# Air Quality Analysis for the Crystal View Terrace/ Green Orchard Place/ Overlook Parkway Project, City of Riverside

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# 1.0 Summary

This report evaluates potential local and regional air quality impacts associated with the proposed Crystal View Terrace/Green Orchard Place/Overlook Parkway Project (proposed Project). The proposed project involves the evaluation of four circulation scenarios associated with Overlook Parkway. The four proposed scenarios are discussed in detail in Section 2.1 below.

As demonstrated below, construction emissions under all four scenarios are projected to be less than the applicable South Coast Air Quality Management District (SCAQMD) significance thresholds for all pollutants. Construction impacts would be less than significant.

The total vehicle miles traveled in Riverside County were calculated for each scenario. As detailed below, all scenarios would result in either a decrease in emissions or a less than significant increase in emissions when compared to both the Gates Closed baseline and the Gates Open baseline. Mobile emissions due to the proposed Project would be less than significant.

Carbon monoxide (CO) concentrations were modeled at all intersections projected to operate at level of service (LOS) E or F. One-hour CO concentrations were calculated to be below the 20 parts per million (ppm) state standard and the 35 ppm national standard, and eight-hour CO concentrations were calculated to be below the State's 9 ppm standard. Thus, CO hot spot impacts under buildout of the Project would be less than significant.

No objectionable odors would be generated during operation of all four scenarios. Given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. As such, potential impacts during short-term construction would be less than significant.

Additionally, none of the proposed scenarios would alter land uses established in the General Plan 2025 or result in regional growth. The proposed project would not affect the growth assumptions in the Air Quality Management Plan (AQMP). Impacts would be less than significant.

# 2.0 Introduction and Project Description

The purpose of this report is to assess potential short- and long-term local and regional air quality impacts resulting from development of the proposed project.

Air quality effects can include the following:

- Increased respiratory infections
- Increased discomfort
- Missed days from work and school
- Increased mortality

The proposed project is located within the South Coast Air Basin (SCAB), one of 15 air basins that geographically divide the State of California. The SCAB includes all of Orange County and portions of Los Angeles County, Riverside County, and San Bernardino County. The SCAB is currently classified as a federal and state non-attainment area for ozone, particulate matter less than 10 microns ($PM_{10}$), and particulate matter less than 2.5 microns ($PM_{2.5}$), and a state non-attainment area for nitrogen dioxide ($NO_2$). Additionally, Los Angeles County, which is also within the SCAB, is a state non-attainment area for lead.

Air quality impacts can result from both construction and operation of the proposed project. Construction impacts are short-term and result from fugitive dust, equipment exhaust, and indirