corona. 	<p>Section 4.3.5 and 4.3.6 of the Specific Plan includes a parks and recreation component, which includes a description of parks that would be included within the Specific Plan area (specifically one 11-acre neighborhood park, one 2-acre special use park, and two 1-acre mini parks). This section also defines park types and amenities that could be developed. The project is consistent with this policy.</p>
<p><i>Goal 8.6: Maximize land availability for parkland and maximize efficiencies for recreation programming through joint/multiple use arrangements.</i></p>	
<p>Policy 8.6.3 Develop passive recreational facilities in natural resource conservation areas, e.g., nature interpretation areas, bird watching, wildlife photography areas, and similar facilities.</p>	<p>The project would be consistent with this policy as discussed in Section 4.15.5.2.</p>
<p><i>Goal 8.7: Create and maintain a parkland system that is identifiable, safe, and accessible to all users.</i></p>	
<p>Policy 8.7.1 Situate Community Parks along major arterials, and site Neighborhood Parks in high visibility areas within the neighborhoods they serve.</p>	<p>The project would be consistent with this policy as discussed in Section 4.15.5.2.</p>
<p>Policy 8.7.2 Design new parks and facilities consistent with modern safety and accessibility design codes and practices. Conduct safety audits and redesign existing parks, where necessary, to maintain a high level of public safety.</p>	<p>The project is required to adhere to this City policy. The project is consistent with this policy.</p>
<p><i>Goal 8.8: Establish and maintain a public trail system that provides residents and visitors with safe, useable, and attractive hiking, cycling and equestrian opportunities.</i></p>	
<p>Policy 8.8.6 Require that trail segments in each development phase of a residential community Specific Plan be developed concurrently with the occupancy of housing of that development.</p>	<p>The project is required to adhere to this City policy. The project is consistent with this policy.</p>
<p><i>Goal 8.9: Ensure that parklands and related recreational facilities are designed, developed, and managed to be compatible with adjacent land uses.</i></p>	

Table 4.15.B: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies	Project Consistency
Policy 8.9.1 Design new parks, and redesign existing parks, where possible to ensure that site activities, buildings, outdoor facilities, nighttime lighting, parking areas, and other elements do not adversely impact adjacent land uses.	The project is required to adhere to this City policy. The project is consistent with this policy.
Policy 8.9.2 Restrict and control evening parkland use so that adjacent residences are not unreasonably and adversely impacted.	The project is required to adhere to this City policy. The project is consistent with this policy.
<i>Goal 8.10: Create and maintain a parkland system that takes into account and respects the features of the natural environment.</i>	
Policy 8.10.1 Maintain open space corridors containing watercourses, riparian habitats, floodplains, wetlands, grasslands and other natural resource areas as integral components of a continuous community parkland system.	The project would be consistent with this policy as discussed in Section 4.15.5.2.
Policy 8.10.2 Provide open space buffer land in areas where development abuts important or ecologically sensitive natural resource areas in order to protect those resources and reduce potential adverse impacts from development.	The project would be consistent with this policy as discussed in Section 4.15.5.2.
Policy 8.10.5 Require that parks be sited, programmed, and developed in an environmentally sensitive manner. Park landscaping should emphasize the use of native and drought-tolerant species. Treated wastewater and water captured and detained on site from rainfall should be used as primary sources of irrigation and on-site water amenity.	The project is required to adhere to this City policy. The project is consistent with this policy.

4.15.3 Methodology

The potential impacts of the proposed project on recreation and park resources were evaluated based on whether implementation of the proposed project could result in increased use of existing recreation and park resources, or whether implementation of the proposed project could necessitate the construction or expansion of recreation and park facilities.

4.15.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts to recreational facilities and resources are based on questions contained in the CEQA Guidelines (2009). The proposed project would result in a significant impact on recreation resources if any of the following occurs:

- The project increases the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; and/or
- The project includes recreational facilities or requires the construction or expansion of recreational facilities that have an adverse physical effect on the environment.

4.15.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.15.5.1 Increased Use of Existing Recreational Facilities

Threshold	Would the project result in increased use of existing neighborhood and regional parks or other recreational facilities where substantial physical deterioration would occur or be accelerated?
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The park ratio established for the City of Corona is 3.5 acres per 1,000 residents, although the ultimate goal is to reach a ratio of 4.0 acres per 1,000 residents.¹ The implementation of the proposed Specific Plan would result in the development of up to 1,621 residential units (or 1,806 units if PA 16 is developed with multi-family residential), 38.0 acres of general commercial land uses, 39.7 acres of mixed land uses (which includes up to 451 mixed-use residential units), 36.6 acres of open space land uses, 15.2 acres of park land, and a system of pedestrian/bike trails through the Specific Plan area. Based on Department of Finance data,² the proposed project would result in an increase in population within the City of up to 5,502 people. This increase in population would result in an increased demand for parks and recreational facilities. Table 4.15.C compares the existing parkland available with and without the implementation of development of Specific Plan.

Table 4.15.C: Specific Plan Park Requirements

	Without Project (Existing)	With Project
Population¹	150,416 people	155,918 people
Parkland Required²	526.5 acres	545.7 acres
Existing Parkland³	2,341.6 acres	2,356.8 acres
Parkland Surplus	Surplus (1,815.1 acres)	Surplus (1,811.1 acres)

Notes:

¹ Table E-5: City/County Population and Housing Estimates, California Department of Finance, January 2010.

² City Parkland Requirement of 3.5 acres of parkland per 1,000 residents.

³ Only includes City parks and open space areas.

Sources:

City of Corona Parks and Community Services Department, <http://www.ci.corona.ca.us>, website accessed March 2, 2011.

Email correspondence with Jason Moquin, Senior Planner, City of Corona Community Development Department, March 24, 2010

As identified in Table 4.15.C, the City currently has a surplus of approximately 1,815 acres of parkland. With the increase in people that would result from the development of the Specific Plan, the City would still have a surplus of parkland and adequate recreation facilities for existing and anticipated residents. Since there would be no deficiency in parkland with the implementation of the Specific Plan, it is anticipated that the increase in population associated with the proposed project would not result in the physical deterioration of existing recreational facilities. Therefore, impacts associated with this issue would be less than significant. No mitigation is required.

¹ City of Corona General Plan, City of Corona, adopted March 17, 2004.

² Table E-5: City/County Population and Housing Estimates, California Department of Finance, http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2001-10/documents/E-5_2010.xls, January 2010.

4.15.5.2 New or Physically Altered Recreation and Park Facilities

Threshold	Would the project result in construction or expansion of recreational facilities that would have an adverse physical effect on the environment?
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If implementation of the Specific Plan occurs on site at the specified density intensity, the development would result in the provision of new recreational opportunities through the preservation of up to 36.6 acres of open space and 15.2 acres of parkland. As previously identified, the development of the project site could potentially result in a population increase of approximately 5,502 people. With the addition of 5,502 people, the potential residential development that could occur on the project site would require 22.0 acres of open space and parkland to meet the City requirement of 3.5 acres per 1,000 residents.

The proposed project would include the construction and provision of four parks totaling 15.2 acres. These parks would include one 11.0-acre active neighborhood park, one 2.1-acre special use park, and two mini parks totaling 2.1 acres (Figure 4.15.1). These four parks would be constructed by the project master developer. The 11.0-acre and 2.1-acre parks would be dedicated to the City of Corona and the two 1.0-acre parks would be owned and maintained by the Master Homeowners Association. All four parks would be available for use by the general public. As illustrated in Figure 4.15.2, it is anticipated that the 11.0-acre active neighborhood park in Planning Area 8 would include but would not be limited to lighted soccer fields, covered picnic and shade structures, barbeque areas, basketball courts, a community swimming pool, restrooms, and off-street parking. The 2.1-acre special use park in Planning Area 12 is designed as a central gathering place and may include but would not be limited to a picnic/gazebo shade structure, outdoor artwork, benches, sitting areas, gardens/landscaping, and sidewalks (Figure 4.15.3). The 1.1-acre park in Planning Area 3 may include but not be limited to benches, sitting areas, landscaping, tot lot, and sidewalks. Similarly, the 1.0-acre park in Planning Area 9 may include benches, sitting areas, and landscaping (Figure 4.15.4). The proposed park design development and layout plans for Planning Areas 3, 8, 9, and 12 shall be designed and approved by the Parks and Community Services Director and Parks and Recreation Commission. In addition to these park facilities, the proposed project would also preserve approximately 36.6 acres of open space land along Bedford Canyon. A continuous pedestrian/bicycle trail will be constructed along the north side of the Bedford Canyon Wash.

The 11.0-acre neighborhood park is planned to be located in the central portion of the Specific Plan area, on the south side of Street “B” and adjacent to Bedford Wash. This central location will be highly visible to the project residents, consistent with Policy is 8.7.1. The proposed project includes 36.6 acres of open space that encompasses the primary wash area as well as the steep cliff areas on its south side. The open space area will provide a permanent buffer between the project and the wash and adjacent cliff area, consistent with Policy is 8.10.2.

The construction of amenities associated with parks and open space within the Specific Plan area are included as part of project site’s development. Therefore, as the environmental effects for the Specific Plan site are included as part of the entire analysis of environmental effects in the EIR the construction or expansion of such areas would not result in an adverse physical effect on the environment beyond those analyzed for the overall development of the project. For these reasons, impacts associated with this issue are considered to be less than significant. No mitigation is required.

4.15.6 Significant Impacts

No significant park and recreation impacts would result from implementation of the proposed project.

4.15.7 Cumulative Impacts

Implementation of the proposed project in combination with cumulative projects in the area would increase use of existing parks and recreation facilities. However, as future residential development is proposed, the City will require developers to provide the appropriate amount of parkland or pay the in-lieu fees, which will contribute to future recreational facilities. Payment of these fees and/or implementation of facilities on a project-by-project basis would offset cumulative parkland impacts by providing funding for new and/or renovated parks equipment and facilities. As such, the cumulative impact of build out associated with the implementation of the proposed project when considered with cumulative projects in the area would be less than significant and no mitigation is required.

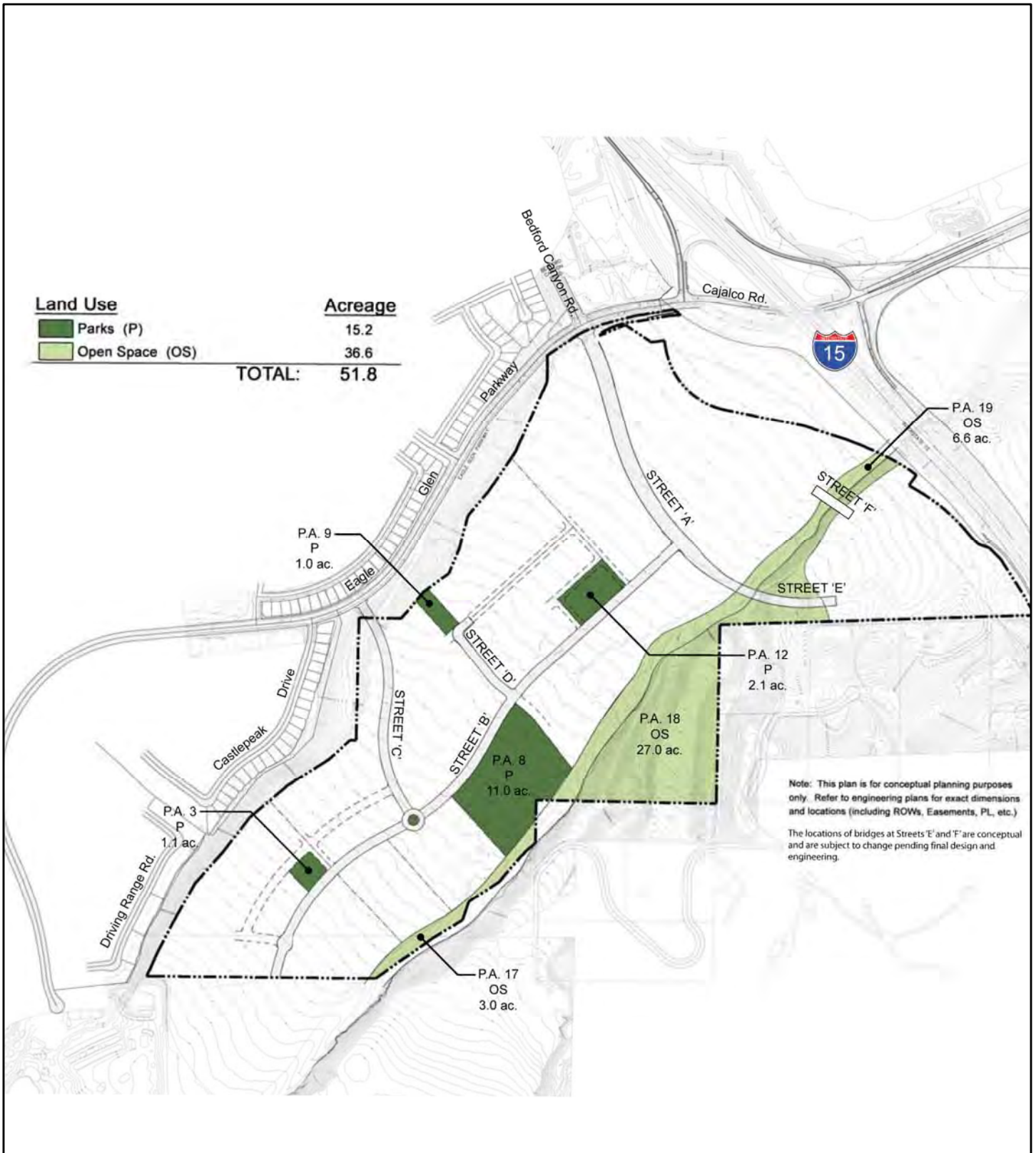
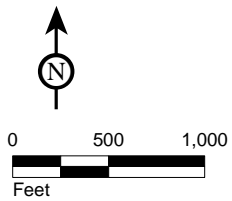


FIGURE 4.15.1

LSA



SOURCE: Arantine Hills Specific Plan, 2011.

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Arantine Hills Specific Plan
Environmental Impact Report

Proposed Parks Within Specific Plan Area

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L S A

FIGURE 4.15.2



NTS

Arantine Hills Specific Plan
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Neighborhood Park Conceptual Plan

SOURCE: Arantine Hills Specific Plan, 2010.

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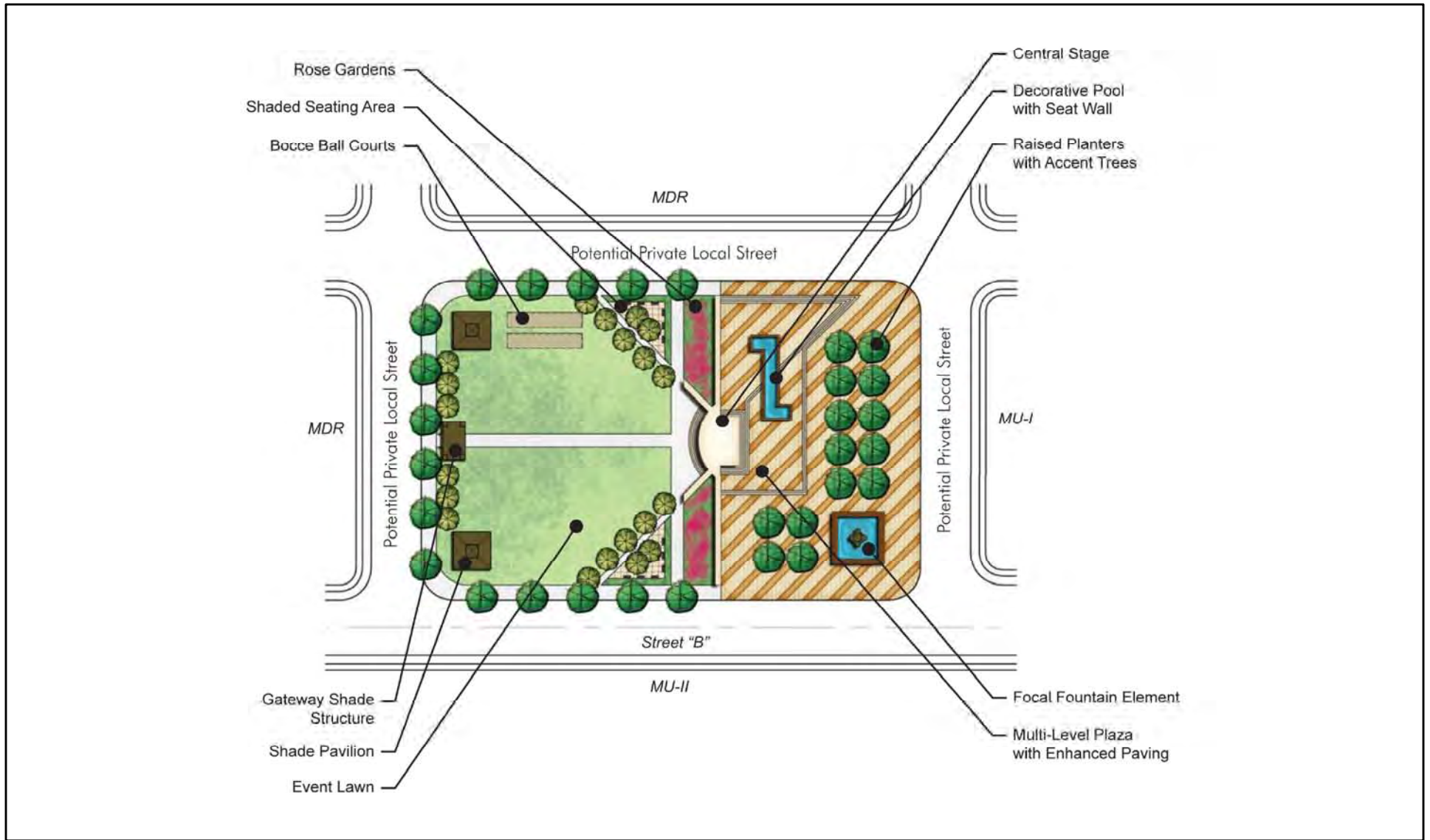


FIGURE 4.15.3

LSA



NTS

Arantine Hills Specific Plan
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Special Use Park Conceptual Plan

SOURCE: Arantine Hills Specific Plan, 2011.

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LSA



NTS

FIGURE 4.15.4

*Arantine Hills Specific Plan
Environmental Impact Report*

Mini Parks Conceptual Plan

SOURCE: Arantine Hills Specific Plan, 2010.

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4.16 TRANSPORTATION AND TRAFFIC

This section analyzes the potential traffic and circulation impacts of the proposed project based on the existing traffic conditions with and without the project as well as year 2014, year 2019, and year 2035 conditions with and without the project. The analysis contained in this section is based on the following technical study prepared for the proposed project:

- *Traffic Impact Analysis, Arantine Hills Specific Plan, Urban Crossroads, August 11, 2011* (Appendix L-1 of this EIR).
- *Arantine Hills Specific Plan Addendum – Existing Plus Project Conditions, Urban Crossroads, July 28, 2011* (Appendix L-2 of this EIR).

In addition to this technical study, the analysis contained in this section is also based on the following reference documents:

- City of Corona General Plan Infrastructure and Public Services Section, adopted March 17, 2004.
- *Corona Bicycle Master Plan, City of Corona, May 31, 2001.*
- *Santa Ana River National Recreational Trail Master Plan, City of Corona, December 2004.*

4.16.1 Existing Setting

4.16.1.1 Traffic Controls and Intersection Geometrics

Existing intersection geometrics and stop controls are illustrated in Figure 4.16.1. The City's existing roadway system classifications are based upon the City of Corona General Plan. As illustrated in Figure 4.16.1, Eagle Glen Parkway and Cajalco Road are currently four-lane divided roadways. El Cerrito Road, Bedford Canyon Road and Masters Drive are two-lane undivided roadways.

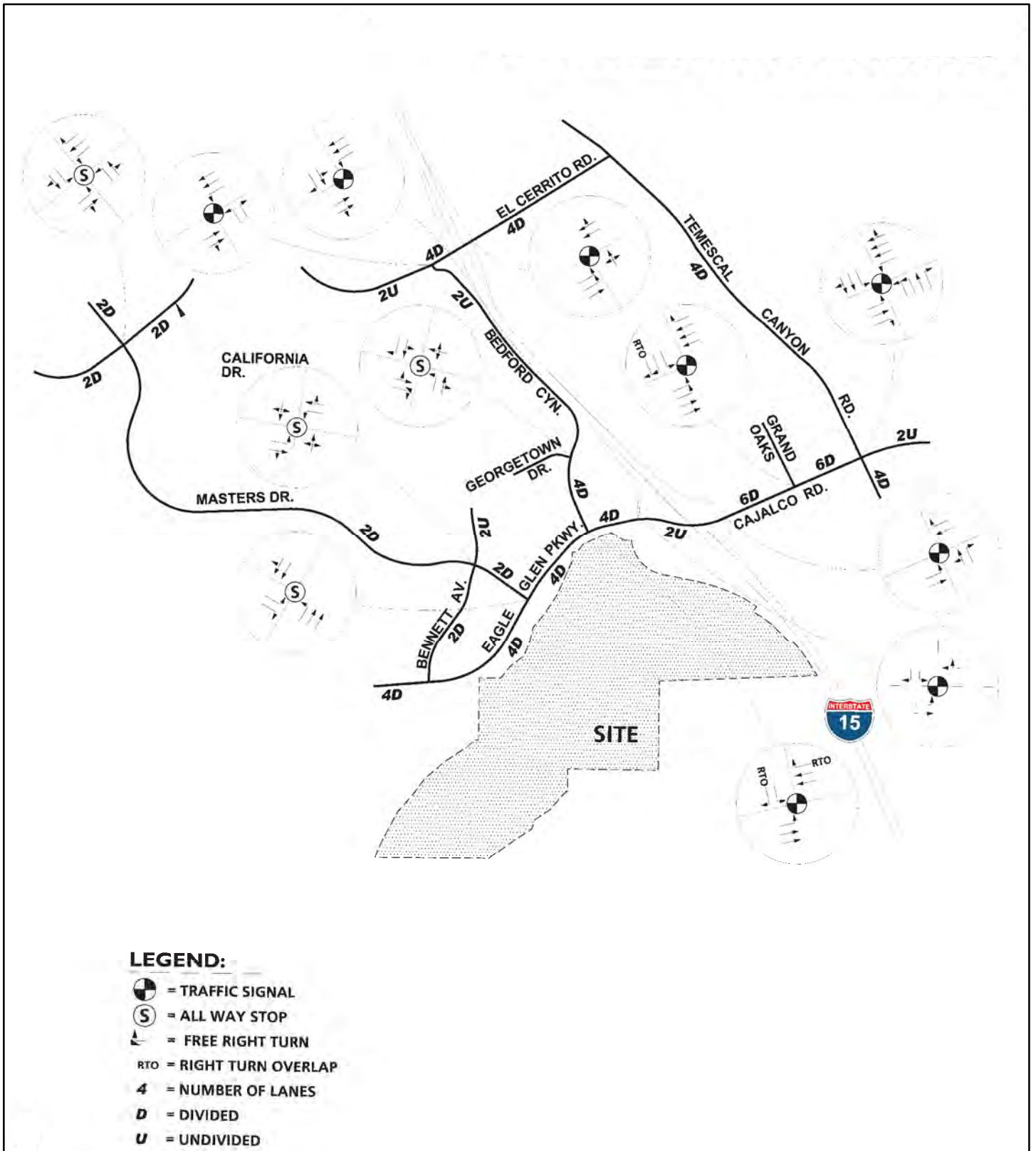
4.16.1.2 Existing Traffic Volumes

Existing traffic volumes at study area intersections were collected by Urban Crossroads in September 2009. Adjustments have been made to the traffic counts in order to achieve conservation of traffic flow on the roadway segment between adjacent intersections. Since it has been three years since the traffic counts were collected, current traffic counts collected in 2011 were compared to the 2009 traffic counts. Since the 2011 counts were found to be lower than the 2009 counts due to reduced vehicular travel arguably caused by the current economic conditions, the 2009 counts were maintained to present a conservative approach for existing baseline traffic conditions. Detailed volume development worksheets are included in the TIA (Appendix L of this EIR).

4.16.1.3 Intersection Levels of Service

Roadway operations and the relationship between capacity and traffic volumes are generally expressed in terms of levels of service (LOS) which are defined using the letter grades A through F. These levels recognize that, while an absolute limit exists as to the amount of traffic traveling through a given intersection (the absolute capacity); the conditions that motorists experience rapidly deteriorate as traffic approaches the absolute capacity. Under such conditions, congestion is experienced. A complete description of the meaning of LOS can be found in the Highway Research Board Special Report 209, *Highway Capacity Manual*. The Manual establishes LOS A through F. Table 4.16.A provides a brief description of the six levels of service.

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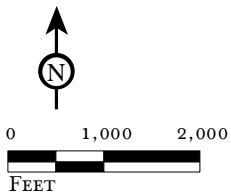


LEGEND:

-  = TRAFFIC SIGNAL
-  = ALL WAY STOP
-  = FREE RIGHT TURN
- RTO = RIGHT TURN OVERLAP
- 4** = NUMBER OF LANES
- D** = DIVIDED
- U** = UNDIVIDED

LSA

FIGURE 4.16.1



SOURCE: Urban Crossroads

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Arantine Hills Specific Plan
Environmental Impact Report

Existing Street Network

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Table 4.16.A: Level of Service Definitions

LOS	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily, and most drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds reduce substantially and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

The TIA assessed 16 existing and future study intersections. The study intersections were selected for analysis as part of a traffic study scoping agreement between the City and the traffic study preparer and were selected for analysis because they represent the intersections at which the project will add 50 peak hour trips or more. With the exception of the freeway on-ramps and off-ramps, which are under the jurisdiction of Caltrans, all intersections assessed in the TIA are under the jurisdiction of the City of Corona. Table 4.16.B provides the existing baseline levels of service of the analyzed intersections.

Table 4.16.B: Existing Baseline Intersection LOS Conditions

Intersection	A.M. Peak Hour	P.M. Peak Hour
Masters Drive/California Drive	F	B
Masters Drive/Bennett Avenue	A	A
Masters Drive/Eagle Glen Parkway	B	B
Bedford Canyon Road/El Cerrito Road	B	B
Bedford Canyon Road/Georgetown Drive	A	A
Bedford Canyon Road/Eagle Glen Parkway	B	C
I-15 Southbound Ramps/El Cerrito Road	C	C
I-15 Southbound Ramps/Cajalco Road	C	D
I-15 Northbound Ramps/El Cerrito Road	D	C
I-15 Northbound Ramps/Cajalco Road	C	C
Grand Oaks/Cajalco Road	B	C
Temescal Canyon Road/Cajalco Road	D	D
Street C/Eagle Glen Parkway	<i>Future intersection</i>	
Street C/ Street B	<i>Future intersection</i>	
Street A/Driveway 1	<i>Future intersection</i>	
Street A/Street B	<i>Future intersection</i>	

Source: Arantine Hills Specific Plan Traffic Impact Analysis (Revised), Urban Crossroads, August 11, 2011.

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As identified in Table 4.16.B, all study area intersection are currently operating at satisfactory levels of service, with the exception of the Masters Drive/California Drive (a.m. peak hour) intersection.

The TIA also identified existing roadway segments within the project area. Table 4.16.C provides the existing baseline roadway link capacities for each of the project area roadway segments.

Table 4.16.C: Existing Baseline Roadway Link Capacity Conditions

Roadway Segment	Existing Roadway Capacity	Existing Baseline Traffic Volumes	Volume/Capacity Ratio	Existing Baseline Average Vehicle Capacity Thresholds
Masters Drive				
North of California Drive	10,000	4,500	0.45	Acceptable
South of California Drive	10,000	7,800	0.78	Acceptable
North of Bennett Avenue	10,000	5,400	0.54	Acceptable
North of Eagle Glen Parkway	10,000	5,900	0.59	Acceptable
Bennett Avenue				
North of Masters Drive	10,000	900	0.09	Acceptable
North of Eagle Glen Parkway	10,000	1,400	0.14	Acceptable
Bedford Canyon Road				
South of El Cerrito Road	10,000	6,000	0.60	Acceptable
North of Georgetown Drive	10,000	5,900	0.59	Acceptable
North of Eagle Glen Parkway	20,000	6,000	0.30	Acceptable
Temescal Canyon Road				
North of Cajalco Road	20,000	10,400	0.52	Acceptable
South of Cajalco Road	20,000	13,000	0.65	Acceptable
California Drive				
West of Masters Drive	10,000	4,100	0.41	Acceptable
East of Masters Drive	10,000	8,300	0.83	Approaching Capacity
El Cerrito Road				
West of Bedford Canyon Road	10,000	19,200	1.92	Exceeds Capacity
East of Bedford Canyon Road	20,000	19,400	0.97	Approaching Capacity
East of I-15 Northbound Ramps	20,000	8,500	0.43	Acceptable
Georgetown Drive				
West of Bedford Canyon Road	10,000	2,200	0.22	Acceptable
Eagle Glen Parkway/Cajalco Road				
West of Masters Drive	20,000	7,700	0.39	Acceptable
West of Bedford Canyon Road	20,000	11,000	0.55	Acceptable
East of Bedford Canyon Road	20,000	17,300	0.87	Approaching Capacity
East of I-15 Southbound Ramps	10,000	18,500	1.85	Exceeds Capacity
East of I-15 Northbound Ramps	50,000	12,300	0.25	Acceptable
East of Grand Oaks	50,000	11,500	0.23	Acceptable
East of Temescal Canyon Road	10,000	10,900	1.09	Potentially Exceeds Capacity

Source: Arantine Hills Specific Plan Traffic Impact Analysis (Revised), Urban Crossroads, August 11, 2011.

As identified in Table 4.16.C, of the total 24 study area roadway segments:

- 18 roadway segments provide acceptable capacity to satisfy daily vehicle traffic demand
- 3 roadway segments being to approach capacity where speed and freedom to maneuver are severely restricted at certain times of the day
- 3 roadway segments potentially exceed capacity or exceed capacity creating potential vehicle delays particularly during the peak hours of traffic.

In addition to assessing existing and future intersections, the TIA also provides a ramp merge and diverge analysis. Table 4.16.D provides the existing baseline levels of service of the analyzed ramps.

Table 4.16.D: Existing Baseline Ramp Merge/Diverge LOS Conditions

Ramp Junction	A.M. Peak Hour	P.M. Peak Hour
Southbound I-15		
El Cerrito Road Off-Ramp	F	F
El Cerrito Road On-Ramp	E	F
Cajalco Road Off-Ramp	E	F
Cajalco Road On-Ramp	E	F
Northbound I-15		
El Cerrito Road On-Ramp	F	D
El Cerrito Road Off-Ramp	F	E
Cajalco Road On-Ramp	F	E
Cajalco Road Off-Ramp	E	E

Source: *Arantine Hills Specific Plan Traffic Impact Analysis (Revised)*, Urban Crossroads, August 11, 2011.

As identified in Table 4.16.D, all of the merging and diverging points are at or exceeding acceptable levels of service based on existing configuration of the roadway networks.

4.16.2 Policies and Regulations

4.16.2.1 City of Corona General Plan Policies

The City of Corona General Plan includes policies and goals that apply to traffic service levels and transportation infrastructure. Table 4.16.E identifies goals and policies that apply to the proposed project.

Table 4.16.E: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies	Project Consistency
City of Corona General Plan Circulation Element	
<p>Goal 6.1 Provide a system of streets that meets the needs of current and future residents and businesses, and facilitates the safe and efficient movement of people and goods throughout the City, while accommodating future growth consistent with the Land Use Element.</p>	The proposed project would be consistent with this policy as identified in Sections 4.16.6.2, 4.16.6.3, and 4.16.6.4.
<p>Goal 6.3 Maximize the efficiency of the circulation system through the use of transportation system management strategies. Reduce total vehicular miles traveled in Corona, including the development and improvement of alternative transportation modes, the reduction in the number of trips generated, and the reduction in trip distances.</p>	The proposed project would be consistent with this policy as identified in Section 4.16.5.4.

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Table 4.16.E: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, Policies		Project Consistency
Policy 6.3.2	Implement intersection capacity improvements where feasible and justified by traffic demands.	The proposed project would be consistent with this policy as identified in Sections 4.16.6.2, 4.16.6.3, and 4.16.6.4.
Goal 6.5	Develop and maintain convenient bikeway and hiking trail systems to satisfy both recreational desires and transportation needs. Coordinate with the Riverside County Plan and the Santa Ana River Trails Plan.	The proposed project would be consistent with this policy as identified in Section 4.16.5.4.
Policy 6.8.1	Require new development to mitigate the traffic and circulation impacts it is creating in accordance with the transportation improvement needs described in this Circulation Element.	The proposed project would be consistent with this policy as identified in Sections 4.16.6.2, 4.16.6.3, and 4.16.6.4.

4.16.3 Methodology

LOS and volumes are discussed below for four different scenarios against which project impacts are compared:

- Existing baseline setting without and with the project;
- Opening year (2014) background without and with the project;
- Future year (2019) background without and with the project; and
- Build out year (2035) background without and with the project.

For each scenario, traffic operations at study intersections are evaluated for the a.m. and p.m. peak hours. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The p.m. peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

4.16.3.1 Development of Traffic Volumes

To account for ambient growth on area roadways, opening year (2014) and future year (2019) traffic volumes have been calculated based on the extrapolation of growth between 2009 conditions and the City of Corona Year 2035 model forecasts. The City of Corona model is based on the Riverside County Transportation Analysis Model (RIVTAM). RIVTAM is a focused traffic model that is consistent with the SCAG Regional Model and includes the entire southern California region (Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties). It includes the greatest level of detail within the primary analysis or study area, with the least detail included in those parts of the model which are geographically distant from the primary study area.

For 2035 conditions, the volumes have been derived from the City of Corona model data provided by the City of Corona staff. The 2035 forecasts have been developed from the traffic model using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between the model base year (2008) conditions, existing baseline conditions and future year 2035. For a regional model such as RIVTAM, the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. The initial estimate of the future 2035 conditions peak hour turning movements have, therefore, been reviewed for reasonableness. The reasonableness checks performed include a review of flow conservation in addition to ensuring

reasonable peak to daily relationships and a minimum growth of 10 percent over existing baseline conditions.

The final 2035 intersection turning volumes were compared to existing baseline intersection turning volumes to determine the annual growth rate, by movement, observed between 2009 and 2035. The annual growth rate estimated for each turning movement was utilized to estimate the compounded growth between existing baseline and the interim years 2014 and 2019. Lastly, 2014 without and with project and 2019 without and with project intersection turning volumes were compared to existing baseline and future 2035 intersection turning volumes to ensure reasonable growth between the analysis scenarios.

4.16.3.2 Trip Generation

Trip generation represents the amount of traffic which is attracted to and produced by a development. The trip generation for the project is based on the specific land uses which have been planned for this development. The trip generation rates identified in the TIA are based on the following documents:

- Institute of Transportation Engineers (ITE) *Trip Generation Manual, 8th Edition*, 2008.
- San Diego Association of Governments (SANDAG) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.
- *Laguna Hills Community Center Park Growth Management/CMP Traffic Analysis*, RKJK and Associates, Inc., 1997.

4.16.3.3 Traffic Signal Warrants

To determine whether “significance” should be associated with unsignalized intersection operations, a supplemental traffic signal warrant analysis has been prepared. The term “signal warrants” refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an otherwise un-signalized intersection. The TIA uses the signal warrant criteria presented in the 2006 edition of the California’s *Manual on Uniform Traffic Control Devices* (MUTCD) for all study area intersections.

The signal warrant criteria for existing conditions are based on several factors including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The California MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, the TIA utilizes the Peak Hour Volume based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Since Warrant 3 provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent streets operating at or above 40 miles per hour), study intersections qualifying for this specialized criteria have been clearly identified on the traffic signal warrant sheet. For purposes of the TIA, the speed limit was the basis of determining whether Urban or Rural warrants were used for a given intersection.

For future traffic conditions, unsignalized intersections and new intersections are assessed regarding the need for new traffic signals based on future average daily traffic (ADT) volumes, using the planning level ADT-based signal warrant analysis worksheets.

4.16.3.4 Level of Service Standards

For all study area intersections, the 2000 *Highway Capacity Manual* (HCM 2000) analysis methodologies were used to determine intersection levels of service. The HCM defines LOS as a

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qualitative measure, which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Levels of service at the signalized study area intersections have been evaluated using a HCM intersection analysis program. The study area intersections that are stop sign controlled with stop control on the minor street only have been analyzed using the HCM’s unsignalized intersection methodology. For these intersections, the calculation of LOS is dependent on the frequency and size of gaps occurring in the traffic flow of the main street. The LOS criteria for this type of intersection analysis is based on average total delay per vehicle for the worst minor street movement. For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the flow of the main street. The AWS controlled intersections have been evaluated using the HCM methodology for this type of multi-way stop controlled intersection configuration. The LOS criteria for this type of intersection analysis is also based on average total delay per vehicle for the overall intersection. Table 4.16.F identifies the level of service criteria for unsignalized and signalized intersections.

Table 4.16.F: Level of Service Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	0 to 10.00	0 to 10.00
B	10.01 to 15.00	10.01 to 20.00
C	15.01 to 25.00	20.01 to 35.00
D	25.01 to 35.00	35.01 to 55.00
E	35.01 to 50.00	55.01 to 80.00
F	50.01 and up	80.01 and up

The study area intersections fall under the jurisdictions of the City of Corona and Caltrans. The TIA provides the mitigation measures needed to satisfy the minimum level of service thresholds defined by the City of Corona. Caltrans considers acceptable level of service to be between C and D for all intersections under its jurisdiction. However, it should be noted that Caltrans acknowledges that maintaining these levels of service thresholds may not always be feasible and recommends the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing facility is operating at less than appropriate target LOS, the existing LOS should be maintained.

4.16.4 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, traffic and transportation impacts would occur if the proposed project would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; and/or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

In addition to CEQA Guideline thresholds, in accordance with the City of Corona General Plan, the following intersection LOS thresholds would apply to the proposed project:

- LOS C or better shall be maintained for local intersections in residential/industrial areas;
- LOS D or better shall be maintained on collector and arterial intersections; and
- LOS E will be permitted for the following intersections:
 - Lincoln Avenue at SR-91;
 - Main Street at SR-91;
 - McKinley Avenue at SR-91;
 - Hidden Valley Parkway at I-15;
 - Cajalco Road at I-15; and
 - Weirick Road at I-15.

Table 4.16.G provides the intersection LOS threshold for each of the study area intersections based on the above City of Corona thresholds.

Table 4.16.G: Study Area Intersection Level of Service Thresholds

Intersection	Intersection Level of Service Thresholds
Masters Drive/California Drive	C
Masters Drive/Bennett Avenue	C
Masters Drive/Eagle Glen Parkway	D
Bedford Canyon Road/El Cerrito Road	D
Bedford Canyon Road/Georgetown Drive	C
Bedford Canyon Road/Eagle Glen Parkway	D
I-15 Southbound Ramps/El Cerrito Road	D
I-15 Southbound Ramps/Cajalco Road	E
I-15 Northbound Ramps/El Cerrito Road	D
I-15 Northbound Ramps/Cajalco Road	E
Grand Oaks/Cajalco Road	D
Temescal Canyon Road/Cajalco Road	D
Street C/Eagle Glen Parkway	D
Street C/ Street B	D
Street A/Driveway 1	D
Street A/Street B	D

Source: *Arantine Hills Specific Plan Traffic Impact Analysis (Revised)*, Urban Crossroads, August 11, 2011.

4.16.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. For each of the following issues either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.16.5.1 Air Traffic Patterns

Threshold	Would the proposed project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
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The project is located approximately 6.5 miles southeast of the Corona Municipal Airport. The project is not located within any airport influence area for the Corona Municipal Airport or any other airport in the vicinity. Additionally, the proposed project does not include any structure or feature that would alter air traffic pattern or the level of air traffic at the Corona Municipal Airport. No significant air safety impact would occur and no mitigation measures would be required.

4.16.5.2 Design Hazard Features

Threshold	Would the proposed project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
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The proposed project will have two access points on Eagle Glen Parkway, Street A and Street C. The Street A access will be the southerly extension of Bedford Canyon Road and the new south leg of the intersection of Bedford Canyon Road at Eagle Glen Parkway. The Street C extension will intersect Eagle Glen Parkway to form a new T intersection west of Masters Drive.

The design of roadways must provide adequate sight distance and traffic control measures in accordance with the City's standard plans for the design of public streets. This provision is normally realized through roadway design to facilitate roadway traffic flows. Roadway improvements in and around the project site would be designed and constructed to satisfy all City and Caltrans requirements for street widths, corner radii, intersection control as well as incorporate design standards tailored specifically to project access requirements. Adherence to applicable City requirements would ensure the proposed project would not include any sharp curves or dangerous intersections, resulting in a less than significant impact associated with a design hazard.

Temporary impacts associated with the construction of infrastructure improvements included as a part this project may temporarily restrict vehicular traffic or cause temporary hazards. The construction of infrastructure would coincide with roadway improvements, which would include road or lane closures as well as the presence of construction workers and equipment on public roads. Construction operations would be required to implement adequate measures to facilitate the passage of people and vehicles through/around any required road or lane closures. Site-specific activities, such as temporary construction activities, are finalized on a project-by-project basis by the City and are required to ensure adequate traffic flow as part of a construction traffic management plan. At the time of approval of any site-specific plans required for the construction of infrastructure as a part of typical conditions of approval, the project would be required to implement measures in the construction traffic management plan that would maintain traffic flow and access. In the absence of any design hazard through adherence with the City standards and procedures stated above, a less than significant impact would occur; therefore, no mitigation is required.

4.16.5.3 Emergency Access

Threshold	Would the proposed project result in inadequate emergency access?
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Construction activities that may temporarily restrict vehicular traffic would be required to implement adequate measures to facilitate the passage of people and vehicles through/around any required road closures. Site-specific activities such as temporary construction activities are finalized on a project-by-project basis by the City and are required to insure adequate emergency access.

The roadway improvements that will take place as a part of this project will improve the traffic circulation in the area. This will improve the ability of emergency vehicles to access the project as well as the surrounding properties. During the operational phase of the proposed project, on-site access would be required to comply with standards established by the City Public Works Department. The size and location of fire suppression facilities (e.g., hydrants) and fire access routes would be required to conform to Fire Department standards. As required of all development in the City, the operation of the proposed project would conform to applicable Uniform Fire Code standards. The submittal of such plans would be considered a condition of approval, which would be part of the permitting process initiated by the applicant and approved by the City in accordance with City standards. As with any development, access to and through the project would be required to comply with the required street widths, as determined in the California Building Code (CBC), Master Plan of Streets, and the Uniform Fire Code. Therefore, implementation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and no mitigation is required.

4.16.5.4 Alternative Transportation Policies, Plans and Programs

Threshold	Would the proposed project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?
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Eagle Glen Parkway adjacent to the project site is currently not served by the Riverside Transit Agency (RTA) or the Corona Cruisers bus services. However, Temescal Canyon Road north of the Cajalco Road is currently served by the Corona Cruiser Red Line.

The proposed project would result in the development of new residential and employment opportunities. The project will be conditioned to provide sidewalks and landscaping treatments to allow for pedestrian access throughout the site. In addition, the project includes Class 2 bike lanes that will allow bicycle traffic movement through the project. The Class 2 bike lanes are provided along the Modified Secondary Arterial and Collector Streets.

The design of the proposed project would be required to adhere to applicable City of Corona standards that support and/or facilitate alternative modes of transportation. Through the City's project review process, policies, plans, and/or programs supporting alternative transportation would be reviewed and incorporated as applicable. Consequently, a less than significant impact would occur as a result of the proposed project and no mitigation is required.

4.16.6 Significant Impacts

The following impacts were determined to be potentially significant. For each of the following issues, mitigation measures have been recommended to reduce the significance of the identified impacts.

4.16.6.1 Existing Baseline Intersection LOS

Impact 4.16.6.1. *The approval of the land use changes as proposed as a part of the project may result in study area intersections operating at an unsatisfactory level of service during the existing baseline scenario.*

Threshold	<p>Would the proposed project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?</p> <p>Would the proposed project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?</p>
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Although not required by the City’s traffic impact analysis guidelines, for purposes of full disclosure and in an effort to satisfy the CEQA Guideline section 15125(a), an analysis of existing traffic volumes plus traffic generated by the proposed project has been assessed. The reason this particular analysis scenario is provided for informational purposes only, and why most traffic impact study guidelines published by local jurisdictions throughout California do not typically require analysis of the “existing plus project” scenario is that it rarely materializes as an actual scenario in the real world. The time period between the date a Notice of Preparation is issued and the date project build out occurs can often be a period of several years or more. During this time period, other projects are being constructed, the transportation network is evolving and traffic patterns are changing. Therefore, the “existing plus project” scenario never materializes in real world conditions and thus does not accurately describe the environment that exists when a particular project is constructed and becomes operational.

In addition, unlike other areas of CEQA inquiry, such as the construction of a building where none currently exists, which in the context of a habitat corridor, there is true utility to performing an “existing plus project” analysis. However, in the context of traffic impacts that are derivative of a development project, traffic is virtually always a cumulative issue. By their very nature, traffic impacts are very fluid and are influenced by other growth and projects that are occurring throughout the transportation network. In other words, because normal increases in traffic occur over time, background traffic levels that occur at the time the project is actually constructed are a more accurate representation of the existing baseline against which to measure the true impacts of a proposed project. Nevertheless, level of service calculations for study intersections and the freeway mainline were conducted to evaluate their operations under hypothetical existing plus project traffic conditions for build out of the proposed project.

As previously noted, this scenario is presented for informational purposes only. Consistent with the City of Corona traffic study guidelines, direct and cumulative traffic impacts were assessed in the project TIA through the evaluation of opening year (2014), future year (2019), and build out year (2035) without and with project traffic conditions. For the purposes of this evaluation, intersections found to operate below the City’s requisite LOS thresholds for existing plus project traffic conditions have been noted, and improvements to address the deficient intersections have been identified based on the following criteria:

- If an intersection is projected to operate at an acceptable LOS under existing baseline traffic conditions and the addition of project traffic is expected to cause the intersection to operate at

an unacceptable LOS, then intersection improvements have been recommended to achieve the intersection’s LOS standard.

- If an intersection is projected to operate at an unacceptable LOS under existing baseline traffic conditions and the project contributes to the continued deficient peak hour intersection operations, then improvements have been recommended to achieve “pre-project” (existing) LOS.

The subsequent development that could occur on the project site would contribute trips to study area intersections that are currently experiencing or will experience unsatisfactory levels of service during the existing baseline scenario. LOS for the study area intersections under the existing baseline without and with development scenarios is provided in Table 4.16.H.

Table 4.16.H: Existing Baseline Intersection LOS Conditions With and Without Project Development

Intersection	Without Project		With Project	
	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	F	B
Masters Drive/Bennett Avenue	A	A	B	B
Masters Drive/Eagle Glen Parkway	B	B	D	F
Bedford Canyon Road/El Cerrito Road	B	B	B	C
Bedford Canyon Road/Georgetown Drive	A	A	A	B
Bedford Canyon Road/Eagle Glen Parkway	B	C	*	*
I-15 Southbound Ramps/El Cerrito Road	C	C	C	C
I-15 Southbound Ramps/Cajalco Road	C	D	F	F
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C
I-15 Northbound Ramps/Cajalco Road	C	C	F	F
Grand Oaks/Cajalco Road	B	C	B	C
Temescal Canyon Road/Cajalco Road	D	D	D	D

Source: *Arantine Hills Specific Plan Addendum – Existing Plus Project Conditions*, Urban Crossroads, July 28, 2011.

* The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal.

As identified in Table 4.16.H, under existing baseline without project conditions, the Masters Drive/California Drive intersection is projected to operate at LOS F in the a.m. peak hour. As indicated in Table 4.16.H, the following study area intersections are projected to operate at unsatisfactory levels of service for the project site under existing baseline with project conditions:

- *Masters Drive/California Drive*: This intersection is projected to operate at LOS F during the a.m. peak hour under existing baseline (without project) conditions. The addition of project related traffic would contribute to this unsatisfactory condition.
- *Masters Drive/Eagle Glen Parkway*: Under existing baseline (without project) conditions, this intersection will operate satisfactorily at LOS B during the a.m. and p.m. peak hours. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the p.m. peak hour. This is a significant impact requiring mitigation.
- *Bedford Canyon Road/Eagle Glen Parkway*: Under existing baseline (without project) conditions, this intersection will operate at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour. The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal. This is a significant impact requiring mitigation.

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- *I-15 Southbound Ramps/Cajalco Road:* Under existing baseline (without project) conditions, this intersection will operate satisfactorily at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during both the a.m. and p.m. peak hour. This is a significant impact requiring mitigation.
- *I-15 Northbound Ramps/Cajalco Road:* Under existing baseline (without project) conditions, this intersection will operate satisfactorily at LOS C during the a.m. peak and p.m. peak hours. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during both the a.m. and p.m. peak hour. This is a significant impact requiring mitigation.

In addition to assessing existing and future intersections, the TIA also provides a ramp merge and diverge analysis for existing baseline. Table 4.16.I provides the existing baseline levels of service of the analyzed ramps.

Table 4.16.I: Existing Baseline Ramp Merge/Diverge LOS Conditions With and Without Project Development

Ramp Junction	Without Project				With Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Southbound I-15								
El Cerrito Road Off-Ramp	28.6	F	32.2	F	27.0	C	32.9	F
El Cerrito Road On-Ramp	40.2	E	47.3	F	42.8	E	56.0	F
Cajalco Road Off-Ramp	40.2	E	47.3	F	42.8	E	56.0	F
Cajalco Road On-Ramp	35.4	E	40.2	F	34.0	D	38.3	F
Northbound I-15								
El Cerrito Road On-Ramp	40.1	F	33.6	D	36.9	F	34.4	D
El Cerrito Road Off-Ramp	43.1	F	36.4	E	39.0	E	37.7	E
Cajalco Road On-Ramp	40.2	F	35.0	E	39.1	E	38.6	E
Cajalco Road Off-Ramp	35.9	E	35.4	E	33.1	D	35.4	E

Source: *Arantine Hills Specific Plan Addendum – Existing Plus Project Conditions*, Urban Crossroads, July 28, 2011.

As identified in Table 4.16.I, the addition of project-related traffic results in the I-15 Southbound off-ramp at El Cerrito Road diverge would result in a LOS “F” during the P.M. peak hour for the existing plus project scenario compared to LOS “C” operations without the project. All other merging and diverging points were found to operate at the same LOS as reported for existing baseline without project conditions.

Mitigation Measures. Under existing baseline, up to five study area intersections will not meet the relevant jurisdiction’s minimum LOS standard under existing roadway geometrics.

4.16.6.1A The following modifications to intersection configurations for existing baseline plus project are recommended to improve levels of service in accordance with City requirements:

- **Masters Drive/California Drive:** Install a traffic signal.
- **Masters Drive/ Eagle Glen Parkway:** Install a traffic signal.
- **Bedford Canyon Road/Eagle Glen Parkway:** Add a northbound left-turn lane, a northbound through lane, two northbound right turn lanes with northbound right-turn overlap phasing, a second southbound left-turn lane, a southbound through lane, an eastbound through lane, and two westbound left-turn lanes.
- **I-15 Southbound Ramps/Cajalco Road:** Add a second southbound left-turn lane, a second southbound right-turn lane, a second eastbound left-turn lane, a second eastbound through lane, and a westbound right-turn lane.
- **I-15 Northbound Ramps/Cajalco Road:** Add a second eastbound left-turn lane.

Level of Significance After Mitigation. As identified in Table 4.16.J, with implementation of the identified mitigation (**Mitigation Measure 4.16.6.1A**), intersection LOS at affected TIA area intersections will not exceed established City performance standards and impacts would be rendered less than significant.

Table 4.16.J: Existing Baseline Intersection LOS Conditions with Project Mitigation

Intersection	Without Project		With Project			
			Without Mitigation		With Mitigation	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	F	B	B	B
Masters Drive/Bennett Avenue	A	A	B	B	Not applicable	
Masters Drive/Eagle Glen Parkway	B	B	D	F	B	C
Bedford Canyon Road/El Cerrito Road	B	B	B	C	Not applicable	
Bedford Canyon Road/Georgetown Drive	A	A	A	B	Not applicable	
Bedford Canyon Road/Eagle Glen Parkway	B	C	—	—	C	D
I-15 Southbound Ramps/El Cerrito Road	C	C	C	C	Not applicable	
I-15 Southbound Ramps/Cajalco Road	C	D	F	F	B	D
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C	Not applicable	
I-15 Northbound Ramps/Cajalco Road	C	D	F	F	C	D
Grand Oaks/Cajalco Road	B	C	B	D	Not applicable	
Temescal Canyon Road/Cajalco Road	D	D	D	D	Not applicable	

Source: *Arantine Hills Specific Plan Addendum – Existing Plus Project Conditions*, Urban Crossroads, July 28, 2011.

4.16.6.2 Opening Year (2014) Intersection LOS

Impact 4.16.6.2. *The approval of the land use changes as proposed as a part of the project may result in study area intersections operating at an unsatisfactory level of service during the opening year (2014) scenario.*

Threshold	Would the proposed project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system,
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taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Would the proposed project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

As identified in the TIA prepared for the proposed project and illustrated in Figure 3.11 (Roadway and Traffic Signal Phasing in Section 3 of this EIR), the Arantine Hills Specific Plan is anticipated to be built in four phases. Phases 1 and 2 of the project, anticipated to be completed by 2014, consist of the following land uses:

- 310 single-family detached dwelling units;
- 597 multifamily attached dwelling units;
- 1 acre of passive park;
- 13.1 acres of active park;
- 59,000 square feet of general office use;
- 230,900 square feet of business park use; and
- 59,000 square feet of general retail use.

As identified in the TIA, potential development that could occur on the project site by opening year 2014 could generate up to 971 a.m. peak hour trips, 1,128 p.m. peak hour trips, and 11,721 daily trips. The subsequent development that could occur on the project site would contribute trips to study area intersections and roadway segments that are currently experiencing or will experience unsatisfactory levels of service during the opening year (2014) scenario. The opening year (2014) LOS without and with the development of the project for study area intersections is provided in Table 4.16.K.

Table 4.16.K: Year 2014 Intersection LOS Conditions With and Without Project Development

Intersection	Without Project		With Project	
	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	F	B
Masters Drive/Bennett Avenue	A	A	A	B
Masters Drive/Eagle Glen Parkway	B	B	B	D
Bedford Canyon Road/El Cerrito Road	B	B	B	C
Bedford Canyon Road/Georgetown Drive	A	A	A	A
Bedford Canyon Road/Eagle Glen Parkway	B	C	*	*
I-15 Southbound Ramps/El Cerrito Road	C	C	C	C
I-15 Southbound Ramps/Cajalco Road	C	D	C	F
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C
I-15 Northbound Ramps/Cajalco Road	C	D	D	C
Grand Oaks/Cajalco Road	B	C	B	C
Temescal Canyon Road/Cajalco Road	D	D	D	D
Street C/Eagle Glen Parkway	<i>Future intersection</i>		B	C

Table 4.16.K: Year 2014 Intersection LOS Conditions With and Without Project Development

Intersection	Without Project		With Project	
	A.M.	P.M.	A.M.	P.M.
Street C/ Street B	<i>Future intersection</i>		A	A
Street A/Driveway 1	<i>Future intersection</i>		B	B
Street A/Street B	<i>Future intersection</i>		<i>Future intersection</i>	

* The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal.

As identified in Table 4.16.K, under opening year (2014) without project conditions, the Masters Drive/California Drive intersection is projected to operate at LOS F in the a.m. peak hour without improvements. As identified in the TIA, based on opening year (2014) without project conditions, no additional traffic signals are projected to be warranted at the study area intersections other than those already warranted under existing baseline conditions. However, based on opening year (2014) with project conditions, a traffic signal is projected to be warranted at the Street C/Eagle Glen Parkway intersection.

As indicated in Table 4.16.K, the following study area intersections are projected to operate at unsatisfactory levels of service for the project site under with project conditions:

- *Masters Drive/California Drive*: This intersection is projected to operate at LOS F during the a.m. peak hour under opening year 2014 (without project, without signal warrant improvement) conditions. The addition of project related traffic would contribute to this unsatisfactory condition.
- *Bedford Canyon Road/Eagle Glen Parkway*: Under year 2014 (without project) conditions, this intersection will operate satisfactorily at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour. The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal. This is a significant impact requiring mitigation.
- *I-15 Southbound Ramps/Cajalco Road*: Under year 2014 (without project) conditions, this intersection will operate satisfactorily at LOS D during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the p.m. peak hour. This is a significant impact requiring mitigation.

In addition to assessing existing and future intersections, the TIA also provides a ramp merge and diverge analysis for opening year (2014). Table 4.16.L provides the opening year (2014) levels of service of the analyzed ramps.

Table 4.16.L: Opening Year (2014) Ramp Merge/Diverge LOS Conditions

Ramp Junction	Without Project				With Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Southbound I-15								
El Cerrito Road Off-Ramp	31.0	F	36.0	F	33.0	F	38.3	F
El Cerrito Road On-Ramp	42.2	E	50.6	F	44.7	F	54.1	F
Cajalco Road Off-Ramp	42.2	E	50.6	F	44.7	F	54.1	F

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Table 4.16.L: Opening Year (2014) Ramp Merge/Diverge LOS Conditions

Ramp Junction	Without Project				With Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Cajalco Road On-Ramp	37.5	F	43.4	F	38.2	F	44.3	F
Northbound I-15								
El Cerrito Road On-Ramp	45.5	F	39.2	F	47.5	F	41.4	F
El Cerrito Road Off-Ramp	49.1	F	43.2	F	51.3	F	45.6	F
Cajalco Road On-Ramp	44.7	F	39.6	F	46.6	F	41.7	F
Cajalco Road Off-Ramp	40.6	F	40.7	F	41.4	F	41.6	F

Source: Arantine Hills Specific Plan Traffic Impact Analysis (Revised), Urban Crossroads, August 11, 2011.

As identified in Table 4.16.L, all of the merging and diverging points are at or exceeding acceptable levels of service based on existing configuration of the roadway networks. **Mitigation Measure 4.16.6.2A** and **4.16.6.2B** have been identified to ensure that potential impacts are adequately addressed for these study area intersections.

The TIA also identified existing roadway segments within the project area. Table 4.16.M provides the opening year (2014) roadway link capacities for each of the project area roadway segments.

Table 4.16.M: Opening Year (2014) Roadway Link Capacity Conditions

Roadway Segment	Existing/Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
Masters Drive							
North of California Drive	10,000	500	5,400	0.5	0.54	Acceptable	Acceptable
South of California Drive	10,000	8,500	10,100	0.85	1.01	Approaching Capacity	Potentially Exceeds Capacity
North of Bennett Avenue	10,000	5,800	7,600	0.58	0.76	Acceptable	Acceptable
North of Eagle Glen Parkway	10,000	6,300	8,100	0.63	0.81	Acceptable	Approaching Capacity
Bennett Avenue							
North of Masters Drive	10,000	1,500	1,500	0.15	0.15	Acceptable	Acceptable
North of Eagle Glen Parkway	10,000	1,000	1,000	0.10	0.10	Acceptable	Acceptable
Bedford Canyon Road							
South of El Cerrito Road	10,000	7,100	7,900	0.71	0.79	Acceptable	Acceptable
North of Georgetown Drive	10,000	7,000	7,800	0.70	0.78	Acceptable	Acceptable

Table 4.16.M: Opening Year (2014) Roadway Link Capacity Conditions

Roadway Segment	Existing/ Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
North of Eagle Glen Parkway	20,000	7,100	8,000	0.36	0.40	Acceptable	Acceptable
Temescal Canyon Road							
North of Cajalco Road	20,000	12,500	12,700	0.63	0.64	Acceptable	Acceptable
South of Cajalco Road	20,000	14,300	14,800	0.72	0.74	Acceptable	Acceptable
California Drive							
West of Masters Drive	10,000	4,700	5,100	0.47	0.51	Acceptable	Acceptable
East of Masters Drive	10,000	8,700	9,500	0.87	0.95	Approaching Capacity	Approaching Capacity
EI Cerrito Road							
West of Bedford Canyon Road	10,000	20,700	21,100	1.04	1.06	Potentially Exceeds Capacity	Potentially Exceeds Capacity
East of Bedford Canyon Road	20,000	21,700	22,100	1.09	1.11	Potentially Exceeds Capacity	Potentially Exceeds Capacity
East of I-15 Northbound Ramps	20,000	9,700	10,100	0.49	0.51	Acceptable	Acceptable
Georgetown Drive							
West of Bedford Canyon Road	10,000	2,300	2,500	0.23	0.25	Acceptable	Acceptable
Eagle Glen Parkway/Cajalco Road							
East of Bennett Avenue	20,000	8,700	8,900	0.44	0.45	Acceptable	Acceptable
West of Masters Drive	20,000	8,700	14,300	0.44	0.72	Acceptable	Acceptable
West of Bedford Canyon Road	20,000	12,000	16,700	0.60	0.84	Acceptable	Approaching Capacity
East of Bedford Canyon Road	20,000	16,500	25,300	0.33	0.51	Acceptable	Acceptable
East of I-15 Southbound Ramps	10,000	18,900	24,200	1.89	2.42	Exceeds Capacity	Exceeds Capacity
East of I-15 Northbound Ramps	50,000	14,100	15,800	0.28	0.32	Acceptable	Acceptable
East of Grand Oaks	50,000	12,700	14,200	0.25	0.28	Acceptable	Acceptable
East of Temescal Canyon Road	10,000	13,200	14,000	0.26	0.28	Acceptable	Acceptable
Street "A"							
South of Eagle Glen Parkway	20,000	—	6,400	—	0.32	—	Acceptable
South of Street "B"	20,000	—	—	—	—	—	Acceptable
Street "B"							
West of Street "C"	10,000	—	—	—	—	—	Acceptable
East of Street "C"	10,000	—	4,600	—	0.46	—	Acceptable
East of Street "A"	10,000	—	—	—	—	—	Acceptable

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Table 4.16.M: Opening Year (2014) Roadway Link Capacity Conditions

Roadway Segment	Existing/ Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
Street "C"							
South of Eagle Glen Parkway	10,000	—	5,300	—	0.53	—	Acceptable
South of Street "B"	10,000	—	700	—	0.07	—	Acceptable

Source: *Arantine Hills Specific Plan Traffic Impact Analysis (Revised)*, Urban Crossroads, August 11, 2011.

As identified in Table 4.16.M, out of the total 25 study area roadway segments analyzed in the year 2014 without project scenario:

- 20 roadway segments provide "Acceptable" capacity to satisfy daily vehicle traffic demand;
- 2 roadway segments begin to "Approach Capacity" where speed and freedom to maneuver are severely restricted at certain times of the day; and
- 3 roadway segments "Potentially Exceed Capacity" or "Exceed Capacity" creating potential vehicle delays particularly during the peak hours.

For the year 2014 with project scenario (which includes the on-site project roads):

- 25 roadway segments provide "Acceptable" capacity to satisfy daily vehicle traffic demand;
- 3 roadway segments begin to "Approach Capacity" where speed and freedom to maneuver are severely restricted at certain times of the day; and
- 4 roadway segments "Potentially Exceed Capacity" or "Exceed Capacity" creating potential vehicle delays particularly during the peak hours.

It is important to note that the roadway segment capacities are suitable for planning purposes, but they are not precise measures of capacity. The ultimate capacity of a roadway is based upon a number of factors. These factors include the relationships between peak hour and daily traffic volumes, the roadway design features (access spacing, intersection geometries, etc.), and the proportions and amount of traffic turning at key intersections (along with the amount of traffic crossing the roadway, or turning onto or off of the roadway at intersecting roadways). These factors were taken into consideration in the peak hour analysis provided in the TIA using an analysis program called Synchro. The Synchro analysis shows that even with the recommended intersection lane improvements, that the adjacent intersections and roadway links will not operate at acceptable levels of service during the peak hour conditions.

Mitigation Measures. Under opening year 2014, up to three study area intersections and three project intersections will not meet the relevant jurisdiction's minimum LOS standard under existing roadway geometrics. The following modifications to intersection configurations for opening year 2014 plus project are recommended to improve levels of service:

- **Masters Drive/California Drive:** Install a traffic signal.
- **Bedford Canyon Road/Eagle Glen Parkway:** Add a northbound left-turn lane, a northbound through lane, a northbound right-turn lane with northbound right-turn overlap phasing, a second southbound left-turn lane, a southbound through lane, and a westbound left-turn lane.

- **I-15 Southbound Ramps/Cajalco Road:** Add a second eastbound left-turn lane.
- **Street C/Eagle Glen Parkway:** Install a traffic signal, add a northbound left-turn lane, a northbound right-turn lane, and a westbound left-turn lane.
- **Street C/Street B:** Add a westbound stop sign, a northbound all-way lane, a southbound all-way lane, and a westbound all-way lane.
- **Street A/Driveway 1:** Add an eastbound stop sign, a northbound all-way lane, a southbound all-way lane, and an eastbound all-way lane.

In summary, the improvements defined for the 2014 plus project scenarios may be funded in part through the payment of City Development Improvement Fees (DIF) and Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF). However, even with the payment of TUMF and DIF, the full cost of the replacement of the Cajalco Road/I-15 Interchange project is not realized. The following mitigation measures are required:

4.16.6.2A Prior to issuance of a Certificate of Occupancy for the first dwelling unit and/or commercial, office or industrial building within the Specific Plan area, the project proponent shall construct or guarantee the construction of those improvements identified above as mitigation measures for year 2014 plus project conditions. In addition, the project proponent shall participate in the City of Corona Development Impact Fee Program and the Western Riverside Council of Governments Transportation Uniform Mitigation Fee Program. Additionally, the Cajalco Road/I-15 Interchange project (which includes a new 6-lane bridge over Interstate 15) must be in place to serve the existing plus project daily volumes.

4.16.6.2B Prior to the issuance of a Certificate of Occupancy for a project developed within the Specific Plan area, each developer shall consult with the City to determine if a project-specific traffic analysis is required for the proposed project. The City shall determine if the proposed project meets the requirements for a preparation of a traffic analysis based on guidelines established by the City of Corona. If the City determines that a project-specific traffic analysis is required, the project proponent shall submit a project-specific traffic analysis for review and approval by the City. The traffic analysis shall identify trips that would be generated by the project and any fair-share contributions required to maintain the levels of service on these study area intersections. The payment of a fair-share contribution shall be made through an established City of Corona impact fee and participation in the WRCOG's TUMF Program, as appropriate, or construction of off-site facilities under appropriate fee credit agreements for improvements deemed appropriate by the City.

Level of Significance After Mitigation. As identified in Table 4.16.N, with implementation of the identified mitigation (**Mitigation Measure 4.16.6.2A**), intersection LOS at affected TIA area intersections will not exceed established City performance standards and impacts would be rendered less than significant.

Table 4.16.N: Year 2014 Intersection LOS Conditions with Project Mitigation

Intersection	Without Project		With Project			
			Without Mitigation		With Mitigation	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	B ¹	B ¹	Not applicable	
Masters Drive/Bennett Avenue	A	A	A	B	Not applicable	
Masters Drive/Eagle Glen Parkway	B	B	B	D	Not applicable	

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Table 4.16.N: Year 2014 Intersection LOS Conditions with Project Mitigation

Intersection	Without Project		With Project			
			Without Mitigation		With Mitigation	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Bedford Canyon Road/El Cerrito Road	B	B	B	C	Not applicable	
Bedford Canyon Road/Georgetown Drive	A	A	A	A	Not applicable	
Bedford Canyon Road/Eagle Glen Parkway	B	C	XX	XX	C	D
I-15 Southbound Ramps/El Cerrito Road	C	C	C	C	Not applicable	
I-15 Southbound Ramps/Cajalco Road	C	D	C	F	B	C
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C	Not applicable	
I-15 Northbound Ramps/Cajalco Road	C	D	D	C	Not applicable	
Grand Oaks/Cajalco Road	B	C	B	C	Not applicable	
Temescal Canyon Road/Cajalco Road	D	D	D	D	Not applicable	
Street C/Eagle Glen Parkway	<i>Future intersection</i>		B	C	Not applicable	
Street C/ Street B	<i>Future intersection</i>		A	A	Not applicable	
Street A/Driveway 1	<i>Future intersection</i>		B	B	Not applicable	
Street A/Street B	<i>Future intersection</i>		<i>Future intersection</i>		<i>Future intersection</i>	

¹ Assumes that traffic signal improvement at Masters Drive/California Drive intersection is installed.
Source: *Arantine Hills Specific Plan Traffic Impact Analysis (Revised)*, Urban Crossroads, August 11, 2011.

4.16.6.3 Future Year (2019) Intersection LOS

Impact 4.16.6.3. *The approval of the land use changes as proposed as a part of the project may result in study area intersections operating at an unsatisfactory level of service during the build out year (2019) scenario.*

Threshold	<p>Would the proposed project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?</p> <p>Would the proposed project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?</p>
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As identified in the TIA prepared for the proposed project and illustrated in Figure 3.11 (refer to Section 3 of this EIR), the Arantine Hills Specific Plan is anticipated to be built in four phases. Phases 3 and 4 of the project (remainder of the project), anticipated to be completed by 2019, consists of the following land uses:

- 239 single-family detached dwelling units
- 475 multi-family attached dwelling units
- 1 acre of passive park

- 396,400 square feet of shopping center uses

As identified in the TIA, potential development that could occur on the project site by future year 2019 could generate up to 1,644 a.m. peak hour trips, 2,841 p.m. peak hour trips, and 29,517 daily trips. The subsequent development that could occur on the project site would contribute trips to study area intersections and roadway segments that are currently experiencing or will experience unsatisfactory levels of service during the future year (2019) scenario. The future year (2019) LOS without and with the development of the project for study area intersections is provided in Table 4.16.O.

Table 4.16.O: Year 2019 Intersection LOS Conditions With and Without Project Development

Intersection	Without Project		With Project	
	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	F	C
Masters Drive/Bennett Avenue	A	B	B	C
Masters Drive/Eagle Glen Parkway	B	C	C	F
Bedford Canyon Road/El Cerrito Road	B	B	B	C
Bedford Canyon Road/Georgetown Drive	A	A	A	B
Bedford Canyon Road/Eagle Glen Parkway	B	C	*	*
I-15 Southbound Ramps/El Cerrito Road	C	C	C	C
I-15 Southbound Ramps/Cajalco Road	C	D	F	F
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C
I-15 Northbound Ramps/Cajalco Road	C	D	F	F
Grand Oaks/Cajalco Road	B	C	B	C
Temescal Canyon Road/Cajalco Road	D	D	D	D
Street C/Eagle Glen Parkway	<i>Future intersection</i>		B	C
Street C/ Street B	<i>Future intersection</i>		C	D
Street A/Driveway 1	<i>Future intersection</i>		B	C
Street A/Street B	<i>Future intersection</i>		B	B

* The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal.

As identified in Table 4.16.O, under future year (2019) without project conditions, the Masters Drive/California Drive intersection is projected to operate at LOS F in the a.m. peak hour without improvements. The installation of a traffic signal at this intersection would result in satisfactory LOS conditions during both the a.m. and p.m. peak hours. As identified in the TIA, based on future year (2019) without project conditions, no additional traffic signals are projected to be warranted at the study area intersections other than those already warranted under existing baseline conditions. However, based on future year (2019) with project conditions, a traffic signal is projected to be warranted at the Street A/Driveway 1 intersection and Street A/Street B intersection.

As indicated in Table 4.16.O, the following study area intersections are projected to operate at unsatisfactory levels of service for the project site under future year (2019) with project conditions:

- *Masters Drive/California Drive*: This intersection is projected to operate at LOS F during the a.m. peak hour under opening year 2019 (without project, without signal warrant improvement) conditions. The addition of project related traffic would contribute to this unsatisfactory condition.

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- *Masters Drive/Eagle Glen Parkway:* Under year 2019 (without project) conditions, this intersection will operate satisfactorily at LOS C during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the p.m. peak hour. This is a significant impact requiring mitigation.
- *Bedford Canyon Road/Eagle Glen Parkway:* Under year 2019 (without project) conditions, this intersection will operate satisfactorily at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the a.m. p.m. peak hour. This is a significant impact requiring mitigation.
- *I-15 Southbound Ramps/Cajalco Road:* Under year 2019 (without project) conditions, this intersection will operate satisfactorily at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during both the a.m. and p.m. peak hour. This is a significant impact requiring mitigation.
- *I-15 Northbound Ramps/Cajalco Road:* Under year 2019 (without project) conditions, this intersection will operate satisfactorily at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during both the a.m. and p.m. peak hour. This is a significant impact requiring mitigation.

In addition to assessing existing and future intersections, the TIA also provides a ramp merge and diverge analysis for future year (2019). Table 4.16.P provides the future year (2019) levels of service of the analyzed ramps.

Table 4.16.P: Future Year (2019) Ramp Merge/Diverge LOS Conditions

Ramp Junction	Without Project				With Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Southbound I-15								
El Cerrito Road Off-Ramp	33.5	F	40.0	F	36.6	F	46.3	F
El Cerrito Road On-Ramp	44.4	F	54.3	F	48.5	F	64.1	F
Cajalco Road Off-Ramp	44.4	F	54.3	F	48.5	F	64.1	F
Cajalco Road On-Ramp	39.7	F	46.9	F	41.1	F	49.4	F
Northbound I-1551.9								
El Cerrito Road On-Ramp	51.4	F	46.6	F	55.2	F	51.9	F
El Cerrito Road Off-Ramp	55.7	F	51.3	F	59.8	F	57.2	F
Cajalco Road On-Ramp	50.7	F	47.0	F	54.2	F	52.0	F
Cajalco Road Off-Ramp	46.8	F	48.9	F	48.3	F	51.9	F

Source: Arantine Hills Specific Plan Traffic Impact Analysis (Revised), Urban Crossroads, August 11, 2011.

As identified in Table 4.16.P, all of the merging and diverging points are at or exceeding acceptable levels of service based on existing configuration of the roadway networks. **Mitigation Measure 4.16.6.3A** has been identified to ensure that potential impacts are adequately addressed for these study area intersections. The TIA also identified existing roadway segments within the project area. Table 4.16.Q provides the future year (2019) roadway link capacities for each of the project area roadway segments.

Table 4.16.Q: Future Year (2019) Roadway Link Capacity Conditions

Roadway Segment	Existing/ Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
Masters Drive							
North of California Drive	10,000	5,600	6,100	0.56	0.61	Acceptable	Acceptable
South of California Drive	10,000	9,200	12,100	0.92	1.21	Approaching Capacity	Potentially Exceeds Capacity
North of Bennett Avenue	10,000	6,200	9,600	0.62	0.96	Acceptable	Approaching Capacity
North of Eagle Glen Parkway	10,000	6,800	10,200	0.68	1.02	Acceptable	Potentially Exceeds Capacity
Bennett Avenue							
North of Masters Drive	10,000	1,500	1,500	0.15	0.15	Acceptable	Acceptable
North of Eagle Glen Parkway	10,000	1,100	1,100	0.11	0.11	Acceptable	Acceptable
Bedford Canyon Road							
South of El Cerrito Road	10,000	8,400	10,900	0.84	1.09	Approaching Capacity	Potentially Exceeds Capacity
North of Georgetown Drive	10,000	8,300	10,800	0.83	1.08	Approaching Capacity	Potentially Exceeds Capacity
North of Eagle Glen Parkway	20,000	8,400	11,200	0.42	0.56	Acceptable	Acceptable
Temescal Canyon Road							
North of Cajalco Road	20,000	14,900	15,400	0.75	0.77	Acceptable	Acceptable
South of Cajalco Road	20,000	15,600	16,600	0.78	0.83	Acceptable	Approaching Capacity
California Drive							
West of Masters Drive	10,000	5,400	6,600	0.54	0.66	Acceptable	Acceptable
East of Masters Drive	10,000	9,200	10,400	0.92	1.04	Approaching Capacity	Potentially Exceeds Capacity
El Cerrito Road							
West of Bedford Canyon Road	10,000	22,300	23,900	1.12	1.20	Potentially Exceeds Capacity	Potentially Exceeds Capacity
East of Bedford Canyon Road	20,000	24,400	25,300	1.22	1.27	Potentially Exceeds Capacity	Potentially Exceeds Capacity

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Table 4.16.Q: Future Year (2019) Roadway Link Capacity Conditions

Roadway Segment	Existing/ Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
East of I-15 Northbound Ramps	20,000	11,200	12,100	0.56	0.61	Acceptable	Acceptable
Georgetown Drive							
West of Bedford Canyon Road	10,000	2,400	2,700	0.24	0.27	Acceptable	Acceptable
Eagle Glen Parkway/Cajalco Road							
East of Bennett Avenue	20,000	8,900	9,200	0.45	0.46	Acceptable	Acceptable
West of Masters Drive	20,000	8,900	16,200	0.45	0.81	Acceptable	Approaching Capacity
West of Bedford Canyon Road	20,000	13,100	21,300	0.66	1.07	Acceptable	Potentially Exceeds Capacity
East of Bedford Canyon Road	20,000	16,800	39,600	0.34	0.79	Acceptable	Acceptable
East of I-15 Southbound Ramps	10,000	19,200	34,400	0.96	1.72	Approaching Capacity	Exceeds Capacity
East of I-15 Northbound Ramps	50,000	16,200	20,000	0.32	0.40	Acceptable	Acceptable
East of Grand Oaks	50,000	14,000	17,500	0.28	0.35	Acceptable	Acceptable
East of Temescal Canyon Road	10,000	16,100	18,100	0.32	0.36	Acceptable	Acceptable
Street "A"							
South of Eagle Glen Parkway	20,000	--	21,900	--	1.10	--	Potentially Exceeds Capacity
North of Street "B"	20,000	--	2,200	--	0.77	--	Acceptable
South of Street "B"	10,000	--	15,300	--	0.22	--	Acceptable
Street "B"							
West of Street "C"	10,000	--	700	--	0.07	--	Acceptable
East of Street "C"	10,000	--	4,900	--	0.49	--	Acceptable
East of Street "A"	10,000	--	7,200	--	0.72	--	Acceptable
Street "C"							
South of Eagle Glen Parkway	10,000	--	7,300	--	0.73	--	Acceptable
South of Street "B"	10,000	--	700	--	0.07	--	Acceptable

Source: Arantine Hills Specific Plan Traffic Impact Analysis (Revised), Urban Crossroads, August 11, 2011.

As identified in Table 4.16.Q, out of the total 25 study area roadway segments analyzed in the year 2019 without project scenario:

- 19 roadway segments provide "Acceptable" capacity to satisfy daily vehicle traffic demand;
- 4 roadway segments begin to "Approach Capacity" where speed and freedom to maneuver are severely restricted at certain times of the day; and

- 2 roadway segments “Potentially Exceed Capacity” or “Exceed Capacity” creating potential vehicle delays particularly during the peak hours.

For the year 2019 with project scenario (which includes the on-site project roads):

- 20 roadway segments provide “Acceptable” capacity to satisfy daily vehicle traffic demand;
- 3 roadway segments begin to “Approach Capacity” where speed and freedom to maneuver are severely restricted at certain times of the day; and
- 10 roadway segments “Potentially Exceed Capacity” or “Exceed Capacity” creating potential vehicle delays particularly during the peak hours.

As stated previously, it is important to note that the roadway segment capacities are suitable for planning purposes, but they are not precise measures of capacity. The ultimate capacity of a roadway is based upon a number of factors. These factors include the relationships between peak hour and daily traffic volumes, the roadway design features (access spacing, intersection geometries, etc.), and the proportions and amount of traffic turning at key intersections (along with the amount of traffic crossing the roadway, or turning onto or off of the roadway at intersecting roadways). These factors were taken into consideration in the peak hour analysis provided in the TIA using an analysis program called Synchro. The Synchro analysis shows that even with the recommended intersection lane improvements, that the adjacent intersections and roadway links will not operate at acceptable levels of service during the peak hour conditions.

Mitigation Measures. Under future year 2019, up to five study area intersections will not meet the relevant jurisdiction’s minimum LOS standard under existing roadway geometrics. The following modifications to intersection configurations for future year 2019 plus project are recommended to improve levels of service (in addition to those identified for opening year 2014):

- **Masters Drive/California Drive:** Install a traffic signal.
- **Masters Drive/Eagle Glen Parkway:** Install a traffic signal.
- **Bedford Canyon Road/Eagle Glen Parkway:** Add a northbound left-turn lane, a northbound through lane, two northbound right-turn lanes, a second southbound left-turn lane, a southbound through lane, a third eastbound through lane, and two westbound left-turn lanes.
- **I-15 Southbound Ramps/Cajalco Road:** Add a second southbound left-turn lane, a second southbound right-turn lane, a second eastbound left-turn lane, a second eastbound through lane, and a second westbound through lane.
- **I-15 Northbound Ramps/Cajalco Road:** Add a second northbound left-turn lane and a second eastbound left-turn lane.
- **Street C/Eagle Glen Parkway:** Add traffic signal, a northbound left-turn lane, a northbound right-turn lane, and a westbound left-turn lane.
- **Street C/Street B:** Add an eastbound stop sign and an all-way lane at all approaches.
- **Street A/Driveway 1:** Install a traffic signal, a northbound left-turn lane, a northbound through right lane, a southbound left-turn lane, a southbound through/right-turn lane, an eastbound left-turn lane, an eastbound through/right-turn lane, a westbound left-turn lane, a westbound through lane, a westbound right-turn lane, and a westbound right-turn overlap phasing.
- **Street A/Street B:** Install a traffic signal, a northbound left-turn lane, a northbound through lane, a southbound left-turn lane, a southbound through lane, an eastbound left-turn lane, an

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eastbound through lane, a westbound left-turn lane, a westbound through lane, and a westbound right-turn lane.

The following mitigation measures are required:

4.16.6.3A Prior to the issuance of a Certificate of Occupancy for a project developed in Phases 3 and 4 within the Specific Plan area, the project proponent shall construct or guarantee the construction of those improvements identified above as mitigation measures for year 2019 plus project conditions. In addition, the project proponent shall participate in the City of Corona Development Impact Fee Program and the Western Riverside Council of Governments Transportation Uniform Mitigation Fee Program. Additionally, the Cajalco Road/I-15 Interchange project (which includes a new 6-lane bridge over Interstate 15) must be in place prior to issuance of any Certificates of Occupancy for a project developed in Phase 2 in order to serve the existing plus project daily volumes.

Level of Significance After Mitigation. As identified in Table 4.16.R, with implementation of the identified mitigation (**Mitigation Measure 4.16.6.3A**), intersection LOS at affected TIA area intersections will not exceed established City performance standards and impacts would be rendered less than significant.

Table 4.16.R: Year 2019 Intersection LOS Conditions with Project Mitigation

Intersection	Without Project		With Project			
			Without Mitigation		With Mitigation	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	F	C	C	B
Masters Drive/Bennett Avenue	A	B	B	C	Not applicable	
Masters Drive/Eagle Glen Parkway	B	C	C	F	B	C
Bedford Canyon Road/El Cerrito Road	B	B	B	C	Not applicable	
Bedford Canyon Road/Georgetown Drive	A	A	A	B	Not applicable	
Bedford Canyon Road/Eagle Glen Parkway	B	C	*	*	C	D
I-15 Southbound Ramps/El Cerrito Road	C	C	C	C	Not applicable	
I-15 Southbound Ramps/Cajalco Road	C	D	F	F	B	C
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C	Not applicable	
I-15 Northbound Ramps/Cajalco Road	C	D	F	F	C	C
Grand Oaks/Cajalco Road	B	C	B	C	Not applicable	
Temescal Canyon Road/Cajalco Road	D	D	D	D	Not applicable	
Street C/Eagle Glen Parkway	<i>Future intersection</i>		B	C	B	C
Street C/ Street B	<i>Future intersection</i>		C	D	C	D
Street A/Driveway 1	<i>Future intersection</i>		B	C	B	C
Street A/Street B	<i>Future intersection</i>		B	B	B	B

* The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal.

4.16.6.4 Build Out Year (2035) Intersection Traffic and Level of Service (LOS) Standard

Impact 4.16.6.4. *The approval of the land use changes as proposed as a part of the project may result in study area intersections operating at an unsatisfactory level of service during the build out year (2035) scenario.*

Threshold	<p>Would the proposed project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?</p> <p>Would the proposed project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?</p>
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Operation of developed uses that could occur on the project site would contribute trips to study area intersections and roadway segments that are currently experiencing or will experience unsatisfactory levels of service during the build out year (2035) scenario. The build out year (2035) LOS without and with the development of the project for study area intersections is provided in Table 4.16.S.

Table 4.16.S: Year 2035 Intersection LOS Conditions with and without Project Development

Intersection	Without Project		With Project	
	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	F	B	F	C
Masters Drive/Bennett Avenue	A	C	B	F
Masters Drive/Eagle Glen Parkway	C	D	E	F
Bedford Canyon Road/El Cerrito Road	C	C	C	D
Bedford Canyon Road/Georgetown Drive	C	B	C	B
Bedford Canyon Road/Eagle Glen Parkway	B	C	*	*
I-15 Southbound Ramps/El Cerrito Road	F	F	F	F
I-15 Southbound Ramps/Cajalco Road	C	D	F	F
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C
I-15 Northbound Ramps/Cajalco Road	D	E	F	F
Grand Oaks/Cajalco Road	B	C	B	C
Temescal Canyon Road/Cajalco Road	F	F	D	D
Street C/Eagle Glen Parkway	<i>Future intersection</i>		B	C
Street C/ Street B	<i>Future intersection</i>		C	D
Street A/Driveway 1	<i>Future intersection</i>		B	C
Street A/Street B	<i>Future intersection</i>		B	B

* The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal.

As identified in Table 4.16.S, under build out year (2035) without project conditions, the Masters Drive/California Drive intersection is projected to operate at LOS F in the a.m. peak hour without improvements. The installation of a traffic signal at this intersection would result in satisfactory LOS conditions during both the a.m. and p.m. peak hours. As indicated in Table 4.16.S, the following study

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area intersections are projected to operate at unsatisfactory levels of service for the project site under future year (2019) with project conditions:

- *Masters Drive/California Drive*: This intersection is projected to operate at LOS F during the a.m. peak hour under future year 2035 (without project, without signal warrant improvement) conditions. The addition of project related traffic would contribute to this unsatisfactory condition.
- *Masers Drive/Bennett Avenue*: Under year 2035 (without project) conditions, this intersection will operate satisfactorily at LOS C during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the p.m. peak hour. This is a significant impact requiring mitigation.
- *Masters Drive/Eagle Glen Parkway*: Under year 2035 (without project) conditions, this intersection will operate satisfactorily at LOS D during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the p.m. peak hour. This is a significant impact requiring mitigation.
- *Bedford Canyon Road/Eagle Glen Parkway*: Under year 2035 (without project) conditions, this intersection will operate satisfactorily at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during the a.m. p.m. peak hour. This is a significant impact requiring mitigation.
- *I-15 Southbound Ramps/El Cerrito Road*: Under year 2035 (without project, without improvements) conditions, this intersection is projected to operate at LOS F during both the a.m. and p.m. peak hour. The addition of project traffic would contribute to this unsatisfactory condition.
- *I-15 Southbound Ramps/Cajalco Road*: Under year 2035 (without project) conditions, this intersection will operate satisfactorily at LOS C during the a.m. peak hour and LOS D during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during both the a.m. and p.m. peak hour. This is a significant impact requiring mitigation.
- *I-15 Northbound Ramps/Cajalco Road*: Under year 2035 (without project) conditions, this intersection will operate satisfactorily at LOS D during the a.m. peak hour and LOS E during the p.m. peak hour. The addition of project traffic would cause operations at this intersection to deteriorate to LOS F during both the a.m. and p.m. peak hour. This is a significant impact requiring mitigation.
- *Temescal Canyon Road/Cajalco Road*: This intersection is projected to operate at LOS F during the a.m. peak hour under future year 2035 (without project, without signal warrant improvement) conditions. The addition of project related traffic would contribute to this unsatisfactory condition.

In addition to assessing existing and future intersections, the TIA also provides a ramp merge and diverge analysis for build out year (2035). Table 4.16.T provides the build out year (2035) levels of service of the analyzed ramps.

Table 4.16.T: Build Out Year (2035) Ramp Merge/Diverge LOS Conditions

Ramp Junction	Without Project				With Project			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Southbound I-15								
El Cerrito Road Off-Ramp	42.6	F	54.6	F	45.6	F	60.9	F
El Cerrito Road On-Ramp	52.7	F	68.1	F	57.2	F	78.7	F
Cajalco Road Off-Ramp	52.7	F	68.1	F	57.2	F	78.7	F
Cajalco Road On-Ramp	45.7	F	56.7	F	45.7	F	56.7	F
New Cajalco Slip On-Ramp	47.2	F	59.3	F	48.6	F	61.8	F
Northbound I-15								
El Cerrito Road On-Ramp	74.6	F	77.2	F	78.3	F	82.5	F
El Cerrito Road Off-Ramp	81.4	F	85.5	F	85.5	F	91.3	F
Cajalco Road On-Ramp	74.2	F	78.0	F	78.4	F	83.3	F
New Cajalco Loop On-Ramp	67.7	F	74.8	F	71.2	F	79.7	F
Cajalco Road Off-Ramp	71.5	F	83.7	F	73.0	F	86.7	F

Source: Arantine Hills Specific Plan Traffic Impact Analysis (Revised), Urban Crossroads, August 11, 2011.

As identified in Table 4.16.T, all of the merging and diverging points are at or exceeding acceptable levels of service based on existing configuration of the roadway networks. **Mitigation Measure 4.16.6.4A** has been identified to ensure that potential impacts are adequately addressed for these study area intersections.

The TIA also identified existing roadway segments within the project area. Table 4.16.U provides the build out year (2035) roadway link capacities for each of the project area roadway segments.

Table 4.16.U: Build Out Year (2035) Roadway Link Capacity Conditions

Roadway Segment	Existing/Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
Masters Drive							
North of California Drive	10,000	8,000	8,500	0.80	0.85	Acceptable	Approaching Capacity
South of California Drive	10,000	12,100	15,000	1.21	1.50	Potentially Exceeds Capacity	Potentially Exceeds Capacity

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Table 4.16.U: Build Out Year (2035) Roadway Link Capacity Conditions

Roadway Segment	Existing/ Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
North of Bennett Avenue	10,000	7,600	11,000	0.76	1.10	Acceptable	Potentially Exceeds Capacity
North of Eagle Glen Parkway	10,000	8,600	12,000	0.86	1.20	Approaching Capacity	Potentially Exceeds Capacity
Bennett Avenue							
North of Masters Drive	10,000	1,800	1,800	0.18	0.18	Acceptable	Acceptable
North of Eagle Glen Parkway	10,000	1,400	1,400	0.14	0.14	Acceptable	Acceptable
Bedford Canyon Road							
South of El Cerrito Road	10,000	14,500	17,000	1.45	1.70	Potentially Exceeds Capacity	Exceeds Capacity
North of Georgetown Drive	10,000	14,500	17,000	1.45	1.70	Potentially Exceeds Capacity	Exceeds Capacity
North of Eagle Glen Parkway	20,000	14,200	17,000	0.71	0.85	Acceptable	Approaching Capacity
Temescal Canyon Road							
North of Cajalco Road	20,000	26,500	27,000	1.33	1.35	Potentially Exceeds Capacity	Potentially Exceeds Capacity
South of Cajalco Road	20,000	21,000	22,000	1.05	1.10	Potentially Exceeds Capacity	Potentially Exceeds Capacity
California Drive							
West of Masters Drive	10,000	8,300	9,500	0.83	0.95	Approaching Capacity	Approaching Capacity
East of Masters Drive	10,000	10,800	12,000	1.08	1.20	Potentially Exceeds Capacity	Potentially Exceeds Capacity
El Cerrito Road							
West of Bedford Canyon Road	20,000	28,400	30,000	1.42	1.50	Potentially Exceeds Capacity	Potentially Exceeds Capacity
East of Bedford Canyon Road	20,000	35,100	36,000	1.76	1.80	Exceeds Capacity	Exceeds Capacity
East of I-15 Northbound Ramps	20,000	17,200	18,100	0.86	0.91	Approaching Capacity	Approaching Capacity
Georgetown Drive							
West of Bedford Canyon Road	10,000	2,800	3,100	0.28	0.31	Acceptable	Acceptable
Eagle Glen Parkway/Cajalco Road							
East of Bennett Avenue	20,000	9,400	9,700	0.47	0.49	Acceptable	Acceptable

Table 4.16.U: Build Out Year (2035) Roadway Link Capacity Conditions

Roadway Segment	Existing/ Estimated Roadway Capacity	Traffic Volumes		Volume/Capacity Ratio		Average Vehicle Capacity Thresholds	
		Without Project	With Project	Without Project	With Project	Without Project	With Project
West of Masters Drive	20,000	9,400	25,000	0.47	1.25	Acceptable	Potentially Exceeds Capacity
West of Bedford Canyon Road	20,000	17,300	25,500	0.87	1.28	Acceptable	Potentially Exceeds Capacity
East of Bedford Canyon Road	20,000	17,800	40,600	0.36	0.81	Acceptable	Approaching Capacity
East of I-15 Southbound Ramps	20,000	20,400	35,600	0.41	0.71	Approaching Capacity	Acceptable
East of I-15 Northbound Ramps	50,000	25,200	29,000	0.50	0.58	Acceptable	Acceptable
East of Grand Oaks	50,000	19,000	22,500	0.38	0.45	Acceptable	Acceptable
East of Temescal Canyon Road	50,000	30,000	32,000	0.60	0.64	Acceptable	Acceptable
Street "A"							
South of Eagle Glen Parkway	20,000	—	21,900	—	1.10	—	Potentially Exceeds Capacity
North of Street "B"	20,000	—	15,300	—	0.77	—	Acceptable
South of Street "B"	10,000	—	2,200	—	0.22	—	Acceptable
Street "B"							
West of Street "C"	10,000	—	700	—	0.07	—	Acceptable
East of Street "C"	10,000	—	4,900	—	0.49	—	Acceptable
East of Street "A"	10,000	—	7,200	—	0.72	—	Acceptable
Street "C"							
South of Eagle Glen Parkway	10,000	—	7,300	—	0.73	—	Acceptable
South of Street "B"	10,000	—	700	—	0.07	—	Acceptable

Source: *Arantine Hills Specific Plan Traffic Impact Analysis (Revised)*, Urban Crossroads, August 11, 2011.

As identified in Table 4.16.U, out of the total 25 study area roadway segments analyzed in the year 2035 without project scenario:

- 13 roadway segments provide "Acceptable" capacity to satisfy daily vehicle traffic demand;
- 4 roadway segments begin to "Approach Capacity" where speed and freedom to maneuver are severely restricted at certain times of the day; and
- 8 roadway segments "Potentially Exceed Capacity" or "Exceed Capacity" creating potential vehicle delays particularly during the peak hours.

For the year 2035 with project scenario (which includes the on-site project roads):

- 15 roadway segments provide "Acceptable" capacity to satisfy daily vehicle traffic demand;

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- 5 roadway segments begin to “Approach Capacity” where speed and freedom to maneuver are severely restricted at certain times of the day; and
- 13 roadway segments “Potentially Exceed Capacity” or “Exceed Capacity” creating potential vehicle delays particularly during the peak hours.

As stated previously, it is important to note that the roadway segment capacities are suitable for planning purposes, but they are not precise measures of capacity. The ultimate capacity of a roadway is based upon a number of factors. These factors include the relationships between peak hour and daily traffic volumes, the roadway design features (access spacing, intersection geometries, etc.), and the proportions and amount of traffic turning at key intersections (along with the amount of traffic crossing the roadway, or turning onto or off of the roadway at intersecting roadways). These factors were taken into consideration in the peak hour analysis provided in the TIA.

Mitigation Measures. Under build out year 2035, up to eight study area intersections will not meet the relevant jurisdiction’s minimum LOS standard under existing roadway geometrics. The following modifications to intersection configurations for build out year 2035 plus project are recommended to improve levels of service in accordance with City requirements (in addition to those identified for opening year 2014 and future year 2019):

- **Masters Drive/California Drive:** Install a traffic signal.
- **Masters Drive/Bennett Avenue:** Install a traffic signal.
- **Masters Drive/Eagle Glen Parkway:** Install a traffic signal.
- **I-15 Ramps/El Cerrito Road:** Add a second southbound right-turn lane and an eastbound right-turn lane.
- **I-15 Southbound Ramps/Cajalco Road:** Add a second southbound left-turn lane, a second southbound right turn lane, restripe the eastbound approach to provide three through lanes and a right-turn lane, a second westbound through lane, and a westbound right-turn lane.
- **I-15 Northbound Ramps/Cajalco Road:** Add a second northbound left-turn lane, restripe the eastbound approach to provide three through lanes and a right-turn lane, and add two westbound through lanes.
- **Temescal Canyon Road/Cajalco Road:** Add a second northbound through lane, a second southbound left-turn lane, a second eastbound through lane, a westbound right-turn lane, and a westbound right-turn overlap phasing.
- **Street C/Eagle Glen Parkway:** Add traffic signal, a northbound left-turn lane, a northbound right-turn lane, and a westbound left-turn lane.
- **Street C/Street B:** Add an eastbound stop sign and an all-way lane at all approaches.
- **Street A/Driveway 1:** Install a traffic signal, a northbound left-turn lane, a northbound through/right-turn lane, a southbound left-turn lane, a southbound through/right-turn lane, an eastbound left-turn lane, an eastbound through/right-turn lane, a westbound left-turn lane, a westbound through lane, a westbound right-turn lane, and a westbound right-turn overlap phasing.
- **Street A/Street B:** Install a traffic signal, a northbound left-turn lane, a northbound through/right-turn lane, a southbound left-turn lane, a southbound through/right-turn lane, an eastbound left-turn lane, an eastbound through/right-turn lane, a westbound left-turn lane, a westbound through lane, and a westbound right-turn lane.

In summary, the improvements defined for the 2035 plus project scenarios may be completed by the project proponent, or may be funded in part through the project proponent's payment of City DIF and WRCOG TUMF. The following mitigation measures are required:

4.16.6.4A The project proponent shall construct or guarantee the construction of those improvements identified above as mitigation measures for year 2035 plus project conditions. In addition, the project proponent shall construct a new I-15 southbound slip on-ramp for the Cajalco Road/I-15 Interchange.

Level of Significance After Mitigation. As identified in Table 4.16.V, with implementation of the identified mitigation (**Mitigation Measure 4.16.6.4A**), intersection LOS at affected TIA area intersections will not exceed established City performance standards and impacts would be rendered less than significant.

Table 4.16.V: Year 2035 Intersection LOS Conditions with Project Mitigation

Intersection	Without Project ¹		With Project			
			Without Mitigation		With Mitigation	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Masters Drive/California Drive	B	B	F	C	B	B
Masters Drive/Bennett Avenue	A	C	B	F	A	A
Masters Drive/Eagle Glen Parkway	C	D	E	F	B	C
Bedford Canyon Road/El Cerrito Road	C	C	C	D	Not applicable	
Bedford Canyon Road/Georgetown Drive	C	B	C	B	Not applicable	
Bedford Canyon Road/Eagle Glen Parkway	B	C	*	*	C	D
I-15 Southbound Ramps/El Cerrito Road	C	C	F	F	C	C
I-15 Southbound Ramps/Cajalco Road	C	D	F	F	B	C
I-15 Northbound Ramps/El Cerrito Road	D	C	D	C	Not applicable	
I-15 Northbound Ramps/Cajalco Road	D	E	F	F	B	B
Grand Oaks/Cajalco Road	B	C	B	C	Not applicable	
Temescal Canyon Road/Cajalco Road	D	D	F	F	D	D
Street C/Eagle Glen Parkway	<i>Future intersection</i>		B	C	B	C
Street C/ Street B	<i>Future intersection</i>		C	D	C	D
Street A/Driveway 1	<i>Future intersection</i>		B	C	B	C
Street A/Street B	<i>Future intersection</i>		B	B	B	B

* The proposed project will take access from and form the fourth leg of the intersection, requiring modifications to the intersection and traffic signal.

The TIA identifies that the proposed project would be required to pay TUMF fees and a portion of those fees may be used for the I-15/Cajalco Road interchange up to the maximum eligible amount included in the latest nexus for the TUMF program at the time of development for the Arantine Hills project.

4.16.7 Cumulative Impacts

Cumulative impacts refer to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Cumulative impacts associated with traffic volumes are determined based on a sum of project traffic and traffic volumes

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from approved and pending projects in the area. Cumulative analysis forecasts that, with the development of the proposed project and the cumulative projects, seven intersections will require improvements in order to maintain the City's LOS standard. Although the suggested improvements are consistent with the City's General Plan, the project will be responsible for contributing its fair share toward the funding of the future improvements via payment of the City's DIF fair-share contribution to non-programmed improvements that will be used to fund roadway and roadway-related improvements.

In addition, State highway funding is an extraordinarily complex State-wide and regional problem the cities have grappled with for decades. By definition, State highways are impacted by interstate, State-wide and regional traffic. To this end, in 2007, State Senator Alan Lowenthal (D, Long Beach) chair of the Senate Transportation Committee, held hearings on alternative funding mechanisms for State highway improvements, including legislation that would allow private companies to build and operate State highways. Several such proposals have been considered in connection with the SR-91 and I-15 in Riverside. The State Legislature, Caltrans, the Executive Branch and public-private partnerships are all engaged in multi-jurisdictional and creative solutions to feasibly alleviate congestion on the State's highways. Thus, for these reasons, there are no available and feasible mitigation measures available to mitigate the projects de minimis cumulative contribution to traffic on the I-15 Freeway under long-range (2035) conditions and the project's cumulative impact is considered to be significant and unavoidable.

4.17 UTILITIES AND SERVICE SYSTEMS

This chapter identifies the existing and planned utilities and service system conditions for the City and the surrounding area, and evaluates the impacts to service and utility providers that could result from the implementation of the proposed project. This chapter is based in part on the following documents that are included by reference:

- *City of Corona Arantine Hills Water Master Plan Final Report*, AKM Consulting Engineers, February 2011 (Appendix M-1 to this EIR).
- *Sewer Analysis Arantine Hills*, AEI-CASC Consulting, February 17, 2011 (Appendix M-2 to this EIR).
- *Water Supply Assessment for the Arantine Hills Specific Plan Project Corona, California*, City of Corona Department of Water and Power, September 1, 2010 (Appendix M-3 to this EIR).
- *Master Drainage Plan for the Arantine Hills Specific Plan*, AEI-CASC Consulting, February 10, 2011 (Appendix J-2 to this EIR).
- *Recycled Water Analysis Arantine Hills*, AEI-CASC Consulting, November 15, 2010 (Appendix M-4 to this EIR).

In addition to these project-specific technical studies, the analysis contained in this section is also based on the following reference documents:

- *City of Corona General Plan*, City of Corona, adopted March 17, 2004.
- *City of Corona General Plan Final EIR*, City of Corona, March 2004.
- *City of Corona General Plan Technical Background Report*, City of Corona, March 2004.
- *City of Corona Municipal Code*, City of Corona.
- City of Corona Sewer Master Plan September 2005.
- City of Corona Water Master Plan September 2005.
- City of Corona Ground Water Management Plan 2008.
- City of Corona Administrative Draft Recycled Water Master Plan April 2010.
- City of Corona 2010 Urban Water Management Plan June 2011.

4.17.1 Existing Setting

4.17.1.1 Stormwater Systems

The Santa Ana River watershed encompasses approximately 2,800 square miles and contains over 50 tributaries ultimately draining into the Pacific Ocean. The watershed includes much of Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County. The watershed is divided into two sections: the Upper and Lower Watershed. Between the San Gorgonio Peak east of Big Bear and Prado Basin at the SR-91 and SR-71 freeways is the Upper Watershed. South of the Prado Basin to the Pacific Ocean is the Lower Watershed. Topography of the watershed ranges from 0 feet above mean sea level (AMSL) in the lower elevation at the Pacific Ocean to 11,485 feet AMSL at San Gorgonio Peak in the San Bernardino Mountains.

The City is located within Temescal Subbasin of the Upper Santa Ana Valley Groundwater Basin. The existing drainage way in the vicinity of the proposed project site is the Bedford Canyon Wash.

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Bedford Canyon Wash is an ephemeral drainage that flows west-to-east, crossing under I-15, eventually connecting to Temescal Wash, and ultimately to Reach 3 of the Santa Ana River. This drainage contains water only for very short periods after rainfall events.

4.17.1.2 Wastewater Systems

Wastewater collection and treatment services in the City are currently handled by the City of Corona Department of Water and Power (CDWP). The City's wastewater collection system includes approximately 368 miles of gravity sewer and force mains varying in size from 6 to 42 inches in diameter. All of the sewer flows generated within the City are conveyed by City's collection facilities to one of three water reclamation plants. These three water reclamation facilities currently have a combined treatment capacity of 15.5 million gallons per day (mgd) in 2005 and have treated an average flow of 13.45 mgd in 2010.¹

Water Reclamation Facility No. 1 (WRF1) is located near the western area of the City and receives wastewater flows from a 13,000-acre area that is generally west of I-15. Wastewater flows treated at this facility are treated by commutation, grit removal, primary sedimentation, fine bubble and mechanical aeration, final clarification, and chlorination. All solids are treated at the WRF No. 1 site and treatment involves dissolved air floatation thickening, anaerobic digestion, mechanical dewatering and sludge drying. WRF1 also handles and treats activated sludge from Water Reclamation Facility No. 2 (WRF2) and waste sludge from Water Reclamation Facility No. 3 (WRF3). Existing treatment capacity at WRF1 is approximately 11.5 mgd. Future improvements planned for WRF1 would increase this treatment capacity to 14.5 mgd.

WRF2 is located near SR-91 and I-15 and handles flows from approximately 8,300 acres in the southern and eastern portions of the City. WRF2 is a conventional activated sludge treatment plant capable of processing 3.0 mgd of secondary effluent. Secondary treated effluent from WRF2 is sent to effluent percolation ponds located at Cota and Lincoln Streets. The City will complete a project in 2012 enabling it to produce up to 1 mgd of tertiary treated reclaimed water for its reclaimed water system.

WRF3 is located in the southeastern portion of the City near Cajalco Road. This plant serves the Temescal Canyon area, some portions of south Corona, and the newly expanded middle school in the unincorporated area of El Cerrito. Current capacity at WRF3 is 1.0 mgd with an existing average inflow of approximately 0.54 mgd. Ultimate expansion of the WRF3 could result in a treatment capacity of 5.0 mgd. Effluent from this plant is disinfected by chlorination and delivered to the City's recycled water system. Solids are transported by the City's sewer collections system to WRF1 for future processing.

4.17.1.3 Potable Water Treatment Systems

The City of Corona currently operates and maintains two surface water treatment plants: Lester Treatment Plant and Sierra del Oro Treatment Plant, which treat the Metropolitan Colorado River water. Currently, the Sierra del Oro Treatment Plant has a treatment capacity of approximately 9.1 mgd; the capacity of Lester Treatment Plant is 25 mgd. Combined, the total capacity of these two plants is 34.1 mgd.² The City also operates and maintains one groundwater reverse osmosis facility (the Temescal Basin Desalter) and six blending facilities. The Temescal Basin Desalter facility is capable of producing up to 10 mgd of water which is blended with local groundwater for potable use.

¹ Corona Department of Water and Power, <http://www.ci.corona.ca.us/City-Departments/Department-of-Water-Power.aspx>, web site accessed May 2, 2011; Corona Sewer Master Plan, 2005.

² Ibid.

4.17.1.4 Potable Water Supply

Water service is provided to Corona by the CDWP. The CDWP serves approximately 150,000 customers, in an area of about 45 square miles. The proposed project is located within the service area of the CDWP, which owns, operates, and maintains the water system within the limits of the City and would be the purveyor of water to the proposed project site. The City obtains its water from two sources. The local source is groundwater from the Temescal, Bedford, and Coldwater Sub-Basins. Corona purchases imported water from the Metropolitan Water District of Southern California (MWDSC) from the Colorado River and the State Water Project (SWP). MWDSC wholesales its water to the Western Municipal Water District (WMWD) and then to the City.

In 2010, approximately 65 percent of water supplies came from groundwater wells owned and operated by the City, 33 percent of water came from the Colorado River by way of Lake Mathews, and 2 percent of water came from the SWP.¹ The City's local water supply includes 21 active wells, which receive water from Temescal Basin, and Bedford and Coldwater Sub-Basins, with a total available capacity of approximately 41,988 acre-feet per year (AFY) as of 2005.² Corona's available imported water supply totals 39,879 acre-feet per year; 32,598 from the Colorado River system and 7,281 from the SWP.

The City operates 18 domestic water booster pump stations (BPSs). These BPS units range in capacity from 50 gallons per minute (gpm) to over 7,000 gpm. All booster pump stations are powered by electrical motors. The City operates 14 reservoirs ranging in size from 0.5 million gallons (mg) to 6 mg with a total capacity of 42.6 mg. The City also operates three blending stations at Lester Reservoir, Reservoir R-3, and Mangular Reservoir. These stations blend high nitrate (NO₄) Temescal Basin groundwater with low nitrate imported water from the Colorado River and SWP and with low nitrate and low total dissolved solids (TDS) product water from the Temescal Desalter. The blended waters meet the regulatory standards of the Environmental Protection Agency (EPA) and California Department of Health Services (DHS).³

4.17.1.5 Recycled Water Supply

The City owns and operates three wastewater treatment plants, two of which, WRF1 and WRF3, produce tertiary treated reclaimed water that complies with California Health and Safety Code Title 22 standards for the distribution and unrestricted non-potable uses. The City completed a Recycled Water Master Plan in December 1999 and has a new draft master plan under way. The draft master plan identifies that outdoor uses account for 54 percent of total average annual water demand and that up to 6,800 acre-feet per year reclaimed water could be used for irrigation of nonresidential uses such as for parks, golf courses, freeway landscaping, cemeteries, and schools. The City has the capability to produce approximately 8.5 mgd of reclaimed water from WRF1 and approximately 1 mgd from WRF3. Further the City will complete a project at WRF2 to produce an additional 1 mgd of reclaimed water. Upon completion of the WRF2 project, the City's firm recycled water supply capacity will be approximately 10.5 mgd, or 11,771 AFY. Use of reclaimed water will decrease Corona's dependence on imported water and will extend local groundwater supplies.

The project site is located within the City's reclaimed water service Zone 3 which receives reclaimed water from WRF 3 and WRF 1 through a system of 12, 14 and 16 inch pipelines. Reclaimed water Service Zone 3 includes a 1 million gallon reservoir and pumps that that buffers demand.

¹ *Corona Department of Water and Power Consumer Confidence Report 2010*, City of Corona.

² *City of Corona Urban Water Management Plan, 2005 Update* City of Corona, November 2005.

³ *City of Corona General Plan Technical Background Report*, City of Corona, March 2004.

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4.17.1.6 Solid Waste Systems

Solid waste generated in the City of Corona is coordinated through the City's Public Works Department and hauled away by Waste Management, Inc. (WMI). WMI transports all solid waste collected within the City to the El Sobrante Landfill located in the southwest of the City. The El Sobrante Landfill accepts regular municipal solid waste, and is permitted to accept 16,054 tons of solid waste per day from the Counties of Riverside, Los Angeles, Orange, San Diego, and San Bernardino. Currently, the El Sobrante Landfill has a daily permitted throughput of 11,667 tons per day, a remaining capacity of 118.6 million cubic yards, and an estimated closure date of 2045.¹ The El Sobrante Landfill is classified as a Class III landfill.² Class III landfills are required to be located where adequate separation can be provided between non-hazardous solid waste and surface and subsurface waters. This class of landfill is not permitted to accept hazardous waste. Waste types accepted at the El Sobrante Landfill include construction/demolition, mixed municipal, and tires.³ The average daily throughput at the El Sobrante Landfill is estimated at 6,382 tons/day with a current surplus capacity totals 5,285 tons/day.⁴ The landfill has 485 acres of permitted area for disposal activities with more than 145 million tons of remaining capacity.⁵

4.17.2 Policies and Regulations

4.17.2.1 Federal Regulations

Federal Water Pollution Control Act. The major piece of federal legislation dealing with wastewater is the Federal Water Pollution Control Act, which is designed to restore and preserve the integrity of the nation's waters. In addition to the Federal Water Pollution Control Act, other federal environmental laws have a bearing on the location, type, planning, and funding of wastewater treatment facilities.

National Safe Drinking Water Act (SDWA). Passed in 1974, the U.S. Environmental Protection Agency (EPA) regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. The EPA regulates these types of contaminants through the development of national primary and secondary maximum contaminant levels (MCLs) for water. MCLs and the process for setting these standards were to be reviewed triennially. Amendments to the SDWA in 1986 and 1996 revised the schedule for EPA to develop certain drinking water MCLs and extended the review period to a 6-year cycle.

Resource Conservation and Recovery Act (RCRA). The RCRA, an amendment to the Solid Waste Disposal Act, was enacted in 1976 to address a problem of huge volumes of municipal and industrial solid and hazardous waste generated nationwide. The RCRA gives the EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. The key provisions include:

¹ California Department of Resources Recycling and Recover website, <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=33&FACID=33-AA-0217>, website accessed April 28, 2011.

² California Department of Resources Recycling and Recover website, <http://www.calrecycle.ca.gov/SWFacilities/Directory/33-AA-0217/Detail/>, web site accessed April 28, 2011.

³ California Department of Resources Recycling and Recover website, <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=33&FACID=33-AA-0217>, web site accessed April 28, 2011.

⁴ Ryan Ross, Riverside County Waste Management Department, e-mail communication dated March 30, 2010.

⁵ Active Landfills Profile for San El Sobrante Landfill (36-AA-0217), CalRecycle, <http://www.calrecycle.ca.gov/SWFacilities/Directory/33-AA-0217/Detail/>, website accessed April 28, 2011.

- Identification and listing of hazardous waste and standards applicable to hazardous waste;
- Requires reporting of hazardous waste, permitting for storage, transport, and disposal, and includes provisions for oil recycling and federal hazardous waste facilities inventories;
- Management for solid waste, including landfills;
- Applicability of federal, state, and local laws to federal agencies;
- Procurement (recycling) provisions;
- Citizen suits, judicial review, and enforcement authority; and
- Management, replacement, and monitoring of underground storage tanks.

Federal Hazardous and Solid Waste Amendments (HWSA). The HWSA are the 1984 amendments to RCRA that focused on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program.

4.17.2.2 State Regulations

State Regional Water Quality Control Board. Operation of the Wastewater Treatment Facilities (WWTFs) is subject to regulations set forth by the California Department of Health Services (DHS) and State Water Resources Control Board (SWRCB). The SWRCB also regulates NPDES permits for operators of municipal separate storm sewer systems (MS4s), construction, projects, and industrial facilities who discharge to surface waters within the City.

Urban Water Management Planning Act. Since 1984, the Urban Water Management Planning Act has required certain urban water suppliers to develop written urban water management plans. While generally aimed at encouraging water suppliers to implement water conservation measures, the Act also created long-term planning obligations. In preparing urban water management plans, urban water suppliers must describe the following:

- Existing and planned water supply and demand;
- Water conservation measures and a schedule for implementing and evaluating such measures; and
- Water shortage contingency measures.

The Urban Water Management Planning Act requires urban water suppliers to use a 20-year planning horizon and to update the data in the urban water plans every 5 years. In preparing their 20-year management plans, water suppliers must directly address the subject of future population growth. The suppliers must also identify sources of supply to meet demand. The plan must “identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier.” In identifying these future water sources, though, the suppliers need not conduct environmental review. Urban water management plans are exempt from CEQA, and thus do not generate any EIRs for future land use or water planning.

Senate Bill 901—Water Supply and Demand Reliability Assessment. Signed into law on October 16, 1995, Senate Bill (SB) 901 required every urban water supplier to identify as part of its urban water management plan, the existing and planned sources of water available to the supplier over a prescribed five-year period. SB 901 required additional information to be included as part of an urban

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water management plan if groundwater is identified as a source of water available to the supplier. Provisions of SB 901 require an urban water supplier to include in the plan a description of all water supply projects and programs that may be undertaken to meet total project water use.

A city or county, at the time it submits a Notice of Preparation (NOP) for an EIR for a project, shall request each public water system serving a project to assess the projected water demand associated with said project and an assessment of whether the projected water demand associated with selected projects was included as part of the most recent UWMP. As part of this assessment, the public water system is required to indicate whether its total projected water supplies available during normal, single-dry, and multiple-dry water years would meet the demand associated with a proposed project, in addition to the public water system's existing and planned uses.

Compliance with the provisions of SB 901 is required if a project requires the adoption of a specific plan; or the amendment to, or revision of the land use element of a general plan or specific plan, that would result in a net increase in the stated population density of building intensity. Pursuant to Section 10913 of the State Water Code, a "project" is specifically defined as development meeting any of the following criteria:

- 500 or more dwelling units;
- Commercial center employing more than 1,000 persons or having more than 500,000 square feet;
- Office building employing more than 1,000 persons or having more than 250,000 square feet;
- A hotel/motel with 500 or more rooms;
- An industrial, manufacturing, processing plant, or industrial park employing more than 1,000 persons or occupying more than 40 acres, or having more than 650,000 square feet of floor area;
- A mixed-use project that would demand an amount of water equivalent of equal to the amount of water required by a 500-dwelling unit project; or
- In areas where the public water system has fewer than 5,000 service connections, any development that would increase water demand by 10 percent or greater in the number of existing service connections, or in the case of a mixed-use development, an increase in water required by residential development representing a 10 percent or greater in the number of existing service connections.

After receiving such information, cities and counties may agree or disagree with the conclusions of the water purveyors, but cannot approve projects in the face of documented water shortfalls without first making certain findings.

Senate Bill 610—Water Supply Planning. Effective January 1, 2002, SB 610 resulted in amendments to the Public Resources Code. Revising provisions established by SB 901, SB 610 requires that any city or county having determined that a project is subject to CEQA to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment. Such an assessment would include, among other information, the identification of existing water entitlements, water rights, or water service contracts relevant to the water supply identified for a proposed project, and the amount of water received pursuant to such entitlements, rights, or contracts.

SB 610 requires the public water system, city, or county to submit plans for acquiring the required water supply for a proposed project if the water supply assessment concludes that water supplies are or would become insufficient. Any such water supply assessment and other information would be included in the environmental document prepared for the project pursuant to CEQA. According to

§ 10912 of the State Water Code as amended (§ 10913 was repealed and added to § 10912), changes to the definition of a “project” were not made, except for the changes pertaining to the definition of a mixed-used project.

Senate Bill 221—Verification of Water. Effective January 1, 2002, SB 221 resulted in amendments to the State Water Code. SB 221 applies to the Subdivision Map Act, conditioning a tentative map on the applicant verifying that the public water supplier has “sufficient water supply” available to serve it. This bill applies to any “subdivision,” defined as: 1) a proposed residential development of more than 500 dwelling units, if the public water supplier has more than 5,000 service connections; 2) any proposed development that increases connections by 10% or more, if the public water supplier has fewer than 5,000 connections; 3) does not apply to any residential project proposed for a site that is within an urbanized area and has been previously developed for urban uses; and 4) does NOT apply to housing projects that are exclusively for very low and low-income households. The public water supplier is required to provide “written verification” of “sufficient water supplies.” This bill defines sufficiency in a different manner than SB 610, by requiring consideration of the following factors:

- The availability of water over the past 20 years;
- The applicability of any urban water shortage contingency analysis prepared per Section 10632 of the Water Code;
- The reduction in water supply allocated to a specific use by an adopted ordinance;
- The amount of water that can be reasonably relied upon from other water supply projects, such as conjunctive use, reclaimed water, water conservation and water transfer

The written verification must also provide evidentiary proof of the water supply, and the standard for that proof is largely similar to SB 610. In most cases, the water supply assessment prepared under SB 610 will meet that requirement.

Senate Bill 1016—Per Capita Disposal Measurement System. Signed into law January 1, 2009, SB 1016 builds upon Assembly Bill (AB) 939 compliance requirements by implementing a simplified measure of local jurisdictions’ performance. This is accomplished by changing to a disposal-based indicator: the per capita disposal rate, which uses a jurisdiction’s population and its disposal as reported by disposal facilities to better identify where improvements are needed. SB 1016 shifts from the historical emphasis on using calculated generation and estimated diversion to using annual disposal as a factor when evaluating jurisdictions’ program implementation. The new per capita disposal rate approach is not determinative of a jurisdiction’s compliance; rather, the California Integrated Waste Management Board (CIWMB) will use each jurisdiction’s annual per capita disposal as an indicator in evaluating program implementation with the goal of assisting local jurisdictions in the development and implementation of waste reduction programs, and to provide assistance when those programs are not working as they should.

AB 939—California Integrated Waste Management Act. Signed into law in 1989, AB 939 established an integrated waste management system that focused on source reduction, recycling, composting, and land disposal of waste. In addition, it established a 50 percent waste reduction requirement for cities and counties by the year 2000, along with a process to ensure environmentally safe disposal of waste that could not be diverted. AB 939 required that each County prepare a new Integrated Waste Management Plan and a Source Reduction and Recycling Element (SRRE) prior to July 1, 1991. Jurisdictions select and implement the combination of waste prevention, reuse, recycling, and composting that best meets the needs of their residents while achieving the diversion

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requirements of the Act. Cities and counties also have the flexibility to work cooperatively toward the 50 percent goal by forming regional agencies. Pursuant to the provisions of the act, in the year 2000, waste-to-energy or biomass conversion may contribute 10 percent toward the goal, with the remaining 40 percent accomplished through source reduction, recycling, and composting. The statute also allows a time extension to meet these goals for cities and counties that experience adverse market or economic conditions.

AB 1327—California Solid Waste Reuse and Recycling Access Act of 1991. Signed into law in 1991, this bill added Chapter 18 to Part 3 of Division 30 of the Public Resources Code. Chapter 18 required the CIWMB to develop a model ordinance for adoption of recyclable materials in development projects. Local agencies were then required to adopt the model, or an ordinance of their own, to govern adequate areas for collection and loading of recyclable materials in development project by September 1, 1993. If a local agency had not adopted a model ordinance by that date, the CIWMB model would be adopted and enforced by the local agency.

4.17.2.3 Local Policies

City of Corona General Plan Policies. The City of Corona General Plan includes policies and goals that are related to utilities and service systems. Table 4.17.A identifies goals and policies that apply to the proposed project.

Table 4.17.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
City of Corona General Plan Infrastructure and Utilities Element		
<i>Goal 7.1: Establish and maintain a secure water supply, water treatment, distribution, pumping and storage systems to meet the current and projected future daily and peak water demands of Corona.</i>		
Policy 7.1.7	Require adequate water supply, distribution, pumping, storage, and treatment facilities to be operational prior to the issuance of building permits.	The project would be consistent with this policy as discussed in Section 4.17.5.3.
Policy 7.1.9	Require all new development to be served from an approved domestic water supply.	The project would be consistent with this policy as discussed in Section 4.17.5.3.
<i>Goal 7.2: Minimize water consumption through site design, the use of water conservation systems and other techniques.</i>		
Policy 7.2.7	Require the use of recycled water for landscaped irrigation, grading, and other non-contact uses in new developments, parks, golf courses, sports fields, and comparable uses, where feasible.	The project would be consistent with this policy as discussed in Section 4.17.5.5.
Policy 7.2.9	Require that grading plans be designed and implemented to reduce stormwater runoff by capturing rainwater on site and stored on a temporary, short-term basis to facilitate groundwater recharge rather than relying solely on community drainage facilities.	The project would be consistent with this policy as discussed in Section 4.17.5.3.
<i>Goal 7.3: Ensure the costs of improvements to the water supply, transmission, distribution, storage and treatment systems are borne by those who benefit.</i>		
Policy 7.3.2	Require the costs of improvements to the existing water supply; transmission, distribution, pumping, storage and treatment facilities necessitated by new development be borne by those benefiting from the improvements, either through the payment of fees, or by the actual construction of the improvements.	The project would be consistent with this policy as discussed in Section 4.17.5.3.

Table 4.17.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
<i>Goal 7.4: Provide a wastewater collection and treatment system that supports existing and planned development within Corona. Where necessary, upgrade existing deficient systems and pursue funding sources to reduce costs of wastewater service.</i>		
Policy 7.4.2	As a condition of approval, require that development be connected to the municipal sewer system and ensure that adequate capacity is available for the treatment of generated wastewater flows and safely dispose of generated sludge.	The project would be consistent with this policy as discussed in Section 4.17.6.1.
Policy 7.4.3	Require that all new development submit a sewer analysis to the satisfaction of the City of Corona prior to the issuance of building permits.	The project would be consistent with this policy as discussed in Section 4.17.6.1.
Policy 7.4.10	Require that new development be connected to the City's sewer system, except where it is located at 200 feet or greater from the nearest service line, or other distance as deemed appropriate by the City's Department of Public Works, where it may be served by an on-site septic system provided that it is determined that the use of such systems will not degrade groundwater resources, plant and animal habitats, or otherwise adversely impact adjacent uses.	The project would be consistent with this policy as discussed in Section 4.17.5.1 and 4.17.5.2.
<i>Goal 7.5: Ensure that all wastewater collection and treatment facilities continue to be operated in a manner that maximizes public safety.</i>		
Policy 7.5.2	Continue to require all sewer discharges to comply with the City's Waste Discharge Pretreatment and Source Control Program outlined in the City's Ordinance.	The project would be consistent with this policy as discussed in Section 4.17.5.1.
Policy 7.5.3	Require all applicable industries/businesses to obtain sewer discharge permits from the City.	The project would be consistent with this policy as discussed in Section 4.17.5.1.
<i>Goal 7.6: Establish and maintain adequate planning, construction, maintenance, and funding for storm drainage and storage control facilities to support permitted land uses. If necessary, upgrade existing deficient systems to accommodate new permitted development and protect existing development within the City of Corona as well as pursue public funding sources to reduce fiscal impacts of implementation.</i>		
Policy 7.6.5	Ensure the provision of storm water conveyance and storage control facilities to be constructed coincident with new development.	The project would be consistent with this policy as discussed in Section 4.17.5.4.
Policy 7.6.6	Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and sub regional storm drainage systems, and, if warranted, require new development to provide adequate drainage facilities and to mitigate increases in stormwater flows and/or cumulative increases in regional flows. Developers of proposed projects are to submit a final drainage plan for the City Engineer's review and approval.	The project would be consistent with this policy as discussed in Section 4.17.5.4.
<i>Goal 7.7: Ensure that urban runoff from existing and new development does not degrade the quality of the City's surface waters, groundwater system, and other sensitive environmental areas.</i>		
Policy 7.7.3	In new developments, minimize impervious areas that are directly connected to piped or channelized drainage systems.	The project would be consistent with this policy as discussed in Section 4.17.5.4.

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Table 4.17.A: General Plan Policies Consistency with the Proposed Project

Goals, Objectives, and Policies		Project Consistency
Policy 7.7.5	Require that development projects consider the appropriateness of the channelization of storm water runoff to facilitate its possible capture and re-use for on-site irrigation and other purposes.	The project would be consistent with this policy as discussed in Section 4.17.5.4.
Policy 7.7.6	Implement environmentally and economically efficient wastewater treatment systems, whenever practical (such as artificial marshland wastewater treatment).	The project would be consistent with this policy as discussed in Section 4.17.5.1.

Urban Water Master Plan. The City of Corona’s UWMP (2010) is a long-range planning tool used by the CDWP to ensure water service reliability for its customers into the future. The City’s UWMP was last updated in 2011 and describes the available sources of water for the City, the City’s water demand, reliability of supplies during drought and emergency conditions, implementation of Best Management Practices (BMPs) for water conservation, recycled water, and alternative water supply sources. To ensure comprehensive information is obtained and used, the City consulted with the WMWD in preparing its 2010 UWMP and reviewed various other water supply documents prepared by the WMWD.

Recycled Water Master Plan. The City completed a Recycled Water Master Plan in December 1999 and has a new draft master plan under way. The draft master plan identifies that outdoor uses account for 54 percent of total average annual water demand and that up to 6,800 acre-feet per year of reclaimed water could be used for irrigation of nonresidential uses such as for parks, golf courses, freeway landscaping, cemeteries, and schools. The City has the capability to produce approximately 8.5 mgd of reclaimed water from WRF1 and approximately 1 mgd from WRF3.

City of Corona Groundwater Management Plan. The City of Corona developed a Groundwater Management Plan in 2008 (GWMP) to support the management of a reliable and sustainable groundwater resource for the City. The GWMP follows the guidelines set forth by AB 3030, the California Department of Water Resources Groundwater Management Act, which provides a systematic procedure for an existing local agency to develop a groundwater management plan. The GWMP allows the City of Corona to address issues of groundwater recharge and storage in order to effectively manage the local sub-basins and the City’s water supply. Implementation of the GWMP under AB 3030 also allows the City to raise revenue to pay for facilities to manage the groundwater basins. AB 3030, the Local Groundwater Management Assistance Act of 2000, was enacted to provide grants to local public agencies to carry out groundwater monitoring and groundwater management activities. Preferential funding is given to agencies that have adopted a GWMP and demonstrate collaboration with other agencies in the management of the affected groundwater basin.

4.17.3 Methodology

The water supply analysis is based on evaluating the existing water supply available to the City, future water supply that is anticipated to be available to or developed by the City, and the comparison of existing and future water demands with the development of the proposed project. Project water demands identified in this EIR were calculated based upon per dwelling unit water demand factors developed in Corona’s Water Master Plan and the project’ water master plan and the number of dwelling units as described within the Project Specific Plan.

The methodology of determining wastewater service impacts is based on evaluating the existing wastewater infrastructure and capacity available to the City, future wastewater capacity that is anticipated to be available to the City, and identification of anticipated future wastewater flows that could potentially result from the project and other partially developed and entitled projects.

The methodology of determining stormwater service impacts is based on evaluating the existing stormwater infrastructure and capacity available to the project area, future stormwater facilities anticipated to be available to the project area, and identification of anticipated future stormwater flows that could potentially result from the project and other partially developed and entitled projects in the project area.

The solid waste analysis is based on evaluating the existing capacity of nearby landfills that serve the City, future solid waste capacity that would be available to the City, and the identification of existing solid waste demand and future solid waste demand associated with the potential development of each development scenario. The analysis also identifies existing goals, policies, and programs that the City implements to reduce generated waste.

4.17.4 Thresholds of Significance

The following thresholds of significance regarding potential impacts to utilities and service systems are based on *CEQA Guidelines* (2010). A project would have a significant impact on the provision of utilities or service systems if it would result in any of the following:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB);
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental concerns;
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or need new or expanded entitlements;
- Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and/or
- Fail to comply with federal, state, and local statutes and regulations related to solid waste.

4.17.5 Less Than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards and policies would reduce potential impacts to a less than significant level.

4.17.5.1 Wastewater Treatment Requirements

Threshold	Would the proposed project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
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Local governments and water districts are responsible for complying with federal regulations, both for wastewater plant operation and the collection systems (e.g., sanitary sewers) that convey wastewater to the wastewater treatment facility. Proper operation and maintenance is critical for sewage collection and treatment as impacts from these processes can degrade water resources and affect human health. For these reasons, publicly owned treatment works (POTWs) receive Waste Discharge Requirements (WDRs) or National Pollution Discharge Elimination System (NPDES) permits to ensure that such wastewater facilities operate in compliance with water quality regulations set forth by the federal and state governments. WDRs and NPDES permits, issued by the state, establish effluent limits on the kinds and quantities of pollutants that POTWs can discharge. These permits also contain pollutant monitoring, recordkeeping, and reporting requirements. Each POTW that intends to discharge into the nation's waters must obtain a permit prior to initiating its discharge.

As required by City procedures, a sewer analysis was prepared for the proposed project. The sewer analysis provides detail as to the amount of sewage being generated for average and peak flows, existing and future flow routing through proposed projects and downstream sewers, recommendations for project sewer design parameters (pipe size, slope and area served by lift station) paralleling existing sewers where required, and an estimate of cumulative flows at Water Reclamation Facility No. 3. As concluded in the sewer analysis, the City's wastewater treatment system has adequate capacity to accommodate the increase in wastewater demand from the proposed project **as discussed further in Section 4.17.6.1.**

As previously stated, wastewater generated within the Specific Plan area would be treated by WRF3. Because WRF3 is considered to be a POTW, operational discharge flows treated at WRF3 must comply with permits issued by the Santa Ana RWQCB for WRF3. Compliance with condition or permit requirements established by the Santa Ana RWQCB would ensure that wastewater discharges coming from the Specific Plan area and treated by the wastewater treatment facility system would not exceed applicable Santa Ana RWQCB wastewater treatment discharge requirements. Therefore, a less than significant impact associated with this issue would occur. No mitigation is required.

4.17.5.2 New or Expanded Water Treatment Facilities

Threshold	Would the proposed project require the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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As previously stated, the City of Corona currently operates and maintains two surface water treatment plants and a groundwater desalting plant: Lester Treatment Plant and Sierra del Oro Treatment Plant, which treat the Metropolitan Colorado River water and the Temescal Basin Desalter that removes salts from Temescal Basin groundwater. Currently, the Sierra del Oro Treatment Plant has a treatment capacity of approximately 9.1 mgd; the Lester Treatment Plant has a treatment capacity of 25 mgd. Combined, the total capacity of these two plants is 34.1 mgd or 38,200 acre-feet per year.¹ The Temescal Basin Desalter produces 10 million gallons per day of water that is blended with water from Temescal Basin wells for potable use.

The Water Supply Assessment (WSA) prepared for the proposed project found that the City would be able to supply the Specific Plan area with potable water using a combination of imported and local groundwater; reporting that Corona's supply exceeded demand by 82.1 percent and 86.6 percent for Normal Years in 2020 and 2030. Supply exceeded demand by 16.4 percent and 20.4 percent for Multi-Year Drought conditions in those same years. The city took a more aggressive approach to conservation for its Corona's 2010 Urban Water Management Plan Update but a more conservative

¹ Ibid

approach to developing additional local groundwater. While imported water supply and its treatment are not proposed to expand significantly, use of local groundwater will continue and likely require implementation of various management strategies to meet continued and future. These management strategies are the subject of Corona's Draft Groundwater Management Plan and its EIR which is expected to be adopted in early 2012. Because adequate water supplies and water treatment facilities exist and adequate future supply and treatment capacity exists and are forecast to exist for all phases of the proposed project, no additional expansion of these water supplies or treatment plants would be required. Therefore, a less than significant impact associated with this issue would occur. No mitigation would be required.

4.17.5.3 Adequate Water Supply

Threshold	Would the proposed project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
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Previous uses on site (grapefruit production) required the use of water. A total of 41,584 trees were planted on 231 acres. Irrigation of these trees was accomplished through water purchased from the Elsinore Valley Municipal Water District (EVMWD) and by local on-site wells.

Implementation of the proposed Specific Plan would create a master-planned community that includes a balanced residential, commercial, and mixed-use development, as well as open space/recreation uses. The Specific Plan would establish land use types, locations, and densities; a circulation concept; infrastructure and public facility improvements; development standards and design guidelines; and would also result in an increase of water consumption within the area. Table 4.17.B provides a summary of water demands that the proposed Specific Plan would require.

As identified in Table 4.17.B, the proposed Specific Plan would have a water demand of approximately 709 AFY. Unit water demands were obtained from the City of Corona Water Master Plan and are consistent with values used for similar projects. Water demands are estimated separately for interior and exterior needs of the proposed project to facilitate the identification of the uses of reclaimed water. Table 4.17.C identifies the anticipated project demands for potable and recycled water.

The City has evaluated the implementation of the recommended groundwater infrastructure projects and operational strategies from its GWMP to use as a guide for the coordinated and sustainable management of its regional groundwater resources. Imported and groundwater supplies are reduced by 97 percent for single-dry year conditions and are reduced by 50 percent for multiple-dry water year drought conditions as described within the City of Corona's 2005 UWMP.

To reduce water demand during declared water shortages, the City has invested in developing a diverse water supply to ensure redundancy and flexibility during possible interruptions of its water supplies. The City has developed additional supply capacity to offset supply interruption from maintenance, equipment failures, natural disasters, and drought. Because the City's local well water is substantially lower in cost compared with MWD Colorado River water and SWP, the City has invested in improving the capacity of the local supply through implementation of capital improvement and replacement projects and continued planning. Planning efforts, such as the construction of the Temescal Desalter, have enabled the City to be adequately prepared to accommodate a 100 percent increase in water demand under normal water year conditions.

In times of water shortage, the City has three inter-ties with the City of Riverside, City of Norco, and Lee Lake Water District (LLWD). Water supply from the City of Riverside is for emergency use of up

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Table 4.17.B: Average Daily Water Demands by Planning Area

Planning Area	Land Use	Residential					Commercial (AFY)				Total (AFY)		
		Interior Unit Demand (AFY/du)	DU	Interior Demand (AFY)	Exterior Unit Demand (AFY/unit)	Exterior Demand (AFY)	Interior Unit Demand (AFY/acre)	Interior Demand	Exterior Unit Demand	Exterior Demand	Interior	Exterior	Total
1	LDR	0.34	60	20.4	0.34	20	—	—	—	—	20.40	20.40	40.81
2	LDR	0.34	28	9.5	0.34	10	—	—	—	—	9.52	9.52	19.04
3	P	—	—	—	1.34	1.34	—	—	—	—	—	1.34	1.34
4	MDR	0.34	103	35.0	0.34	35	—	—	—	—	35.03	35.03	70.05
5	MDR	0.34	48	16.3	0.34	16	—	—	—	—	16.32	16.32	32.65
6	HDR	0.18	146	26.8	0.05	7	—	—	—	—	26.82	6.71	33.535
7	MDR	0.34	134	45.6	0.34	46	—	—	—	—	45.57	45.57	91.14
8	P	—	—	—	1.34	14.79	—	—	—	—	—	14.79	14.79
9	P	—	—	—	1.34	1.34	—	—	—	—	—	1.34	1.34
10	MDR	0.34	90	30.6	0.34	31	—	—	—	—	30.61	30.61	61.21
11	MDR	0.34	86	29.2	0.34	29	—	—	—	—	29.25	29.25	58.49
12	P	—	—	—	1.34	2.69	—	—	—	—	—	2.69	2.69
13	MU-I	0.18	451	82.9	—	—	1.80	5	1.12	4.46	87.74	4.46	92.19
14	MU-II	—	—	—	—	—	1.93	10	1.12	4.17	10.21	4.17	14.38
15	GC	—	—	—	—	—	1.80	16	1.12	8.58	16.41	8.58	24.99
16	HDR	0.18	475	87.3	0.05	22	—	—	—	—	87.26	21.81	109.07
17	OS	—	—	—	1.12	3.36	—	—	—	—	—	3.36	3.36
18	OS	—	—	—	1.12	31.25	—	—	—	—	—	31.25	31.25
19	OS	—	—	—	1.12	6.72	—	—	—	—	—	6.72	6.72
Total		—	1,621	383.6	—	276.7	5.5	—	—	17.2	415	294	709

Notes: AFY = Acre-feet per year
HDR = High Density Residential
GC = General Commercial

LDR = Low Density Residential
MU-1 = Mixed Use 1
OS = Open Space

MDR = Medium Density Residential
MU-2 = Mixed Use 2
P = Park

Source: *Water Supply Assessment - Arantine Hills Specific Plan Project*, City of Corona, September 2010.

Table 4.17.C: Project Water Demand by Supply Source

Planning Area	Land Use	Water Demand (AFY)		
		Interior Potable	Exterior Potable	Exterior Recycled
1	LDR	20	20	0
2	LDR	10	10	0
3	P	0	0	1
4	MDR	35	35	0
5	MDR	16	16	0
6	HDR	27	7	0
7	MDR	46	46	0
8	P	0	0	15
9	P	0	0	1
10	MDR	31	31	0
11	MDR	29	29	0
12	P	0	0	3
13	MU-I	88	0	4
14	MU-II	10	0	4
15	GC	16	0	9
16	HDR	87	22	0
17	OS	0	0	3
18	OS	0	0	31
19	OS	0	7	0
Total		415	222	72

Notes: AFY = Acre-feet per year
HDR = High Density Residential
GC = General Commercial

LDR = Low Density Residential
MU-1 = Mixed Use 1
OS = Open Space

MDR = Medium Density Residential
MU-2 = Mixed Use 2
P = Park

Source: *Water Supply Assessment - Arantine Hills Specific Plan Project*, City of Corona, September 2010.

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to 2 mgd from Riverside to Corona via gravity flow. The inter-tie with Norco has a capacity of 5.76 mgd to Norco from WMWD; although Norco would not have capacity to deliver any significant volume of water to Corona. Lastly, the inter tie with LLWD would only be used for a small number of residences and businesses along the Interstate 15 corridor, approximately five miles south of State Route 91.

The proposed project will maximize the use of recycled municipal wastewater, consistent with the recommendations of the GWMP. The City will not be providing recycled water to single-family homes. However, all irrigation of commercial landscapes, parks, fuel modification areas, entry monuments, median strips and open spaces are planned for use of recycled water.

Corona's anticipated water supplies identified in the WSA for the Arantine Hills Specific Plan Project are shown in Table 4.17.D: 89,964 and 92,208 AFY in 2020 and 2030, respectively. As noted previously, Corona's 2010 draft UWMP takes a more aggressive position on mandated conservation at the demand level and a more conservative approach to future water supply availability, estimating water supply at 76,272 and 76,713 AFY for years 2020 and 2030.

Table 4.17.D: Updated City of Corona Water Area Current and Planned Water Supplies (Acre-Feet per Year)

Water Supply Source	Year					
	2005	2010	2015	2020	2025	2030
Imported Water – Western Municipal Water District						
MWDSC – Colorado River	32,598	32,598	32,598	32,598	32,598	32,598
MWDSC – State Water Project	7,281	7,281	7,281	7,281	7,281	7,281
Total Imported Water Supply	39,879	39,879	39,879	39,879	39,879	39,879
Groundwater						
Coldwater Sub-Basin	2,780	4,000	4,000	4,000	4,000	4,000
Temescal Sub-Basin	39,208	22,341	27,605	27,605	27,605	27,605
Bedford Sub-Basin	—	—	—	—	—	—
Total Groundwater Supply	41,988	26,341	31,605	31,605	31,605	31,605
Recycled Municipal Wastewater						
Recycled Supply	1,120	10,640	12,320	18,480	18,480	20,724
Total Supply	82,987	76,860	83,804	89,964	89,964	92,208

Source: *Water Supply Assessment - Arantine Hills Specific Plan Project*, City of Corona, September 2010.

Table 4.17.E from the project's WSA reports supply versus demand for normal, single-dry year, and multiple-dry year events. Supply was found to exceed demand by 82.1, 97.5 and 16.4% of demand for said normal, single-dry and multiple-dry years in 2020; 86.6, 102.5 and 20.4% of demand in 2030.

Subsequent to preparation of the WSA for the project, the City completed its Urban Water Master Plan. Table 4.17.F from Corona's 2010 UWMP found similar and mostly lower values for water supply versus demand, with water supply exceeding demand by 74, 32 and 24% of demand in 2020 for normal, single and multiple dry years; 70, 29 and 20 percent of demand in 2030.

Based on information reported from the WSA and Corona's 2010 UWMP, sufficient water supplies are available to meet future needs for the City's water service area through its anticipated build-out, projected to occur in year 2030 under normal, single-dry and multiple-dry water years.

Based on the analysis contained in this EIR, the City of Corona has sufficient water supplies to support the proposed Specific Plan. Since there is existing surplus water supply for the entire project, impacts associated with this issue are less than significant. No mitigation is required.

Table 4.17.E: City of Corona Water Service Area Project Water Supply and Demand Comparisons for Normal Year, Single-Dry Year, and Multiple-Dry Water Year (Acre-Feet per Year)

	Year				
	2010	2015	2020	2025	2030
Normal Year					
Supply	76,860	83,804	89,964	89,964	92,208
City Service Area Demand	46,470	47,939	49,408	49,408	49,408
Difference (Supply-Demand)	30,390	35,865	40,556	40,556	42,800
Difference As % of Demand	65.4%	74.8%	82.1%	82.1%	86.6%
Single-Year Drought					
Supply	74,873	81,659	87,819	87,819	90,063
City Service Area Demand	41,823	43,145	44,467	44,467	44,467
Difference (Supply-Demand)	33,050	38,514	43,352	43,352	45,596
Difference As % of Demand	79.0%	89.3%	97.5%	97.5%	102.5%
Multiple-Year Drought					
Supply	43,750	48,062	54,222	54,222	56,466
City Service Area Demand	41,922	46,397	46,597	46,897	46,897
Difference (Supply-Demand)	1,828	1,665	7,625	7,325	9,569
Difference As % of Demand	4.4%	3.6%	16.4%	15.6%	20.4%

Source: *Water Supply Assessment - Arantine Hills Specific Plan Project*, City of Corona, September 2010.

Table 4.17.F: City of Corona 2010 Urban Water Management Plan Supply and Demand Comparisons for Normal Year, Single-Dry Year, and Multiple-Dry Water Year (Acre-Feet per Year)

	Year			
	2015	2020	2025	2030
Normal Year				
Total Supply	71,640	76,272	78,549	76,713
Total Demand	46,110	43,807	44,424	45,123
Difference (Supply-Demand)	25,529	32,465	34,125	31,591
Difference As % of Demand	55.0%	74.0%	77.0%	70.0%
Single-Year Drought				
Total Supply	63,131	67,612	69,517	67,834
Total Demand	53,826	51,137	51,857	52,673
Difference (Supply-Demand)	9,305	16,475	17,660	15,161
Difference As % of Demand	17.0%	32.0%	34.0%	29.0%
Multiple-Year Drought				
Total Supply	59,187	63,845	64,245	63,529
Total Demand	51,980	51,425	52,184	53,026
Difference (Supply-Demand)	7,208	12,420	12,062	10,503
Difference As % of Demand	13.9%	24.0%	23.0%	20.0%

Source: *2010 Urban Water Management Plan*, City of Corona, June 2011.

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4.17.5.4 New or Expanded Stormwater Drainage Facilities

Threshold	Would the proposed project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental concerns?
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The master drainage plan for the Specific Plan area proposed a system of drainage channels and underground storm drains and basins to intercept and convey the storm flows generated by the project site and the off-site flows coming from the south. Previously referenced Figure 3.10 illustrates the proposed master drainage plan for the Specific Plan area. The majority of the underground drainage facilities are proposed to be placed under the streets. Open channels are proposed along the south, west, and north sides of the project area. Detention basins are proposed at two locations in order to capture increases in stormwater runoff due to the development of the various planning areas. Table 4.17.G provides a summary of the drainage proposed for the Specific Plan area.

Table 4.17.G: Proposed Drainage Infrastructure for Specific Plan

Drainage Infrastructure	Description and Location
Line "A"	Concrete-lined open channel proposed to intercept and convey the Planning Area 15 on-site peak 100-year storm flows ranging from 116.6 ft ³ /sec to 463.2 ft ³ /sec and discharge flows into Basin "A."
Detention Basin "A"	Basin preliminarily sized to capture 2, 5, 10, and 100-year developed storm flows. The maximum basin outflow of 198.0 ft ³ /sec will discharge into the Bedford Canyon Wash Channel.
Line "A-1"	36-inch underground drainage pipe that will collect and convey on-site storm flows generated by Planning Areas 1 through 5 and the southerly portion of Planning Area 6. Line "A-1" is proposed to tie into Line "A" and is sized to convey the maximum 100-year peak flow rate of 46.6 ft ³ /sec.
Line "B"	Underground drainage system that will collect and convey on-site storm flows generated by Planning Areas 6 through 9. Size would vary from 36 to 42 inches and would tie into Line "A." Line "B" is sized to convey the maximum 100-year peak flow rate of 59.3 ft ³ /sec.
Connector Pipes "B-1" and "B-2"	Underground pipes that will intercept flows from Planning Area 7 and would tie into Line "B." Connector Pipe "B-1" would be a 24-inch pipe while Connector Pipe "B-2" is an 18-inch pipe.
Line "C"	Underground drainage system that will collect and convey on-site storm flows generated by Planning Areas 10 through 14. Size would vary from 42 to 48 inches and would tie into Line "A." Line "C" is sized to convey the maximum 100-year peak flow rate of 119.7 ft ³ /sec.
Connector Pipe "C-1"	Underground pipe that would intercept flows from planning areas 11, 12, and 13 and would tie into Line "C." Connector Pipe "C-1" would be a 42-inch pipe.
Line "D"	Transverse levee system would be a concrete-lined open channel and levee system. Primarily designed to intercept and convey the 100-year breakout or errant flows from Bedford Canyon Channel. The combined channel and levee system is able to convey the entire 100-year bulked flow of Bedford Canyon Channel.
Line "E"	Concrete-lined open channel that would intercept and convey peak 100-year storm flows coming from Planning Area 16 and would discharge into Basin "B." Able to convey flows up to 58.0 ft ³ /sec.
Detention Basin "B"	Basin preliminarily sized to capture stormwater flows from Planning Area 16. The maximum basin outflow of 30.2 ft ³ /sec would discharge into an existing watercourse running along the south side of I-15.
Line "F"	60-inch RCP will serve as an outlet for Basin "A." Would be able to convey a maximum basin outflow of 198.0 ft ³ /sec and will tie into the Bedford Canyon Wash Channel.
Line "G"	24-inch RCP will serve as an outlet for Basin "B." Would be able to convey a maximum basin outflow of 30.2 ft ³ /sec and would discharge into an existing watercourse running along the south side of I-15.

Source: *Master Drainage Plan Arantine Hills Specific Plan*, AEI-CASC Consulting, February 10, 2011.

While the increase in impervious surfaces attributable to the proposed project would contribute to a greater volume and higher velocity of stormwater flows, the proposed project's master drainage system would accept and accommodate runoff that would result from project construction at or below pre-project conditions. On-site master drainage improvements for the Specific Plan area would be constructed and would be adequately sized to route stormwater flows generated on site to appropriate off-site stormwater facilities such as underground pipes and channels.

Specifically, the proposed on-site master drainage system has been designed such that it can convey off-site and on-site flows in a safe and nondestructive manner while protecting the primary access points from the 100-year storm event. City design criteria specify that the 10-year event be contained from curb-to-curb while the 100-year event is contained within the right-of-way. Street capacity calculations show that all four proposed on-site streets can convey the 100-year event from curb-to-curb; therefore, the smaller 10-year event can be easily conveyed from curb-to-curb. Similar to what was identified for water and sewer infrastructure improvements, the implementation of the master drainage improvements would not have a significant impact as the installation of these infrastructure features would occur concurrently with the associated roadway improvements in the Specific Plan area. Impacts associated with this issue would be considered less than significant and no mitigation measures are required.

4.17.5.5 Solid Waste Facilities

Threshold	Would the proposed project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?
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Solid waste collection is a "demand-responsive" service and current service levels can be expanded and funded through user fees without difficulty. As previously identified, the El Sobrante Landfill has a daily permitted throughput of 11,667 tons per day, a remaining capacity of 118.6 million cubic yards, and an estimated closure date of 2045.¹ The average daily throughput at the El Sobrante Landfill is estimated at 6,382 tons/day with a current surplus capacity which totals 5,285 tons/day.² Implementation of the Specific Plan would result in the development of residential, commercial, institutional, and open space uses within the project area. Table 4.17.H provides the estimated solid waste generation for these uses.

As identified in Table 4.17.H, the potential development that could occur with implementation of the Specific Plan could generate up to 39,976 pounds (19.94 tons) of solid waste daily. It is anticipated that any future development within the Specific Plan area would have waste hauled away by WMI and transported to the El Sobrante Landfill, located south of the City. The volume of solid waste that could be generated by the potential future development within the Specific Plan area could represent up to 0.17 percent of the current permitted throughput and up to 0.37 percent of the current surplus capacity at the El Sobrante Landfill. As adequate daily surplus capacity exists at the receiving landfill, future development that could occur within the Specific Plan area would not significantly affect current operations or the expected lifetime of the landfill serving the project area. Therefore, no significant solid waste disposal impacts would occur and no mitigation is required.

Table 4.17.H: Solid Waste Generation Estimates

Potential Future Use	Units/Area	Residents/Employees	Waste Generation Factor	Generation Estimate	
				Daily	Annual
Residential	1,621 units	5,502 residents ¹	12.23 lbs/household/day ³	19,825 lbs (9.9 tons)	7,236,063 lbs (3,618 tons)

¹ California Department of Resources Recycling and Recover website, <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=33&FACID=33-AA-0217>, web site accessed March 3, 2010.
² Ryan Ross, Riverside County Waste Management Department, e-mail communication dated March 30, 2010.

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Table 4.17.H: Solid Waste Generation Estimates

Potential Future Use	Units/Area	Residents/ Employees	Waste Generation Factor	Generation Estimate	
				Daily	Annual
Commercial	629,850 square feet of building space	1,850 employees ²	10.53 lbs/employee/day ³	19,481 lbs (9.7 ton)	7,110,565 lbs (3,541 tons)
Industrial	115,450 square feet of building space	75 employees ⁴	8.93 lbs/employee/day ³	670 lbs (0.34 ton)	244,550 lbs (124 tons)
Total				39,976 lbs (19.94 tons)	14,591,178 lbs (7,283 tons)

¹ City household size of 3.394 persons per household x 1,621 dwelling units = 5,502 potential residents.
² 1 employee/268 square feet of regional retail commercial use x 396,400 square feet of regional retail commercial uses = 1,479 employees; 1 employee/629 square feet of other commercial use x 233,450 square feet of other commercial use = 371 employees. 1,479 + 371 = 1,850 employees
³ City of Los Angeles CEQA Thresholds Guide, 2006.
⁴ Plus 1 employee/1,548 square feet of light industrial use x 115,450 square feet of light industrial uses = 75 employees.
 Source: California Department of Resources Recycling and Recovery (CalRecycle) <http://www.calrecycle.ca.gov/wastechar/wastegenrates/Institution.htm>, website accessed May 2, 2011.
 LSA Associates, Inc. May 2011.

4.17.5.6 Solid Waste Reduction

Threshold	Would the proposed project fail to comply with applicable federal, state, and local statutes and regulations related to solid waste?
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All uses within the City that generate waste (which include the Specific Plan area) are required to coordinate with a waste hauler to develop collection of recyclable materials for the project on a common schedule as set forth in applicable local, regional, and state programs. Additionally, all development within the City is required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991) and other applicable local, State, and federal solid waste disposal standards, thereby ensuring that the solid waste stream to the El Sobrante Sanitary Landfill is reduced and no hazardous waste is received in accordance with existing regulations. Therefore, impacts associated with this issue are less than significant for the proposed project and no mitigation is required.

4.17.6 Significant Impacts

4.17.6.1 Wastewater Treatment Capacity and/or New or Expanded Wastewater Treatment Facilities

Impact 4.17.6.1: *The proposed land use actions and potential subsequent land development that may occur under Phase 3 has the potential to exceed existing wastewater treatment capacity at the wastewater facility serving the proposed project.*

Threshold	Would the proposed project result in a determination by the wastewater treatment provider, which serves or may serve the project, that it lacks adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
Threshold	Would the proposed project require the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Implementation of the Specific Plan would require:

- That the City manage the expansion of WRF3 and its wastewater systems to meet increasing wastewater flows from the Specific Plan area, already entitled projects and projects adjacent to existing sewerlines that are tributary to WRF3;
- That the City comply with the mitigation and monitoring plan identified in the Final Environmental Impact Report for Wastewater Treatment Plant No. 3. (1997); and
- That the developer construct infrastructure within the Specific Plan area in accordance with the proposed phasing plan.

Table 4.17.I provides a summary of how sewer infrastructure would be phased within the Specific Plan area while previously referenced Figure 3.9 illustrates the phasing of proposed sewer improvements within the Specific Plan area.

Table 4.17.I: Proposed Sewer Infrastructure for Specific Plan

Phase	Sewer Infrastructure	Location
1	8" sewer line	In Street "B" east of Planning Area 4 and 5 easterly to Street "A"
	8" sewer line	East to the northern project boundary
	8" sewer line	Through Planning Areas 7, 10, 11, 13, and 15
	12" sewer line	Through Planning Area 15
	Off-site sewer line	Northeasterly to Cajalco Road
	18" sewer line	To Temescal Canyon Road
	21" sewer line	Connecting to WRF3
		Expansion of Corona's WRF3 may be required
2	Development within Phase 2 does not require the construction of additional backbone sewer as the required sewer to serve Phase 2 would be constructed with Phase 1. Expansion of WRF3 may be required.	
3	8" sewer line	End of cul-de-sac in Street "B" east to connect to the sewer built with Phase 1 (at the boundary of Planning Area 4 and 5)
4	Lift station with 2 pumps	Within Planning Area 16

Source: *Sewer Analysis Arantine Hills*, AEI-CASC Consulting, February 17, 2011.

It is anticipated that wastewater flows from potential future development within the Specific Plan area would be handled by the CDWP and conveyed to WRF3 within the southeastern portion of the City. As previously identified, current capacity at WRF3 is 1.0 mgd with an existing average inflow of approximately 0.54 mgd.¹ Under current conditions, the average daily surplus treatment capacity is approximately 0.46 mgd. The amount available for the project would be diminished by sewer connections occurring from entitled projects and lands along existing sewer lines tributary to WRF3, and thus require the expansion of the treatment plant. However, to avoid significant environmental effects, this expansion shall be in conformance with the mitigation and monitoring plan identified in the EIR for Wastewater Treatment Plant No. 3.

Wastewater generation for urban development within the Specific Plan area would come from a mixture of residential, commercial, and light industrial uses. Table 4.17.J provides the estimated wastewater generation for these uses.

¹ *Sewer Analysis Arantine Hills*, AEI-CASC Consulting, February 17, 2011.

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Table 4.17.J: Sewer Generation Rates

Planning Area	Land Use	Average Day Flows (gpd)	Average Day Flows (cfs)	Peak Dry Flows (cfs)	Peak Wet Flows (cfs)
Phase 1					
6	High Density Residential (146 du)	29,200	0.045	0.113	0.143
7	Medium Density Residential (134 du)	32,160	0.050	0.123	0.156
8	Park (11 ac)	1,430	0.002	0.007	0.009
9	Park (1 ac)	130	0.000	0.001	0.001
10	Medium Density Residential (90 du)	21,600	0.033	0.086	0.108
11	Medium Density Residential (86 du)	20,640	0.032	0.082	0.104
12	Park (2 ac)	260	0.000	0.001	0.002
13	Mixed Use I - High Density Residential (451 du)	90,200	0.140	0.319	0.403
13	Mixed Use I – General Commercial (7.0 ac)	7,350	0.011	0.032	0.040
14	Mixed Use II (18.6 ac)	21,483	0.033	0.085	0.108
17	Open Space (3 ac)	390	0.001	0.002	0.003
18	Open Space (27.9 ac)	3,627	0.006	0.017	0.021
19	Open Space (6.0 ac)	780	0.001	0.004	0.005
Phase 1 Subtotals		229,250	0.354	0.872	1.103
Phase 2					
15	General Commercial (38.3 ac)	40,215	0.062	0.152	0.192
Phase 2 Subtotals		40,215	0.062	0.152	0.192
Phase 3					
1	Low Density Residential (60 du)	16,200	0.025	0.066	0.083
2	Low Density Residential (28 du)	7,560	0.012	0.033	0.041
3	Park (1 ac)	130	0.000	0.001	0.001
4	Medium Density Residential (103 du)	24,720	0.038	0.097	0.122
5	Medium Density Residential (48 du)	11,520	0.018	0.048	0.061
Phase 3 Subtotals		60,130	0.093	0.245	0.308
Phase 4					
16	High Density Residential (475 du)	95,000	0.147	0.334	0.423
Phase 4 Subtotals		95,000	0.147	0.334	0.423
Total		424,595	0.656	1.603	2.026

Source: Exhibit 4 – Arantine Hills Sewer Generation Flow Data, Sewer Analysis Arantine Hills, AEI-CASC Consulting, February 17, 2011.

Note sewer analysis includes flows from non- project area for purpose of ultimate pipe flow monitoring.

As identified in Table 4.17.J, it is anticipated that up to 424,595 gallons per day (gpd) or 0.425 million gallons per day (mgd) of wastewater could be generated from development within the Specific Plan; another estimated 192,000 gpd or 0.192 mgd may be generated by upstream lands. Pipelines have been sized for the future upstream flow although treatment plant capacity for non-project future development is not addressed by this EIR because it is not known if these non-project upstream lands will ever develop.

Phase 1 of the Specific Plan is estimated to generate 0.229 mgd. While on face value WRF3 would seem to have sufficient capacity, additional flows of up to 0.314 mgd may be expected from existing projects in progress such as Dos Lagos and the Crossings, entitled projects on Foothill Parkway, and some localized connections along the existing sewer pipelines in El Cerrito. It is possible that the wastewater flows to WRF3 from existing customers and Phase 1 of the Specific Plan may exceed the current capacity of the plant (existing at 0.540 + Phase 1 at 0.229 + other development at 0.314 = 1.083 mgd exceeding the existing WRF 3 capacity of 1.0 mgd). This would require that the City expand the plant or make other changes in its wastewater system to accommodate the first phase of the project. Expansion of WRF3 or other wastewater systems would likely increase wastewater treatment plant capacity by more than 1 mgd.

Phase 2 of the Specific Plan is estimated to generate an additional 40,000 gpd of wastewater or 0.040 mgd. Cumulative flows to WRF3 could be as high as 1.123 mgd. Depending on the progress of other land development noted above and whether wastewater treatment plant capacity has yet been expanded, the City may have to expand the plant or make other changes in its wastewater system to accommodate the second phase of the project.

Phase 3 of the Specific Plan is estimated to generate an additional 61,000 gpd of wastewater or 0.061 mgd. Cumulative flows could be as high as 1.183 mgd, requiring that the City expand WRF3 or its wastewater treatment systems to accommodate Phase 3 and later phases of the project.

Phase 4 of the Specific Plan is estimated to generate an additional 95,000 gpd of wastewater or 0.095 mgd. Cumulative flows could be as high as 1.279 mgd, requiring that WRF3 or Corona's wastewater system have been expanded by 1 mgd.

A combination of funding sources may be utilized for the construction of public infrastructure features such as sewer treatment facilities. Typically, project proponents install internal sewer lines within the project site and replacing downstream facilities needing additional capacity. For sewer facilities, such as WRF3, that are affected by the proposed project, a fair-share amount is typically contributed by the project proponent to the City's sewer program, usually in form of a Development Impact Fee (DIF). In the City, a sewer capacity fee is assessed on urban development. This sewer capacity fee funds construction of incremental expansions of the sewage system to ensure that adequate capacity exists for future development. Funds received as part of a citywide development mitigation program can be spent on any sewer infrastructure projects within the City's jurisdiction that have been listed in the City's program documentation (e.g., a capital improvement plan). The timing of the improvements is established through the City's Engineering Department to ensure that construction and needed improvements occurs prior to or concurrent with the time at which the identified sewer facility or sewer mainline is forecast to exceed existing capacity.

The City's Capital Improvement Program (CIP) for 2010/2011 and the Sewer Master Plan identify a 2.0 mgd expansion of WRF3. The CIP identifies the Project as T-16A planned for 2015 or later. Upon its expansion, WRF3 would have a total daily treatment capacity of 3.0 mgd. Development within the Specific Plan is anticipated start no earlier than five years from now. The current CIP program could fit with the project schedule. However, there is no guarantee that the planned expansion at WRF3 would be completed at the time that capacity is needed for the project and WRF3 would not be able to accommodate the anticipated wastewater generation associated with Phase 3 of the Specific Plan. For this reason, impacts are considered significant and mitigation is required.

Mitigation Measures. The following measures have been identified to reduce potential impacts associated with capacity at the existing wastewater treatment facility for Phase 3 of the Specific Plan:

- 4.17.6.1A** Prior to the issuance of grading permits for any development phase that would occur under the Specific Plan, the project proponent shall obtain verification from the City that planned wastewater capacity improvements at WRF3 or elsewhere in the city's wastewater system are in place and operational or said improvements are funded or under construction and will be available for service to completed homes and businesses.
- 4.17.6.1B** The City shall implement the mitigation and monitoring plan identified in the EIR for Wastewater Treatment Plant No. 3 as a part of any expansion of said plant. Alternatively, the Developer shall negotiate an advanced funding option for implementation of the mitigation and monitoring plan identified in the EIR for Wastewater Treatment Plant No. 3 in lieu of paying a Sewer Connection Fee for sewer capacity to ensure that wastewater plant capacity is available so phases of the project may proceed without being delayed.

Level of Significance After Mitigation. Adherence to Mitigation Measure 4.17.6.1A would reduce potential wastewater treatment capacity impacts associated with subsequent development proposed under Phase 3 of the Specific Plan to a less than significant level. In addition, the project applicant would be conditioned to pay all applicable development impact fees related to sewer infrastructure. Furthermore, the proposed project would be conditioned to construct all associated sewer lines and infrastructure needed to serve the project sites and pay all applicable development impact fees. Adherence to standard requirements identified by the City associated with the design and installation of new sewage infrastructure and connections to existing sewer infrastructure and payment of applicable development impact fees would ensure that no additional significant impacts would result from the construction or operation of the proposed project. Therefore, impacts related to this issue would be less than significant with implementation of the identified mitigation measure, adherence to standard City requirements, and payment of applicable development impact fees.

4.17.7 Cumulative Impacts

4.17.7.1 Water Supply

The cumulative area for water supply-related issues is the CDWP service area. Existing and future development within the CDWP's service area would demand additional quantities of water. Increases in population, square footage, and intensity of uses would contribute to increases in the overall regional water demand. The anticipated conversion of water-intensive uses (i.e., agriculture) and the implementation of existing water conservation measures and recycling programs would reduce the need for increased water supply. **With implementation of these water conservation measures, the City's supply of water is expected to meet future water demands.**

Cumulatively, water demands in the region and the City are expected to increase due to the development of future projects. Without a confirmed source of supplemental water, the use of groundwater supplies in the region would increase cumulatively. The regional increased use of groundwater supplies would potentially lead to a degradation of regional water quality due to a reduced amount of water in the regional groundwater basins. Therefore, the proposed project, in conjunction with other reasonable and foreseeable projects, would have a potentially significant and unavoidable cumulative impact on groundwater supplies due to the possible overdrafting of the underlying groundwater basin.

However, future water use in Corona is controlled by the potable water, reclaimed water, and groundwater management strategies contained in the approved UWMP, RWMP, and GWMP. The

GWMP identifies management strategies to increase the redundancy and potential expansion of local groundwater production through recharge with reclaimed water, stormwater and possibly imported water to ensure adequate groundwater supply. For this reason, implementation of the water efficiencies inherent within the UWMP, RWMP, and GWMP are expected to reduce impact to local groundwater basins to a less than significant level and no mitigation is required.

4.17.7.2 Wastewater

According to the Corona Sewer Master Plan, the City's treatment plants had a combined treatment capacity of 15.5 mgd in 2005 and processed an average flow of 13.45 mgd in 2010, leaving 2.05 mgd of available capacity. As described in the Corona Sewer Master Plan, with improvements, the future reliable treatment capacity for all three treatment plants is expected to be approximately 21 mgd. The City's General Plan EIR determined that the City's wastewater distribution and treatment system, with implementation of City policies requiring the provision of a wastewater collection and treatment system that supports existing and planned development within Corona, will be adequate to serve the City of Corona. Furthermore, the proponent of the proposed project is required to obtain verification from the City that the planned expansion at WRF3 is in place and operational prior to grading activity for the various phases of the Specific Plan. This requirement is identified as **Mitigation Measure 4.17.6.1A**. Adherence to this mitigation measure would ensure that adequate capacity is available prior to wastewater flows being generated and handled at WRF3. Therefore, the proposed project would not contribute to a cumulatively significant wastewater capacity impact.

In addition, by adhering to the wastewater treatment requirements established by the Santa Ana RWQCB through the NPDES permit, wastewater from the Specific Plan area that is processed through WRF3 would meet established standards. As the wastewater from all development within the service area of WRF3 would be similarly treated under the NPDES, no cumulatively significant exceedance of Santa Ana RWQCB wastewater treatment requirements would occur. The proposed project would not result in significant cumulative impacts to wastewater treatment or wastewater treatment facilities.

4.17.7.3 Drainage

The cumulative area for drainage-related issues is the project study area. Cumulative population increases and development within the area would increase the amount of impervious surfaces and therefore the amount of stormwater runoff generated within the area. All projects in the Specific Plan area are required to handle drainage without increasing downstream flows and velocities. Since all projects would similarly be required to control runoff and drainage features, the cumulative increase in development would not create a cumulatively significant increase in runoff. Cumulative development would not exceed the capacity of the planned drainage system. Because the proposed project would be required to have drainage infrastructure in place that would accommodate project-related flows as would all cumulative developments in the area, the proposed project would not contribute to a cumulatively significant drainage impact.

4.17.7.4 Solid Waste Services

The cumulative area for solid waste is the area serviced by the El Sobrante Landfill. AB 939 mandates the reduction of solid waste disposal in landfills. The El Sobrante Landfill has an estimated closure date of 2045, and it is expected that the City's waste hauler will also use other County landfills in the area (e.g., Lamb Canyon Landfill and Badlands Landfill). The estimated closure date of the Lamb Canyon Landfill is 2023 and the estimated closure date of the Badlands Landfill is 2016. With planned expansion activities of landfills in the project vicinity and projected growth rates contained within the City's General Plan EIR, sufficient landfill capacity would exist to accommodate future

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disposal needs through City build out in 2030. Therefore, development that would occur under the proposed project would not create demands for solid waste services that are not accounted for in the City's growth projections and therefore would not exceed the capabilities of the County's waste management system. Consequently, cumulative impacts associated with solid waste within the City would be considered less than significant.

5.0 OTHER CEQA TOPICS

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

Table 5.A identifies the significant unavoidable impacts that would result from the proposed project, even with implementation of the project-specific mitigation measures identified in the Section 4.0 analysis.

Table 5.A: Significant Environmental Effects That Cannot Be Avoided

Topic	Type of Impact	Impact
Agriculture	Conversion of Prime and Unique Farmland	The project proponent with two feasible options to mitigate for the loss of Prime Farmland by either (1) conservation of an agricultural area of equal productivity, or (2) the payment of fees to conserve an agricultural area of equal productivity. Neither measure would replace or provide substitute farmland to compensate for the impacts to on-site agricultural resources that result from the proposed project, nor does either measure create “new” farmland in areas where no farmland currently exists. While the mitigation identified above would prevent the future conversion of as-of-yet unidentified farmland, it would not avoid, minimize, or otherwise directly mitigate the farmland impacts resulting from the development of the 274.8-acre project site of which 54.15 acres are considered Prime Farmland and 118.34 acres are considered Unique Farmland. Therefore, even with mitigation, impacts associated with the conversion of Prime and Unique Farmland remain significant and unavoidable as identified in both the County of Riverside General Plan and the City’s General Plan.
Agriculture	Cumulative Impact	Because agricultural land, including Prime Farmland, Williamson Act land, and land zoned for agricultural operations, is a finite resource, the conversion of 276 acres to urban uses, combined with planned and future development in the City and region, represents a significant cumulative impact to agricultural operations and resources that cannot be mitigated. Therefore, cumulative impacts associated with agricultural resources remain significant and unavoidable.
Air Quality	Construction Emissions	During project construction, it is not known specifically what type of on-site equipment will be used (e.g., gasoline- or diesel-powered) therefore, no additional reduction in NO _x emissions was taken. No other feasible mitigation measures have been identified to reduce the construction emissions of NO _x to a less than significant level. Project-related construction emissions of NO _x will continue to exceed thresholds. In the absence of feasible mitigation to reduce the proposed project’s emission of NO _x to below SCAQMD thresholds, potential air quality impacts resulting from exhaust from construction equipment will remain significant and unavoidable.
Air Quality	Operational Air Pollutant Emissions	Project-related emissions for CO, ROG, NO _x , and PM ₁₀ would exceed the SCAQMD daily emissions thresholds. Pollutant emissions of CO, ROG, and NO _x that would exceed the SCAQMD thresholds may contribute to the maintenance of existing nonattainment status in the Basin. Although implementation of mitigation measures may reduce emissions associated with the proposed project, it is not possible to quantify the reduction in the amount of emissions that may occur. Estimated air pollutant emissions during operation of the proposed project will remain significant and unavoidable for CO, VOC, NO _x , and PM ₁₀ .

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Table 5.A: Significant Environmental Effects That Cannot Be Avoided

Topic	Type of Impact	Impact
Air Quality	Cumulative Air Pollutant Emissions	Long-term operation of the project would contribute to long-term regional air pollutants despite implementation of mitigation measures. The Basin is in nonattainment for NOX, PM10, PM2.5, and ozone at the present time; therefore, the operation of the proposed project would exacerbate nonattainment of air quality standards within the Basin and contribute to adverse cumulative air quality impacts. Implementation of the proposed project would unavoidably contribute to significant long-term cumulative air quality impacts.
Hydrology and Drainage	Groundwater	Since the worst-case scenario assumes that no imported water would be available to supplement groundwater supplies, any increase in water demand within the City would result in the withdrawal of groundwater from the groundwater basins. Therefore, impacts associated with groundwater levels are significant and unavoidable.
Hydrology and Drainage	Cumulative on Groundwater and Ground Water Quality	Cumulatively, water demands in the region and the City are expected to increase due to the development of future projects. Without a confirmed source of supplemental water, the use of groundwater supplies would increase cumulatively. The increased use of groundwater supplies would potentially lead to a degradation of water quality due to a reduced amount of water in the groundwater basins. Therefore, the proposed project, in conjunction with other reasonable and foreseeable projects, would have a significant and unavoidable cumulative impact on water quality and use due to the possible overdrafting of the underlying groundwater basin.
Transportation and Traffic	Cumulative Long-term on I-15	State highway funding is an extraordinarily complex State-wide and regional problem the cities have grappled with for decades. By definition, State highways are impacted by interstate, State-wide and regional traffic. To this end, in 2007, State Senator Alan Lowenthal (D, Long Beach) chair of the Senate Transportation Committee, held hearings on alternative funding mechanisms for State highway improvements, including legislation that would allow private companies to build and operate State highways. Several such proposals have been considered in connection with the SR-91 and I-15 in Riverside. The State Legislature, Caltrans, the Executive Branch and public-private partnerships are all engaged in multi-jurisdictional and creative solutions to feasibly alleviate congestion on the State's highways. For these reasons, there are no available and feasible mitigation measures available to mitigate the project's de minimis cumulative contribution to traffic on the I-15 Freeway under long-range (2035) conditions and the project's cumulative impact is considered to be significant and unavoidable
Utilities and Service Systems	Cumulative Water Supply	Cumulatively, water demands in the region and the City are expected to increase due to the development of future projects. Without a confirmed source of supplemental water, the use of groundwater supplies in the region would increase cumulatively. The increased use of groundwater supplies would potentially lead to a degradation of water quality due to a reduced amount of water in the groundwater basins. Therefore, the proposed project, in conjunction with other reasonable and foreseeable projects, would have a significant and unavoidable cumulative impact on water quality and use due to the possible overdrafting of the underlying groundwater basin.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE CAUSED BY THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

The *CEQA Guidelines* mandate that the EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented (*CEQA Guidelines*, §15126[c]). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether the proposed project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them. The proposed project will have a significant unavoidable impact on the loss of agricultural land. Agricultural lands are rapidly being converted to urban uses throughout California and both the City of Corona and Riverside County have recognized that the conversion of agricultural lands to urban uses is inevitable.

Natural resources in the form of common building materials (e.g., lumber, concrete, aggregate, iron/steel/other metals, and vehicle fuel/petroleum-based products) would be utilized in the potential future construction that could occur on the Specific Plan site, while energy resources in the form of electricity and natural gas would be used during the long-term future operation of the project. The potential future use of these resources is not expected to negatively affect their availability as they are generally readily available within the region. Additionally, the proposed project would be required to comply with the updated Title 24 standards for building construction.

5.3 GROWTH INDUCEMENT

CEQA requires a discussion of ways in which the proposed project could induce growth. The *CEQA Guidelines* identify a project as growth-inducing if it fosters economic or population growth, or the construction of additional housing either directly or indirectly in the surrounding environment (*CEQA Guidelines* Section 15126.2[d]). New employees from commercial or industrial development and new population from residential development represent direct forms of growth.

A project could indirectly induce growth by reducing or removing barriers to growth or by creating a condition that attracts additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors. Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. Growth inducement for this project has been analyzed in Chapter 4.13 (Population and Housing) in this EIR.

5.4 CONSISTENCY WITH LOCAL AND REGIONAL PLANS

Section 15125 (d) of the *CEQA Guidelines* requires EIRs to "...discuss any inconsistencies between the proposed project and applicable general plans and regional plans." The objective of such a discussion is to find ways to modify the project, if warranted, to reduce any identified inconsistencies

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with relevant plans and policies. A discussion of the consistency of the proposed project with the goals and policies of relevant adopted local and regional plans is provided in Chapter 4.10 (Land Use and Planning). In addition, each of the EIR chapters has provided a consistency analysis with General Plan policies as it relates to each individual topic.

5.5 ENERGY CONSUMPTION

This section discusses the conditions that exist on the project site and the regulatory framework that governs the supply and demand for direct and indirect energy requirements. Appendix F of the CEQA Guidelines describes the energy conservation information and analyses that should be included in an EIR, including emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Energy conservation is defined in terms of decreased reliance on natural gas and oil, decreased per capita energy consumption, and increased reliance on renewable energy sources.

Potential future development that could occur on the Specific Plan site would be supplied natural gas and electricity by the Southern California Gas Company and the City of Corona Department of Power and Water, respectively.¹ A detailed analysis of the project's energy consumption has been provided in Chapter 4.7 (Climate Change and Greenhouse Gases) of this EIR.

It is anticipated that potential future development under the proposed project would be required to adhere to Title 24, Part 6, of the California Code of Regulations, which identifies energy efficiency standards for residential and nonresidential buildings. These standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recent standards were adopted and went into effect January 1, 2010.² Such standards include the provision of cool roofs, demand control ventilation, skylights for day-lighting in buildings, thermal breaks for metal building roofs, and lighting power limits. These standards are expected to reduce the growth in electricity use of residential and non-residential buildings. Compliance with such standards would be reviewed before the issuance of a building permit by the City. Because potential future development that could occur under implementation of this project would be required to adhere to standards contained in Title 24 in addition to requirements set forth by the respective utility providers, potential future development of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy. Consequently, impacts associated with this issue are considered to be less than significant and no mitigation would be required.

The methodology used in this EIR to analyze the project's potential effect on global climate change includes a calculation of greenhouse gas emissions. The purpose of calculating the emissions is for informational purposes, as there is no quantifiable emissions threshold established by any judicial decision or CEQA regulation or statute as indicated in the public policy rationale underlying AB 32 and SB 97. A detailed analysis of the project's greenhouse gas emissions has been provided in Chapter 4.7 (Climate Change and Greenhouse Gases) of this EIR.

¹ *Arantine Hills Specific Plan*, KTG Y Group Inc., January 2010.

² *Nonresidential Compliance Manual for California's 2008 Energy Efficiency Standards*, California Energy Commission, effective January 1, 2010, <http://www.energy.ca.gov/title24/2008standards/index.html>, website accessed on March 4, 2010.

6.0 ALTERNATIVES

6.1 INTRODUCTION

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a Proposed Project. *CEQA Guidelines* (§15126[d]) emphasizes the selection of a reasonable range of technically feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis and consideration by decision-makers. *CEQA Guidelines* state that the discussion of alternatives shall focus on alternatives capable of eliminating or reducing significant adverse environmental effects of a proposed project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives required in an EIR is governed by a “rule of reason,” which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Pursuant to CEQA, “feasible” has been defined as “...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.”¹

6.1.1 Summary of the Proposed Project

The proposed project is located in the Bedford Canyon area of the Santa Ana Mountain foothills in the southeastern portion of Corona. The City of Corona is generally situated southwest of the City of Riverside, south of the City of Norco, and north of the City of Lake Elsinore in Riverside County, California. The proposed project would result in the creation of a 276-acre master-planned community that includes residential, commercial, and mixed-use development as well as open space/recreational uses. The Specific Plan would establish land use types, locations, and densities; a circulation concept; infrastructure and public facility improvements; development standards and design guidelines; and an implementation program that would guide development for the Arantine Hills. Implementation of the proposed project would result in the development and operation of a Specific Plan under which a total of up to 1,806 residential units, 745,300 square feet of commercial, light industrial, and office uses, 15.2 acres of park uses, and 36.6 acres of preserved open space. A detailed description of the various project components is provided in Chapter 3.0 of this EIR.

6.1.2 Project Objectives

The intent of the proposed project is to provide a cohesive planning framework, such that the major land use, circulation, and infrastructure requirements are coordinated and logically planned. The proposed project seeks to achieve the following objectives:

- Build upon the platform of high-quality design, architecture, and landscaping established by the neighboring Eagle Glen residential community to provide a cohesive, pedestrian-friendly community that offers a variety of both passive and active recreational amenities to residents of Arantine Hills and the City of Corona.

¹ Guidelines for California Environmental Quality Act, §15364.

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- Establish an open space preservation area and a multipurpose trail along and adjacent to Bedford Canyon Wash to provide an important link to the natural environment.
- Develop Arantine Hills as a well-designed, balanced community that integrates residential uses with office, retail, entertainment, research and development, and other appropriate uses.
- Provide new employment opportunities for Corona residents along the I-15 Freeway corridor.
- Develop freeway-oriented commercial development to serve regional needs and drive revenue for the City.
- Address the City's current and projected housing needs for all segments of the community by providing a range of family-oriented single-family detached and attached housing and multifamily residences.
- Establish a mix of land uses and local-serving activities that meet the General Plan's objectives concerning community character and pedestrian-friendly design.
- Implement the City's General Plan Land Use Element goal to provide for compatibility of land uses, fiscal balance, recreation, and resource protection.
- Create a system of roads, trails, and sidewalks that will fulfill the policies of the Corona General Plan by allowing residents to live in proximity to recreational opportunities, retail centers, commercial and business/office development, and research and development uses.
- Provide a network of pleasant, safe, and convenient sidewalks, bike lanes, and a multi-purpose trail along Bedford Canyon Wash.
- Concentrate development within neighborhoods to promote greater efficiency of land use, and promote walking and bicycling as an alternative to motor vehicle use.
- Incorporate "green" and sustainable practices, as practicable, in developing buildings and infrastructure in Arantine Hills.
- Maximize opportunities for using water-wise plant materials in the project landscaping to promote water conservation.
- Identify and address safety hazards, such as wildfire and flooding dangers, through implementation of design safety features and improvements to Bedford Canyon Wash.
- Undertake development of the project site in a manner that is economically feasible and balanced to address both the applicant's and the City's economic concerns.

6.1.3 Summary of Proposed Project Significant Impacts

The analysis provided in Chapter 4.0 determined that, despite the implementation of mitigation measures, the significant environmental impacts would result from the construction and operation of the proposed on-site uses. To satisfactorily provide the CEQA-mandated alternatives analysis, the alternatives considered must reduce the following project-related significant impact(s):

- Conversion of Prime, Unique, or Statewide Important Farmland;
- Termination of Williamson Act Contracts;
- Cumulative Agricultural Resources;
- Air Quality Plan Management Plan Consistency;
- Construction Equipment Exhaust Emissions for NO_x;
- Long-Term Operational Emissions for CO, VOC, NO_x, and PM₁₀;

- Cumulative Air Pollutant Emissions;
- Cumulative Greenhouse Gas Emissions;
- Groundwater Supplies;
- Cumulative Groundwater Supplies;
- Existing Year (2009) Intersection LOS Service;
- Opening Year (2014) Intersection LOS Service;
- Future Year (2019) Intersection LOS Service;
- Build Out Year (2035) Intersection LOS Service; and
- Cumulative Traffic LOS Service.

6.2 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR ANALYSIS

An EIR should identify alternatives that were considered by the lead agency but were rejected as infeasible. Factors to be considered when addressing the feasibility of an alternative include ability to meet most of the project objectives and/or ability to avoid significant environmental impacts. Other factors to be considered include site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional and regulatory limitations, and whether the project proponent can reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

In determining an appropriate range of alternatives to be evaluated in the SEIR, a number of possible alternatives were initially considered by the City and, for a variety of reasons, rejected. Alternatives were rejected because they could not accomplish the basic objectives of the project (as previously identified), would not have resulted in a reduction of potentially significant impacts, or were considered infeasible. The reason for not selecting each of the rejected alternatives is discussed below.

6.2.1 Alternative Location

Locating the proposed project on another site within the City could achieve the objectives of the proposed project, which include providing a diverse range of residential product types and housing densities; providing for the orderly and master planned development of land uses within the project area to ensure that an economically viable project can be developed; recognizing the unique environmental qualities of the site by retaining portions of the site for open space and recreational uses; creating a high quality community to meet the needs of individuals and families seeking affordable or move-up housing complemented by open space areas; add jobs to the local economy; and generate additional sales tax revenue for the City. However, the proposed project site is approximately 276 acres in size. Because of its size, as well as the number and variety of uses envisioned in the Specific Plan, it is not feasible to locate the proposed project to an alternative site in the City; therefore, this alternative was rejected. No further analysis would be provided.

6.3 ALTERNATIVES CONSIDERED AND CARRIED FORWARD FOR ANALYSIS

The following alternatives have been identified and evaluated to provide decision-makers with a reasonable range of alternatives that would eliminate or reduce the impacts of the project. Factors considered in selecting the alternatives include site suitability, availability of infrastructure, other plans or regulatory limitations, economic viability, and whether the project proponent can reasonably acquire, control, or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote or speculative. In accordance with *CEQA Guidelines*, the alternatives considered in this EIR include those that 1) could accomplish most of the basic objectives of the project, 2) are reasonably feasible given the nature of the project and surrounding land uses, and 3) could avoid or substantially lessen one or more of the significant effects of the project. The following development scenarios have been identified as potential alternatives to implementation of the proposed project:

- Alternative 1: No Project Alternative;
- Alternative 2: Reduced Density Alternative;
- Alternative 3: High Density/Compact Development Alternative;
- Alternative 4: Residential Focus Alternative; and
- Alternative 5: Minimum Density Clustered Development Alternative.

Each of the alternatives is discussed in Section 6.4 and a summary table for all alternatives (Table 6.A) is provided below.

Table 6.A: Alternatives Summary

Alternative	Residential (du)	Commercial/Light Industrial (sf)	Parks (ac)	Preserved Open Space (ac)
Proposed Project	1,806	745,300	15.2	36.6
Alternative 1: No Project Alternative	—	—	—	—
Alternative 2: Reduced Density Alternative	1,353	558,975	15.2	36.6
Alternative 3: High Density/Compact Development Alternative	1,808	745,300	15.2	65.9
Alternative 4: Residential Focus Alternative	2,094	627,300	15.2	36.6
Alternative 5: Minimum Density Clustered Development Alternative	1,324	745,300	15.2	36.6

du = dwelling unit ac = acre sf = square feet
Sources: Arantine Hills Specific Plan, June 2011, LSA Associates, October 2011.

6.4 ALTERNATIVES ANALYSIS

6.4.1 Environmental Impact Issues that are Generally Similar to the Proposed Project

Seven of the seventeen environmental issues for all the alternatives considered would result in a similar level of impact when compared to the project. Rather than repeat a discussion of these non-significant impacts under each alternative, a summary of these impacts is analyzed below.

- Agricultural Resources
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources

The level of impact associated with these topics would be similar if developed as proposed by the project or if developed with any of the alternatives. Where impacts related to any of these seven issues do differ among project alternatives, an appropriate discussion is provided for the respective alternative.

6.4.1.1 Agricultural Resources

Development of any of the alternatives, with the exception of the No Project Alternative, would have similar agricultural-related impacts. As identified in Chapter 4.2 of the EIR, the development of the project site with urban uses would result in the conversion of state designated farmland and the loss of Prime Farmland soils. Because the mitigation measures identified in Chapter 4.2 would not fully mitigate for the loss of Prime Farmland, impacts associated with development of any of the on-site alternatives would remain significant and unavoidable. Therefore, compared with the proposed project, all on-site alternatives would have a significant and unavoidable impact on agricultural resources. Even though Alternative 3 results in additional open space acreage, the developed acreage will still result in the conversion of state designated farm land and the loss of Prime Farmland soils, so the impacts remain significant and unavoidable. A separate discussion for the No Project Alternative is provided in Section 6.5.2.1.

6.4.1.2 Biological Resources

All build alternatives would require site development resulting in the grading of the entire project site. Although the project area contains 5 drainage features, all drainages on site are considered ephemeral. Portions of these drainage may contain jurisdictional areas based on the criteria established under the *Rapanos* decision. The development of the proposed project would necessitate the removal of some of the existing on site USACE jurisdictional areas. Mitigation identified in Chapter 4.4 would reduce impacts to a less than significant level.

The California gnatcatcher, a federally endangered and state threatened species, has the potential to occur on the site. However, the California gnatcatcher was not observed on site during the field surveys conducted for the biological assessment. Focused surveys for the California gnatcatcher are required. The proposed project has the potential to affect nineteen special status wildlife species and sixteen special status plant species. All of the special status wildlife species are covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Therefore, the project applicant would be required to pay MSHCP fees to mitigate for impacts to these species reducing impacts to a less than significant level. The majority of the special status plant species are also covered under the MSHCP. Impacts to species not covered under the MSHCP have also been identified and mitigation provided for in Chapter 4.4. Adherence to identified mitigation measures in Chapter 4.4 would reduce impacts to a less than significant level. A separate discussion for the High Density/Compact Alternative is provided in Section 6.5.2.3.

6.4.1.3 Cultural Resources

Development of any of the identified build alternatives would result in extensive ground-disturbing activities affecting the entire project site, and similar archaeological and paleontological impacts would be anticipated when compared to the proposed project. While no such resources have previously been detected within the project limits, activities undertaken for all alternatives (as with the proposed project) could encounter previously undetected cultural or paleontological resources. Adherence to the archaeological and paleontological mitigation measures identified for the proposed project in Section 4.5 of this EIR would reduce impacts to less than significant. Compared with the proposed project, no greater impact would occur with any of the on-site build alternatives.

6.4.1.4 Geology and Soils

Development of any of the build alternatives would have similar geologic and soil-related impacts. The preliminary geotechnical investigation reports prepared for the project site includes recommendations that address potential impacts related to the stability of on-site soils. Adherence to the recommendations identified in the geotechnical investigation as identified in Chapter 4.6 of this EIR, as well as compliance with City standards, and applicable provisions of the California Building Code, would ensure that on-site geotechnical impacts would be reduced to a less than significant level. Compared with the proposed project, no greater impact would occur with any of the on-site build alternatives.

6.4.1.5 Hydrology and Water Quality

As with the proposed project, the development of any of the on-site alternatives would require the modification of the existing on-site pattern of drainage and would require the installation of drainage improvements that may include detention/retention basins, connection to existing in-street drainage features, on-site storm drains, and other features. While the extent of the impermeable surfaces (parking area) required under each alternative is reduced from that required for the proposed project, the environmental impact of these improvements would typically be similar. All local, State, and federal policies and regulations pertaining to surface water and groundwater resources would remain in effect under these alternatives. Sedimentation and erosion from any on-site development has the potential to affect water quality. Similar to the proposed project, the construction of any on-site use would be required to follow applicable NPDES requirements, including the preparation of and adherence to an SWPPP and BMPs. As with the proposed project, runoff from paved surfaces, especially during a “first-flush” event, may be contaminated by a mixture of sediment, debris, and other contaminants. A standard condition with any such development would be preparation and implementation of a Water Quality Management Plan, which would effectively mitigate post-construction water quality impacts from the developed area. Similar to the proposed project, potential impacts related to hydrology and water quality would be less than significant with mitigation incorporated with the exception of cumulative groundwater supplies which are considered to be significant and unavoidable.

6.4.1.6 Land Use and Planning

Like the proposed project, these alternatives would comply with applicable provisions of local and regional plans (e.g., Water Quality Control Plan and Air Quality Management Plan). However, the proposed project was not included as part of the 2007 AQMP and is considered to not be consistent with the AQMP. This is a significant and unavoidable impact. Compliance with applicable City policies related to development within the project site would ensure that on-site alternative uses would be compatible with existing development in the project area. Land use impacts associated with these alternatives would be similar in magnitude when compared with the proposed project. A separate discussion for the No Project Alternative has been provided in Section 6.5.2.1.

6.4.1.7 Mineral Resources

The City of Corona General Plan does not identify the project site as a locally important mineral resource recovery site. Development of the project site with any build alternatives would not result in the loss of or reduce the availability of mineral resources or the resource base from which they would be derived. Compared with the proposed project, no greater impact would occur for any of the project build alternatives.

6.4.2 Description and Impact Analysis of Alternatives

The following discussion compares the impacts of each alternative with the impacts of the proposed project, as detailed in Section 4.0 of this EIR. A conclusion is provided as to whether each alternative would result in one of the following:

- Reduction or elimination of the impact;
- A greater impact than the project;
- The same impact as the project; or
- A new impact in addition to the impacts of the proposed project impacts.

6.4.2.1 Alternative 1: No Project

Pursuant to CEQA (§15126.6[e][2]), the No Project Alternative should discuss what would reasonably be expected to occur, based on current plans and consistent with available infrastructure and community services, in the foreseeable future. The No Project Alternative would result in a continuation of existing conditions on the project site. For this reason, this alternative represents a baseline against which the impacts of the proposed project would be measured. Because no development would be assumed in this alternative, the development of a master-planned community with adequate infrastructure to serve it would not occur. As a result, the provision of none of the residential, commercial, office, business park, light industrial, and park uses would be developed, existing roadways or infrastructure facilities would not be expanded, and establishment of an open space preservation area with a multi-purpose trail would not occur. Impacts associated with this alternative, when compared to the proposed project, would not occur. In the absence of development, no impacts would occur and this alternative would be the environmentally superior alternative. However, disallowing development of the project site, as suggested by this alternative, would not fulfill any of the objectives of the proposed project as stated in Section 3.4 of this EIR. Retention of the project site in its current condition would not provide for housing with proximate supporting land uses or expand additional employment opportunities to residents of the City. In addition, retention of the project site in its current condition would not generate the revenue (e.g., property tax) that could augment the City's current revenue stream.

6.4.2.2 Alternative 2: Reduced Density Alternative

The Reduced Density Alternative would consist of a specific plan that is designed to enable development within the Specific Plan area at residential and commercial, office, and light industrial densities considerably lower than anticipated under the proposed project. This alternative would consist of reducing the project dwelling units, commercial uses, industrial uses, and office uses by 25 percent, resulting in a total of 1,353 dwelling units and approximately 558,975 square feet of commercial, office, and light industrial uses within the 276 acre Specific Plan area.

Impact Analysis. Seven environmental issues would have impacts similar to those identified for the proposed project. These include the following:

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- Agricultural Resources;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Hydrology and Water Quality;
- Land Use and Planning; and
- Mineral Resources.

The remaining environmental issues would, in some cases, result in similar impacts, but would be different enough to be discussed separately.

Aesthetics. The installation of on-site lighting to accommodate nighttime activities and for safety purposes would be required for this alternative. Similar to the proposed project, potential impacts from spillover light may occur on adjacent properties. However, each of the alternatives would be required to submit a lighting plan that includes evidence that the on-site lighting adequately adheres to City standards. Additionally development of this alternative would result in the alteration of the existing visual character of the site similar to the proposed project. Development of the residential, commercial, and light industrial on the project site would be required to comply with design standards, such as setbacks, building height, lot dimensions, and maximum lot coverage contained in the City of Corona Zoning and Municipal Codes. Adherence to these design standards would ensure that on-site aesthetic impacts would remain less than significant.

Air Quality. Because the land area to be developed with Alternative 2 would be equal to that of the proposed project, it is anticipated that a similar mix of equipment would operate during earthmoving activities. Peak daily construction emissions for this alternative would be below SCAQMD thresholds of significance for VOC, CO, SO_x, PM₁₀, and PM_{2.5} but above the SCAQMD threshold for NO_x. Similar to the proposed project, compliance with SCAQMD rules would ensure fugitive dust emissions remain less than significant. As such, construction emissions from the development of Alternative 2 would be similar to the proposed project.

Under this alternative, average daily traffic volumes would be reduced by 25 percent in comparison with the proposed project. It is anticipated that due to the reduction of development, the volume of each operational pollutant emitted during operation of this alternative (i.e., ROC, CO, NO_x, SO_x, and PM₁₀) would be correspondingly reduced. However, like the proposed project, operational emissions for CO, VOC, NO_x, and PM₁₀ would still exceed daily SCAQMD thresholds. Although CO, VOC, NO_x, and PM₁₀ operational emissions would be reduced when compared to the proposed project, impacts would remain significant and unavoidable as there are no feasible mitigation measures identified that would reduce emissions to below the SCAQMD threshold.

Greenhouse Gas Emissions. GHG emissions under this alternative are anticipated to be correspondingly reduced as traffic trips and level of development are reduced. Although greenhouse gas emissions are anticipated to be reduced when compared to the proposed project, cumulative impacts would remain significant and unavoidable as there are no quantitative means to measure the project's cumulative impact on global climate change.

Hazards and Hazardous Materials. Development of the project site under Alternative 2 would still result in the on-site handling of hazardous substances, both during project construction and operation. Compared to the proposed project, residential, commercial, and light industrial uses would be reduced by 25 percent. Because Alternative 2 would contain fewer urban commercial uses, impacts associated with the transport or use of hazardous materials or potential upsets or accidents

would be reduced in magnitude due to the reduced quantities of hazardous materials that would be present on site. However, since all development in the City is required to adhere to applicable local, state, and federal standards associated with hazards and hazardous materials, hazardous waste impacts under the Reduced Density Alternative would remain less than significant, similar to the proposed project.

Noise. Under the proposed project, construction-related noise impacts were reduced to a less than significant level through the implementation of mitigation measures. Under this alternative, a similar amount of land would be disturbed; therefore, noise impacts associated with the construction of this alternative would be similar to those identified under the proposed project. With the implementation of mitigation identified for the proposed project, the short-term construction-related noise impacts associated with this alternative would remain less than significant, as identified for the proposed project.

As with the proposed project, the commercial uses associated with the Specific Plan would have truck deliveries and noise that would be generated during loading/unloading, trash compacting, and truck movements. Additionally, there would be noise associated with parking lot activities. These operational-related noise impacts associated with this alternative would remain less than significant with mitigation incorporated, as identified for the proposed project. Residential uses associated with this alternative would also have a similar mix of noise generation uses as identified for the residential uses identified for the proposed project. Therefore, these operational-related noise impacts associated with the residential component of this alternative would remain less than significant with mitigation incorporated, as identified for the proposed project.

The reduction in project-related traffic under this alternative would result in a decrease in long-term traffic noise due to a reduction of daily traffic trips to the project site. Under the proposed project, the increase in future traffic noise along local roadway segments would not increase beyond the threshold of perception. Under this alternative, future increases in traffic-related noise would not be above the threshold of perception due to a decreased contribution of future traffic volumes. When compared to the proposed project, this alternative's contribution to future traffic noise would be reduced, thereby reducing overall mobile source noise impacts within the area. When compared to the proposed project, operational noise associated with the Reduced Density Alternative would result in a less than significant impact with mitigation incorporated, as identified for the proposed project.

Population and Housing. This alternative would result in the development of 558,975 square feet of commercial and light industrial space and 1,353 residential units. Utilizing an employment factor of one employee for every 629 square feet of commercial/light industrial space, the Reduced Density Alternative is anticipated to generate approximately 1,925 jobs.¹ Since the majority of jobs that would be generated by this project do not require skills that would require a specialized work force that may not reside in the City, it is anticipated that these jobs would be filled by persons already residing in the area. Therefore, no population increase would occur with the development of these retail jobs. The development of 1,353 residences could result in a direct increase to the existing population. Utilizing the Department of Finance factor of 3.23 people per household; and assuming every resident was a new citizen of the City, the residential component of this alternative could result in a population increase of up to 4,370 people.² When this alternative is compared to the proposed project, the amount of new residents would be 17 percent less than the proposed project and the amount of new jobs in the City would be 54 percent less than the proposed project. Similar to the proposed project, impacts related to population and housing would remain less than significant as this alternative would continue the existing development trend envisioned by the City.

¹ See Section 4.13 Population and Housing.

² 3.23 people/household × 1,353 residential units = 4,370 people.

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Public Services. Compared to the proposed project, this alternative would result in a reduction of approximately 25 percent in residential, commercial and light industrial uses as compared to the proposed project. Because of the decreased amount of development that would occur within the project limits, demands on schools, parks, other public facilities, law enforcement, and fire protection services would be reduced in magnitude than what was identified for the proposed project. However, similar to the proposed project, development under this alternative would require payment of development impact fees for schools, police services, and fire services. The payment of development impact fees would offset any impacts to these public services that may result from the development of this alternative. Therefore, when compared to the proposed project, impacts associated with public services would remain less than significant with the payment of development impact fees.

Recreation. The reduction in residential uses under Alternative 2 could result in a direct contribution of up to 889 people, a reduction when compared to the proposed project. Because the Reduced Density Alternative would reduce the amount of people that would utilize recreational facilities, impacts associated with recreation and park demands are reduced in magnitude when compared to the proposed project. However, like the proposed project, the dedication of land or the payment of parkland fees would reduce these recreation impacts to a less than significant level, similar to the proposed project.

Traffic. Based on trip generation rates published in *ITE Trip Generation Handbook, 8th Edition*, this alternative would generate approximately 27,177 daily trips, approximately 25 percent less than what was identified for the proposed project. With a 25 percent reduction in daily trips, it is reasonable to conclude that traffic volumes on local roadways and intersections would be reduced under this alternative. Although the volume of traffic is reduced under this alternative, impacts to LOS levels at nearby intersections and roadway segments would still occur and would require mitigation. The addition of traffic volumes associated with this alternative could result in a deficient LOS level at one or more of the intersections in the project vicinity during the lifetime of the development. While significant traffic impacts may occur under this alternative, these impacts would be mitigated in a manner similar to those of the proposed project. However, despite the identification of mitigation measures, certain roadway improvements would not be under the jurisdiction of the City and cannot be guaranteed to be in place when development under the Reduced Density Alternative would become operational. Therefore, traffic-related impacts would remain significant and unavoidable, similar to the proposed project.

Utilities and Service Systems. Existing utility infrastructure for stormwater and wastewater are present in adjacent roadways or parcels. However, like the proposed project, development under this alternative would be required to construct on-site utility infrastructure, and to connect to existing utility infrastructure subject to the terms and conditions of the City. It is anticipated that a reduction in urban uses on site by 25 percent would result in a corresponding reduction in the amount of wastewater generated by the project under this alternative. When compared to the proposed project, this alternative's demands on wastewater treatment and capacity at existing wastewater treatment facilities would be reduced in magnitude. However, like the proposed project, adherence to existing requirements identified by the City would result in impacts remaining at a less than significant level.

The development of the residential, commercial, and light industrial uses associated with this alternative would also require the installation of water supply infrastructure. However, similar to the wastewater generation discussion, a reduction in the amount of development that would occur under this alternative is anticipated to result in a corresponding reduction in potable water required to serve the project area. When compared to the proposed project, water usage demands would be reduced. However, similar to the proposed project, development under this alternative would be required to obtain verification from the water purveyor that water is available to serve the development.

Therefore, impacts related to water usage and water treatment/conveyance facilities would remain less than significant when compared with the proposed project.

Like the proposed project, the Reduced Density Alternative would also generate solid waste. As previously stated for wastewater and potable water, this alternative is anticipated to generate less solid waste as less development would occur within the project area. Therefore, demands on solid waste services and landfill capacity would be reduced in magnitude. However, similar to the proposed project, development under the Reduced Density Alternative would be required to adhere to the provisions of the solid waste provider that would service the project site. When compared to the proposed project, solid waste impacts would remain less than significant. However, like the proposed project, impacts associated with cumulative groundwater levels under this alternative would remain significant and unavoidable.

Cumulative Impacts. Similar to the proposed project, the Reduced Density Alternative would contribute to the permanent conversion of farmland, long-term operational air pollutant emissions, and increased traffic operations on local roadways and at local intersections. Although the amount of operational air pollutant emissions and traffic would be reduced in magnitude, because there are no feasible mitigation measures to reduce long-term air pollutant operational emissions and increased traffic, cumulative impacts would remain significant and unavoidable. This alternative would also require the development of the project site. Since there is no feasible mitigation that would reduce the cumulative impacts associated with the conversion of farmland, cumulative impacts associated with farmland conversion would remain significant and unavoidable.

Conclusion. With the Reduced Density Alternative, impacts related to noise impacts, although not considered significant impacts under the proposed project, would be similar to those identified with the proposed project. Although reduced in magnitude, short-term air quality construction emissions, long-term air quality operational emissions, cumulative greenhouse gas emissions, operational LOS for certain roadway segments and intersections, and cumulative groundwater supply under this alternative would remain significant and unavoidable, similar to the proposed project. The decrease in residential and commercial would result in a reduction of housing and permanent jobs that would be created. This alternative would have a reduced demand to public services, recreation, and water use. However, similar to the proposed project, the payment of fees, dedication of parkland, and adherence to utility requirements would reduce these impacts to a less than significant level. Because of the reduction in vehicle trips achieved under this alternative, impacts to the operation of local roadways and intersections would be proportionally reduced from the proposed project, but would remain significant and unavoidable.

6.4.2.3 Alternative 3: High Density/Compact Development Alternative

Implementation of the High Density/Compact Development Alternative assumes a specific plan that would consist of a similar number of residential units and urban development as the proposed project (1,621 dwelling units and 745,300 square feet of commercial, office, and light industrial use) within a more compact development footprint. This alternative assumes that Planning Areas 1 and 2 (both currently designated as Low Density Residential) would be re-designated as open space and that Planning Areas 10 and 11 would have a target density of 11 du/acre and 10 du/acre respectively. The 88 dwelling units that would be constructed in Planning Areas 1 and 2 would be added to the units constructed in Planning Areas 10 and 11.

With a target density of 11 du/acre, Planning Area 10 would have 142 dwelling units (from 90 dwelling units). For Planning Area 11, a target density of 10 du/acre would result in approximately 126 dwelling units (from 88 dwelling units). All other aspects of the Specific Plan would remain the same under this alternative as identified in the proposed project. In summary, this Alternative would result in a total of

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1,808 dwelling units and approximately 745,300 square feet of commercial, office, and light industrial uses within the Specific Plan area. This alternative would also result in approximately 29.2 additional acres of open space.

Impact Analysis. Eleven environmental issues would have impacts similar to those identified for the proposed project. These include the following:

- Agricultural Resources;
- Air Quality;
- Geology and Soils;
- Greenhouse Gases
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Population and Housing;
- Public Services;
- Recreation; and
- Utilities/Services Systems.

The remaining environmental issues would, in some cases, result in similar impacts, but would be different enough to be discussed separately.

Aesthetics. Under this alternative, the increase in density within certain planning areas may result in additional on-site lighting to accommodate nighttime activities and for safety purposes. However, the additional 29 acres that would be preserved would have less lighting than identified for the proposed project as this area would be preserved as open space. Similar to the proposed project, potential impacts from spillover light may occur on adjacent properties. However, this alternative would be required to submit a lighting plan that includes evidence that the on-site lighting adequately adheres to City standards. Additionally, development of this alternative would result in the alteration of the existing visual character of the site similar to the proposed project although it is anticipated this alternative would not result in higher development that would block views and more significantly affect visual resources. There would be more of the project area that would be preserved as open space while certain areas of the Specific Plan would have a more dense and urban look. However, development of the residential, commercial, and light industrial under this alternative would still be required to comply with design standards, such as setbacks, building height, lot dimensions, and maximum lot coverage contained in the City of Corona Zoning and Municipal Codes. Adherence to these design standards would ensure that on-site aesthetic impacts would remain less than significant.

Biological Resources. Under this alternative, an additional 29 acres of land would be preserved as open space and would not result in loss of existing habitat in that Planning Area. When compared to the proposed project, biological impacts would be reduced in magnitude as less area would be disturbed. However, the project under this alternative would still be required to adhere to MSHCP regulations and the payment of fees. Mitigation identified in Chapter 4.4 would reduce impacts to a less than significant level.

Cultural Resources. Development of this alternative would result in extensive ground-disturbing activities affecting the entire project site, and similar archaeological and paleontological impacts would be anticipated when compared to the proposed project. However, since a greater portion of the project site would be preserved, any previously undiscovered archaeological and paleontological

resources would remain undiscovered. The preservation of an additional 29 acres of land may result in a reduction in impacts associated with archaeological and paleontological resources. Similar to the proposed project, while no such resources have previously been detected within the project limits, activities undertaken for this alternative would be required to adhere to mitigation measures identified in Section 4.5 of this EIR. Adherence to these mitigation measures would reduce impacts to a less than significant level.

Noise. Under the proposed project, construction-related noise impacts were reduced to a less than significant level through the implementation of mitigation measures. Under this alternative, a similar amount of land would be disturbed; therefore, noise impacts associated with the construction of this alternative would be similar to those identified under the proposed project. With the implementation of mitigation identified for the proposed project, the short-term construction-related noise impacts associated with this alternative would remain less than significant, as identified for the proposed project.

As with the proposed project, residential and commercial uses associated with the Specific Plan would be constructed and operated. Commercial, office, and light industrial uses would remain the same. However, this alternative would increase residential density within certain planning areas. Because of a high density, there is potential for more residential uses to be impacted by possible adjacent commercial areas. This may result in operational noise impacts greater in magnitude than the proposed project. However, it is anticipated that these operational-related noise impacts associated with this alternative would remain less than significant with mitigation incorporated, as identified for the proposed project. Therefore, these operational-related noise impacts associated with the residential component of this alternative would remain less than significant with mitigation incorporated, as identified for the proposed project.

The amount of project-related traffic under this alternative is anticipated to be the same as the proposed project. However, because this alternative results in a higher density in areas of the Specific Plan, there could be an increase in long-term traffic noise due to higher traffic volumes operating on certain roadway segments within the project site. When compared to the proposed project, this alternative's contribution to future traffic noise could be increased, thereby increasing overall mobile source noise impacts within certain portions of the Specific Plan area. However, when compared to the proposed project, operational noise associated with the High Density/Compact Development Alternative would result in a less than significant impact with mitigation incorporated, as identified for the proposed project.

Transportation/Traffic. The High Density/Compact Development Alternative would generate the same amount of trips as the proposed project resulting in the same impacts to LOS levels within and adjacent to the project site. While significant traffic impacts may occur under this alternative, these impacts would be mitigated in a manner similar to those of the proposed project. Therefore, traffic-related impacts would be the same as the proposed project.

Cumulative Impacts. The High Density/Compact Development Alternative would have the same cumulative impacts as the proposed project as the level of development would be the same.

Conclusion. With the High Density/Compact Development Alternative, impacts related to biological resources and cultural resources are anticipated to be reduced in magnitude when compared to the proposed project. Aesthetics are anticipated to be similar to the proposed project under this alternative. Noise impacts may be greater in magnitude since there would be a higher density of urban uses within certain areas of the project site. However, traffic and noise impacts would be

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reduced in magnitude in areas adjacent to the 29 acres of additional preserved open space. Because there is no reduction of vehicle trips achieved under this alternative, impacts to the operation of local roadways and intersections would be the same as the proposed project

6.4.2.4 Alternative 4: Residential Focus Alternative

The Residential Focus Alternative would consist of a specific plan that is designed to maximize residential development within the Specific Plan area by providing for residential densities somewhat higher than anticipated under the proposed project while reducing the intensity of commercial uses permitted. The Residential Focus Alternative would result in the re-designation of Planning Area 13 from mixed to residential uses. Implementation of this alternative would result in the removal of 118,000 square feet of planned commercial and office uses and construction of 739 dwelling units within Planning Area 13.

The 739 dwelling units identified for this alternative utilize the targeted density proposed for Planning Area 13 (35 du/acre). All other aspects of the Specific Plan would remain the same under this alternative as identified in the proposed project. In summary, this Alternative would result in a total of 2,094 dwelling units and approximately 627,300 square feet of commercial, office, and light industrial uses within the Specific Plan area.

Impact Analysis. Seven environmental issues would have impacts similar to those identified for the proposed project. These include the following:

- Agricultural Resources;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Hydrology and Water Quality;
- Land Use and Planning; and
- Mineral Resources.

The remaining environmental issues would, in some cases, result in similar impacts, but would be different enough to be discussed separately.

Aesthetics. The installation of on-site lighting to accommodate nighttime activities and for safety purposes would be required for this alternative. Similar to the proposed project, potential impacts from spillover light may occur on adjacent properties. However, each of the alternatives would be required to submit a lighting plan that includes evidence that the on-site lighting adequately adheres to City standards. Additionally development of this alternative would result in the alteration of the existing visual character of the site similar to the proposed project. Development of the residential, commercial, light industrial, and park uses on the project site would be required to comply with design standards, such as setbacks, building height, lot dimensions, and maximum lot coverage contained in the City of Corona Zoning and Municipal Codes. Adherence to these design standards would ensure that on-site aesthetic impacts would remain less than significant.

Air Quality. Because the land area to be developed with Alternative 4 would be equal to that of the proposed project, it is anticipated that a similar mix of equipment would operate during earthmoving activities. Peak daily construction emissions for this alternative would be below SCAQMD thresholds of significance for VOC, CO, SO_x, PM₁₀, and PM_{2.5} but above the SCAQMD threshold for NO_x. Similar to the proposed project, compliance with SCAQMD rules would ensure fugitive dust emissions remain less than significant. As such, construction emissions from the development of Alternative 4 would be similar to the proposed project.

Under this alternative, approximately 288 additional residential units would be constructed in comparison with the proposed project. Commercial uses would be reduced by approximately 118,000 square feet when compared to the proposed project. Although residential uses would increase, the reduction in commercial uses is anticipated to result in a reduction of overall traffic volumes. Due to a reduction of overall traffic volumes, the volume of each operational pollutant emitted during operation of this alternative (i.e., ROC, CO, NO_x, SO_x, and PM₁₀) would be reduced. However, like the proposed project, operational emissions for CO, VOC, NO_x, and PM₁₀ would still exceed daily SCAQMD thresholds and remain significant and unavoidable.

Greenhouse Gas Emissions. GHG emissions under this alternative are anticipated to be reduced in magnitude as the level of development would result in a reduction of traffic volumes in the area. Similar to the proposed project, cumulative impact would remain significant and unavoidable under this alternative as there are no quantitative means to measure the project's cumulative impact on global climate change.

Hazards and Hazardous Materials. Development of the project site under Alternative 4 would still result in the on-site handling of hazardous substances, both during project construction and operation. Compared to the proposed project, the commercial uses would be reduced by 16 percent while the residential uses would be increased by 16 percent. Unlike a commercial development, residential uses are not known to store, use, sell, or transport large amounts of household hazardous materials. Because Alternative 4 would contain fewer commercial uses and more residential uses, impacts associated with the transport or use of hazardous materials or potential upsets or accidents would be reduced in magnitude due to the reduced quantities of hazardous materials that would be present on site. However, since all development in the City is required to adhere to applicable local, state, and federal standards associated with hazards and hazardous materials, hazardous waste impacts under the Residential Focus Alternative would remain less than significant, similar to the proposed project.

Noise. Under the proposed project, construction-related noise impacts were reduced to a less than significant level through the implementation of mitigation measures. Under this alternative, a similar amount of land would be disturbed; therefore, noise impacts associated with the construction of this alternative would be similar to those identified under the proposed project. With the implementation of mitigation identified for the proposed project, the short-term construction-related noise impacts associated with this alternative would remain less than significant, as identified for the proposed project.

As with the proposed project, the commercial component would have truck deliveries and noise that would be generated during loading/unloading, trash compacting, and truck movements. Additionally, there would be noise associated with parking lot activities. These operational-related noise impacts associated with this alternative would remain less than significant, as identified for the proposed project. The residential component for this alternative would also have a similar mix of noise generation uses as identified for the residential component of the proposed project. Therefore, these operational-related noise impacts associated with the residential component of this alternative would remain less than significant, as identified for the proposed project.

The reduction in project-related traffic under this alternative would result in a decrease in long-term traffic noise due to a reduction of daily traffic trips to the project site. When compared to the proposed project, this alternative's contribution to future traffic noise would be reduced, thereby reducing overall mobile source noise impacts within the area. Similar to the proposed project, the increase in residential uses would not significantly increase ambient noise over what was identified for the residential component of the proposed project. When compared to the proposed project, operational

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noise associated with the Residential Focus Alternative would result in a less than significant impact with mitigation incorporated, as identified for the proposed project.

Population and Housing. This alternative would result in the development of 627,300 square feet of commercial space and 2,094 residential units. Utilizing an employment factor of one employee for every 268 square feet of regional retail commercial space, the Residential Focus Alternative is anticipated to generate approximately 997 jobs.¹ Since retail jobs do not require skills that would require a specialized work force that may not reside in the City, it is anticipated that these retail jobs would be filled by persons already residing in the area. Therefore, no population increase would occur with the development of these retail jobs. The development of 2,094 residences could result in a direct increase to the existing population. Utilizing the Department of Finance factor of 3.23 people per household; and assuming every resident was a new citizen of the City, the residential component of this alternative could result in a population increase of up to 6,764 people.² When this alternative is compared to the proposed project, the amount of new residents would be 15.9 percent greater than the proposed project and the amount of new jobs in the City would be 48 percent less than the proposed project. Similar to the proposed project, impacts related to population and housing would remain less than significant as this alternative would continue the existing development trend envisioned by the City.

Public Services. Compared to the proposed project, this alternative would result in a reduction of approximately 16 percent in commercial uses and an increase of approximately 16 percent in residential units as compared to the proposed project. Because of the increased amount of residential development that would occur within the project limits, demands on schools, parks, other public facilities, law enforcement, and fire protection services would be greater in magnitude than what was identified for the proposed project. However, similar to the proposed project, development under this alternative would require payment of development impact fees for schools, police services, and fire services. The payment of development impact fees would offset any impacts to these public services that may result from the development of this alternative. Therefore, when compared to the proposed project, impacts associated with public services would remain less than significant with the payment of development impact fees.

Recreation. The increase in residential uses under Alternative 4 would directly contribute to an increase in existing population by 6,764 people, which would increase the demand for park and recreation facilities. Because the Residential Focus Alternative would directly contribute to the existing population, impacts associated with recreation and park demands are greater in magnitude than the proposed project. However, like the proposed project, the dedication of land or the payment of parkland fees would reduce these recreation impacts to a less than significant level, similar to the proposed project.

Traffic. Based on trip generation rates published in *ITE Trip Generation Handbook, 8th Edition*, this alternative would generate approximately 32,729 daily trips, approximately 6.5 percent less than what was identified for the proposed project. With a 6.5 percent reduction in daily trips, traffic volumes on local roadways and intersections would be correspondingly reduced under this alternative. Although the volume of traffic is reduced under this alternative, impacts to LOS levels at nearby intersections and roadway segments would still occur and would require mitigation. The addition of traffic volumes associated with this alternative could result in a deficient LOS level at one or more of the intersections in the project vicinity during the lifetime of the development. While significant traffic impacts may

¹ 1 employee/629 square feet of commercial use × 627,300 square feet of commercial use = 997 retail jobs.

² 3.23 people/household × 2,094 residential units = 6,764 people.

occur under this alternative, these impacts would be mitigated in a manner similar to those of the proposed project. Therefore, traffic-related impacts would remain similar to the proposed project.

Utilities and Service Systems. Like the proposed project, development under this alternative would connect to existing utility infrastructure subject to the terms and conditions of the City. Due to the increase in residential units under this alternative, it is anticipated that a greater amount of wastewater would be generated. When compared to the proposed project, this alternative's demands on wastewater treatment and capacity at existing wastewater treatment facilities would be greater in magnitude. However, like the proposed project, adherence to existing requirements identified by the City would result in impacts remaining at a less than significant level.

The development of the commercial and residential uses associated with this alternative would also require the installation of water supply infrastructure. Due to an increase in residential units, this alternative is anticipated to require additional potable water above that identified for the proposed project. When compared to the proposed project, water usage demands would be greater. However, similar to the proposed project, development under this alternative would be required to obtain verification from the water purveyor that water is available to serve the development. Therefore, impacts related to water usage and water treatment/conveyance facilities would remain less than significant when compared with the proposed project.

Like the proposed project, the Residential Focus Alternative would also generate solid waste. As previously identified, this alternative would increase the amount of residential units, which may result in an increase in amount of solid waste generated. Therefore, demands on solid waste services and landfill capacity may be greater in magnitude. However, similar to the proposed project, development under the Residential Focus Alternative would be required to adhere to the provisions of the solid waste provider that would service the project site. When compared to the proposed project, solid waste impacts would remain less than significant.

Cumulative Impacts. Similar to the proposed project, the Residential Focus Alternative would contribute to the permanent conversion of farmland, long-term operational air pollutant emissions, and increased traffic operations on local roadways and at local intersections. Although the amount of operational air pollutant emissions and traffic would be reduced in magnitude, because there are no feasible mitigation measures to reduce long-term air pollutant operational emissions and increased traffic, cumulative impacts would remain significant and unavoidable. This alternative would also require the development of the project site. Since there is no feasible mitigation that would reduce the cumulative impacts associated with the conversion of farmland, cumulative impacts associated with farmland conversion would remain significant and unavoidable.

Conclusion. With the Residential Focus Alternative, impacts related to noise impacts, although not considered significant impacts under the proposed project, would be similar to those identified with the proposed project. Although reduced in magnitude, short-term air quality construction emissions, long-term air quality operational emissions, cumulative greenhouse gas emissions, operational LOS for certain roadway segments and intersections, and cumulative groundwater supply under this alternative would remain significant and unavoidable, similar to the proposed project. The increase in residential uses would result in a corresponding increase in housing that would be created. This alternative would have a greater demand to public services, recreation, and water use. However, similar to the proposed project, the payment of fees, dedication of parkland, and adherence to utility requirements would reduce these impacts to a less than significant level. Because of the reduction in vehicle trips achieved under this alternative, impacts to the operation of local roadways and intersections would be proportionally reduced from the proposed project, but would remain significant and unavoidable.

6.4.2.5 Alternative 5: Minimum Density Clustered Development Alternative

The Minimum Density Clustered Development Alternative would reduce the total number of units on the proposed project site to 1,324 total units, which utilizes the lowest density range proposed for each of the Planning Areas. However, the residences would be clustered into denser groupings, creating additional open space and greenbelt areas. All other components of the proposed Specific Plan would remain the same, resulting in 745,300 square feet of commercial, office, and light industrial uses 15.2 acres of parks, and 36.6 acres of open space.

Impact Analysis. Seven environmental issues would have impacts similar to those identified for the proposed project. These include the following:

- Aesthetics;
- Agricultural Resources;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Hydrology and Water Quality;
- Land Use and Planning; and
- Mineral Resources.

The remaining environmental issues would, in some cases, result in similar impacts, but would be different enough to be discussed separately.

Air Quality. Because the land area to be developed with Alternative 5 would be equal to that of the proposed project, it is anticipated that a similar mix of equipment would operate during earthmoving activities. Peak daily construction emissions for this alternative would be below SCAQMD thresholds of significance for VOC, CO, SO_x, PM₁₀, and PM_{2.5} but above the SCAQMD threshold for NO_x. Similar to the proposed project, compliance with SCAQMD rules would ensure fugitive dust emissions remain less than significant. As such, construction emissions from the development of Alternative 5 would be similar to the proposed project.

Under this alternative, average daily traffic volumes would be reduced by 6 percent in comparison with the proposed project. It is anticipated that due to the reduction of development, the volume of each operational pollutant emitted during operation of this alternative (i.e., ROC, CO, NO_x, SO_x, and PM₁₀) would be correspondingly reduced. However, like the proposed project, operational emissions for CO, VOC, NO_x, and PM₁₀ would still exceed daily SCAQMD thresholds. Although CO, VOC, NO_x, and PM₁₀ operational emissions would be reduced when compared to the proposed project, impacts would remain significant and unavoidable as there are no feasible mitigation measures identified that would reduce emissions to below the SCAQMD threshold.

Greenhouse Gas Emissions. GHG emissions under this alternative are anticipated to be correspondingly reduced as traffic trips and level of development are reduced. Although greenhouse gas emissions are anticipated to be reduced when compared to the proposed project, cumulative impacts would remain significant and unavoidable as there are no quantitative means to measure the project's cumulative impact on global climate change.

Hazards and Hazardous Materials. Development of the project site under Alternative 5 would still result in the on-site handling of hazardous substances, both during project construction and operation. Compared to the proposed project, residential uses would be reduced by 27 percent. Because Alternative 5 would contain fewer residential uses, impacts associated with the transport or use of hazardous materials or potential upsets or accidents would be reduced in magnitude due to the reduced quantities of hazardous materials that would be present on site. However, since all

development in the City is required to adhere to applicable local, state, and federal standards associated with hazards and hazardous materials, hazardous waste impacts under the Minimum Density Clustered Development Alternative would remain less than significant, similar to the proposed project.

Population and Housing. This alternative would result in the development of 745,300 square feet of commercial and light industrial space and 1,324 residential units. The amount of commercial and light industrial space under this alternative is the same as that for the proposed project and would result in the same amount of jobs generated. However, the residential units would be reduced by 482 units when compared to the proposed project. The development of 1,324 residences could result in a direct increase to the existing population. Utilizing the Department of Finance factor of 3.23 people per household; and assuming every resident was a new citizen of the City, the residential component of this alternative could result in a population increase of up to 4,277 people.¹ When this alternative is compared to the proposed project, the amount of new residents would be 26.7 percent less than the proposed project. Similar to the proposed project, impacts related to population and housing would remain less than significant as this alternative would continue the existing development trend envisioned by the City.

Noise. Under the proposed project, construction-related noise impacts were reduced to a less than significant level through the implementation of mitigation measures. Under this alternative, a similar amount of land would be disturbed; therefore, noise impacts associated with the construction of this alternative would be similar to those identified under the proposed project. With the implementation of mitigation identified for the proposed project, the short-term construction-related noise impacts associated with this alternative would remain less than significant, as identified for the proposed project.

As with the proposed project, the commercial uses associated with the Specific Plan would have truck deliveries and noise that would be generated during loading/unloading, trash compacting, and truck movements. Additionally, there would be noise associated with parking lot activities. These operational-related noise impacts associated with this alternative would remain less than significant with mitigation incorporated, as identified for the proposed project. Residential uses associated with this alternative would also have a similar mix of noise generation uses as identified for the residential uses identified for the proposed project. Therefore, these operational-related noise impacts associated with the residential component of this alternative would remain less than significant with mitigation incorporated, as identified for the proposed project.

The reduction in project-related traffic under this alternative would result in a decrease in long-term traffic noise due to a reduction of daily traffic trips to the project site. Under the proposed project, the increase in future traffic noise along local roadway segments would not increase beyond the threshold of perception. Under this alternative, future increases in traffic-related noise would not be above the threshold of perception due to a decreased contribution of future traffic volumes. When compared to the proposed project, this alternative's contribution to future traffic noise would be reduced, thereby reducing overall mobile source noise impacts within the area. When compared to the proposed project, operational noise associated with the Minimum Density Clustered Alternative would result in a less than significant impact with mitigation incorporated, as identified for the proposed project.

Public Services. Compared to the proposed project, this alternative would result in a reduction of approximately 26.7 percent in residential uses as compared to the proposed project. Because of the

¹ 3.23 people/household × 1,324 residential units = 4,277 people.

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decreased amount of development that would occur within the project limits, demands on schools, parks, other public facilities, law enforcement, and fire protection services would be reduced in magnitude than what was identified for the proposed project. However, similar to the proposed project, development under this alternative would require payment of development impact fees for schools, police services, and fire services. The payment of development impact fees would offset any impacts to these public services that may result from the development of this alternative. Therefore, when compared to the proposed project, impacts associated with public services would remain less than significant with the payment of development impact fees.

Recreation. The reduction in residential uses under Alternative 5 could result in a direct contribution of up to 4,277 people, a reduction when compared to the proposed project. Because the Minimum Density Clustered Development Alternative would reduce the amount of people that would utilize recreational facilities, impacts associated with recreation and park demands are reduced in magnitude when compared to the proposed project. However, like the proposed project, the dedication of land or the payment of parkland fees would reduce these recreation impacts to a less than significant level, similar to the proposed project.

Traffic. Based on trip generation rates published in *ITE Trip Generation Handbook, 8th Edition*, this alternative would generate approximately 33,045 daily trips, approximately 6 percent less than what was identified for the proposed project. With a 6 percent reduction in daily trips, it is reasonable to conclude that traffic volumes on local roadways and intersections would be reduced under this alternative. Although the volume of traffic is reduced under this alternative, impacts to LOS levels at nearby intersections and roadway segments would still occur and would require mitigation. The addition of traffic volumes associated with this alternative could result in a deficient LOS level at one or more of the intersections in the project vicinity during the lifetime of the development. While significant traffic impacts may occur under this alternative, these impacts would be mitigated in a manner similar to those of the proposed project. Therefore, traffic-related impacts would remain similar to the proposed project.

Utilities and Service Systems. Existing utility infrastructure for stormwater and wastewater are present in adjacent roadways or parcels. However, like the proposed project, development under this alternative would be required to construct on-site utility infrastructure, and to connect to existing utility infrastructure subject to the terms and conditions of the City. It is anticipated that a reduction in residential uses on site by 27 percent would result in a corresponding reduction in the amount of wastewater generated by the project under this alternative. When compared to the proposed project, this alternative's demands on wastewater treatment and capacity at existing wastewater treatment facilities would be reduced in magnitude. However, like the proposed project, adherence to existing requirements identified by the City would result in impacts remaining at a less than significant level.

The development of the residential, commercial, and light industrial uses associated with this alternative would also require the installation of water supply infrastructure. However, similar to the wastewater generation discussion, a reduction in the amount of development that would occur under this alternative is anticipated to result in a corresponding reduction in potable water required to serve the project area. When compared to the proposed project, water usage demands would be reduced. However, similar to the proposed project, development under this alternative would be required to obtain verification from the water purveyor that water is available to serve the development. Therefore, impacts related to water usage and water treatment/conveyance facilities would remain less than significant when compared with the proposed project.

Like the proposed project, the Minimum Density Clustered Development Alternative would also generate solid waste. As previously stated for wastewater and potable water, this alternative is

anticipated to generate less solid waste as less development would occur within the project area. Therefore, demands on solid waste services and landfill capacity would be reduced in magnitude. However, similar to the proposed project, development under the Minimum Density Clustered Development Alternative would be required to adhere to the provisions of the solid waste provider that would service the project site. When compared to the proposed project, solid waste impacts would remain less than significant. However, like the proposed project, impacts associated with cumulative groundwater levels under this alternative would remain significant and unavoidable.

Cumulative Impacts. Similar to the proposed project, the Minimum Density Clustered Development Alternative would contribute to the permanent conversion of farmland, long-term operational air pollutant emissions, and increased traffic operations on local roadways and at local intersections. Although the amount of operational air pollutant emissions and traffic would be reduced in magnitude, because there are no feasible mitigation measures to reduce long-term air pollutant operational emissions and increased traffic, cumulative impacts would remain significant and unavoidable. This alternative would also require the development of the project site. Since there is no feasible mitigation that would reduce the cumulative impacts associated with the conversion of farmland, cumulative impacts associated with farmland conversion would remain significant and unavoidable.

Conclusion. With the Minimum Density Clustered Development Alternative, impacts related to noise impacts, although not considered significant impacts under the proposed project, would be similar to those identified with the proposed project. Although reduced in magnitude, short-term air quality construction emissions, long-term air quality operational emissions, cumulative greenhouse gas emissions, operational LOS for certain roadway segments and intersections, and cumulative groundwater supply under this alternative would remain significant and unavoidable, similar to the proposed project. The decrease in residential uses would result in a reduction of housing that would be created. This alternative would have a reduced demand to public services, recreation, and water use. However, similar to the proposed project, the payment of fees, dedication of parkland, and adherence to utility requirements would reduce these impacts to a less than significant level. Because of the reduction in vehicle trips achieved under this alternative, impacts to the operation of local roadways and intersections would be proportionally reduced from the proposed project, but would remain significant and unavoidable.

6.5 COMPARISON OF PROJECT ALTERNATIVES

The following discussion compares the impacts of each alternative with the impacts of the proposed project, as detailed in Section 4.0 of this EIR. Table 6.B compares the impacts of the alternatives with those of the proposed project. This table identifies whether the alternative results in (1) a reduction of the impact; (2) a greater impact than the project; or (3) the same impact as the project.

Table 6.B: Comparison of Alternatives to the Proposed Project

Environmental Issue	Proposed Project	Alternative 1: No Project	Alternative 2: Reduced Density	Alternative 3: High Density/ Compact Development	Alternative 4: Residential Focus	Alternative 5: Minimum Density/ Clustered Development
Aesthetics	LTS/mit	-	=	=	=	=
Agricultural Resources	SIG	-	=	=	=	=
Air Quality	SIG	-	← SIG	=	← SIG	← SIG

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Table 6.B: Comparison of Alternatives to the Proposed Project

Environmental Issue	Proposed Project	Alternative 1: No Project	Alternative 2: Reduced Density	Alternative 3: High Density/ Compact Development	Alternative 4: Residential Focus	Alternative 5: Minimum Density/ Clustered Development
Biological Resources	LTS/mit	-	=	←	=	=
Cultural Resources	LTS/mit	-	=	←	=	=
Geology and Soils	LTS/mit	-	=	=	=	=
Global Climate Change	SIG	-	← SIG	=	← SIG	← SIG
Hazards and Hazardous Materials	LTS	-	←	=	←	←
Hydrology and Water Quality	SIG	-	← SIG	=	=	=
Land Use and Planning	SIG	-	=	=	=	=
Mineral Resources	NI	-	=	=	=	=
Noise	LTS/mit	-	=	=	=	=
Population and Housing	LTS	-	=	=	=	=
Public Services	LTS/mit	-	=	=	→	←
Recreation and Parks	LTS	-	=	=	→	←
Transportation and Traffic	SIG	-	← SIG	=	← SIG	← SIG
Utilities and Service Systems	SIG	-	← SIG	=	→	←

Proposed Project

- NI: No Impact
- LTS: Less than Significant Impact
- LTS/mit: Less than Significant Impact with Mitigation
- SIG: Significant Impact with or without Mitigation

Project Alternatives

- = Compared with the proposed project, no change in the significance of impact will occur.
- Compared with the proposed project, the significance of the impact is increased.
- ← Compared with the proposed project, the significance of the impact is reduced.
- + Compared with the proposed project, a new impact has been identified.
- Compared with the proposed project, an impact has been eliminated.
- ←SIG Compared with the proposed project, the volume or extent of the impact is reduced, yet still significant.

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As identified in Table 6.B, Alternatives 1, 2, 4, and 5 reduce the severity of project-related air quality impacts. Though reduced, long-term air quality impacts and cumulative greenhouse gas emissions would remain significant after mitigation for Alternatives 2, 4, and 5. Alternative 1 (No Project) would eliminate significant air quality impacts as no development would occur on site. In a similar manner, Alternatives 2, 4, and 5 would reduce the volume of daily traffic trips when compared to the proposed project. Although Alternatives 2, 4 and 5 would reduce long-term traffic impacts to existing levels of service on nearby roadways, such impacts would remain significant and unavoidable. However, Alternative 1 would eliminate impacts to long-term traffic as no development would occur on site that

would result in no deficient level of services. In a similar manner, the magnitude of the impact for hazards and hazardous materials would be reduced for Alternatives 2, 4, and 5. For Alternative 3, biological and cultural resources would be reduced in magnitude as less land would be developed under this alternative. Alternative 1 would eliminate impacts associated all remaining environmental topics as no development would occur under this alternative.

CEQA requires that the environmentally superior alternative be identified in the EIR. Based on the analysis in this section and the summary contained in Table 6.B, Alternative 1, the No Project Alternative, is the environmentally superior alternative. Although Alternative 1 is one of the environmental superior alternatives, this alternative would not satisfy the majority of identified project objectives as it would not provide for an orderly development of residential and commercial uses that would retain revenue-generating uses, provide new employment opportunities to residents, provide commercial services for residents, or provide additional housing for residents in an area that is easily accessible to public transportation, retail, and service uses.

The other four alternatives: Alternative 2 (Reduced Density), Alternative 3 (High Density/Compact Development), Alternative 4 (Residential Focus), and Alternative 5 (Minimum Density/Clustered Development), although not the environmentally superior alternatives, would meet all of the identified project objectives while still reducing air quality and traffic impacts. These alternatives still satisfy the majority of the identified project objectives:

- Provide development consistent with the City's General Plan and in conformance with municipal standards, codes, and policies;
- Provide for commercial development of a size and location sufficient to retain revenue-generating uses in the City;
- Provide a retail shopping center that provides a broad selection of retail, dining, and service dining options to residents of the northern areas of the City;
- Provide new employment opportunities to residents of the City;
- Augment the City's economic base by increasing tax-generating retail uses within the City;
- Provide development that will enhance the aesthetic character of the project area;
- Provide the infrastructure improvements required to meet project needs in an efficient and cost-effective manner;
- Locate housing in areas accessible to public transportation, retail, and service uses; and
- Increase the number, location, and variety of housing options available to residents of the City.

Of these alternatives, Alternative 3 (High Density/Compact Development) would still allow the development of employment and revenue-generating uses as well as provide additional housing opportunities in City, while at the same time reduces the impacts associated with the proposed project and preserves additional land from future development. Therefore, Alternative 3 (High Density/Compact Development) has been determined to be the environmentally superior alternative.

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AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ac	acre
ADT	Average Daily Traffic
AF	acre-feet
AFV	Alternative Fuel Vehicle
AFY	acre-feet per year
ALUC	Airport Land Use Commission
AMSL	Above Mean Sea Level
A-P	Alquist Priolo
AQIA	Air Quality Impact Analysis
AQMP	Air Quality Management Plan
AWS	all way stop
Basin	South Coast Air Basin
BMP	Best Management Practice
BNSF	Burlington Northern/Santa Fe
BSA	Biological Study Area
BSP	Booster Pump Station
C ₂ F ₆	Hexafluoroethane
C ₂ H ₆	Ethane
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen Code	California Green Building Standards Code
CAPSSA	Criteria Area Plant Species Survey Area
CARB	California Air Resources Board
CAT	California Climate Action Team
CBC	California Building Code
CBSC	California Building Standards Commission
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDBG	Community Development Block Grant
CDC	California Department of Conservation
CDFFP	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game

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CDMG	California Division of Mines and Geology
CDWP	Corona Department of Water and Power
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CF ₄	Tetrafluoromethane
CFCP	California Farmland Conservancy Program
CFCs	Chlorofluorocarbons
CFD	Corona Fire Department
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	Methane
CHL	California Historical Landmarks
CIP	Capital Improvement Program
CIWMB	California Integrated Waste Management Board
CLUP	Comprehensive Land Use Plans
CMA	Corona Municipal Airport
CNDDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNUSD	Corona-Norco Unified School District
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CPA	Central Pool Augmentation
CPD	Corona Police Department
CPHI	California Points of Historical Interest
CRA	California Resource Agency
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Federal Clean Water Act
CWC	California Water Code
dB	decibel
dBA	decibel on the A-weighted scale
DBESP	Determination of Biological Superior or Equivalent Preservation
DEH	Department of Environmental Health
DHS	(California) Department of Health Services

DIF	Development Impact Fee
DTSC	Department of Toxic Substance Control
du	Dwelling unit
EIC	Eastern Information Center
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPAct	The Energy Policy Act
EVMWD	Elsinore Valley Municipal Water District
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FRM	Federal Reference Method
ft	feet/foot
FTA	Federal Transit Administration
GC	General Commercial
GHG	Greenhouse gas
gpd	gallons per day
gpm	gallons per minute
GWMP	Groundwater Management Plan
HCD	California Department of Housing and Community Development
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HDR	High Density Residential
HET	high-efficiency toilet
HFCs	Hydrofluorocarbons
HIST UST	Historical Underground Storage Tank
HMBP	Hazardous Materials Business Plan
HMMA	Hazardous Materials Management Act
HPD	Historic Property Data
HSC	Health and Safety Code
HVLP	high-volume low-pressure
HWCL	Hazardous Waste Control Law
HWSA	Hazardous and Solid Waste Amendments
I-15	Interstate 15
IA	Implementation Agreement

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IPCC	United Nations Intergovernmental Panel on Climate Change
ITE	Institute of Transportation Engineers
LCC	Land Capability Classification
LCFS	Low Carbon Fuel Standard
L _{dn}	day-night average noise
LDR	Low Density Residential
LE	Land Evaluation
L _{eq}	Equivalent continuous sound level (L _{eq})
LESA	Land Evaluation and Site Assessment
LLWD	Lee Lake Water District
L _{max}	maximum noise level
LOS	Level of Service
LSC	Limited Site Characterization
LST	Local Significance Threshold
LULUCF	Land-Use, Land-Use Change and Forestry
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MDR	Medium Density Residential
mg	million gallons
mg/m ³	milligrams per cubic meter
mgd	million gallons per day
MHOA	Master Homeowners Association
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program
MMTCO ₂ E	million metric tons of carbon dioxide equivalent
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer Systems
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
MTCO ₂ e	Million tons of carbon dioxide equivalent
MU I	Mixed-Use I: Commercial and Residential
MU II	Mixed-Use II: Industrial and Commercial
MUTCD	Manual on Uniform Traffic Control Devices
MWDSC	Metropolitan Water District of Southern California
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NEPSSA	Narrow Endemic Plant Species Survey Area
NFIP	National Flood Insurance Program
NFMA	National Forest Management Act
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic and Safety Administration
NO ₂	Nitrogen Dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO _x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
O ₃	Ozone
OCP	Organochlorine Pesticide
OHWM	Ordinary High Water Mark
OMB	White House Office of Management and Budget
OPR	Office of Planning and Research
OS/G	Open Space General
P	Parks
Pb	Lead
P-C	Production-Consumption
PFCs	Perfluorocarbons
PM ₁₀	Particulate Matter with a Diameter of 10 Microns or Less
PM _{2.5}	Particulate Matter with a Diameter of 2.5 Microns or Less
POC	Pollutant of Concern
POTWs	Publicly Owned Treatment Works
POU	Publicly Owned Utility
ppb	parts per billion
ppm	parts per million
psig	per square inch gauge
RCA	Riverside Conservation Authority
RCP	Regional Comprehensive Plan
RCP	Reinforced Concrete Pipe
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resource Conservation and Recovery Act
RCTC	Riverside County Transportation Commission

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RHNA	Regional Housing Needs Assessment
RIVTAM	Riverside County Transportation Analysis Model
ROC	Reactive Organic Compounds
RPA	Resources Planning Act
RSS	Riversidean Sage Scrub
RWQCB	Regional Water Quality Control Board
SA	Site Assessment
SANDAG	San Diego Association of Governments
SARA	The Superfund Amendments and Reauthorization Act
SARMB	Santa Ana River Mitigation Bank
SAWA	Santa Ana Watershed Association
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SDWA	National Safe Drinking Water Act
sf	square feet
SF ₆	Sulfur Hexafluoride
SHMA	Seismic Hazards Mapping Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SKR	Stephens' Kangaroo Rat
SKR HCP	Stephens' Kangaroo Rat Habitat Conservation Plan
SLESF	Supplemental Law Enforcement Service Funds
SMARA	Surface Mining and Reclamation Act of 1975
SO ₂	Sulfur Dioxide
SO _x	Oxides of Sulfur
SRA	State Recreation Area
SRA	State Responsibility Area
SRO	Single-Room-Occupancy
SRRE	Source Reduction and Recycling Element
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCP	traditional cultural place
TDS	Total Dissolved Solids
Tg	teragram
TgCO _{2e}	teragrams of carbon dioxide equivalent
TMDL	Total Maximum Daily Load
TNW	Traditional Navigable Water

TRI	Toxics Release Inventory
UBC	Uniform Building Code
UNEP	United Nations Environment Programme
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
VMT	vehicle miles traveled
VOC	Volatile Organic Compounds
WDR	Wastewater Discharge Requirements
WMI	Waste Management, Inc.
WMWD	Western Municipal Water District
WQMP	Water Quality Management Plan
WRCOG	Western Riverside County Council of Governments
WRF	Water Reclamation Facility
WSA	Water Supply Assessment
WWTF	Wastewater Treatment Facilities
ZNE	zero net energy
ZOI	Zone of Influence
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter

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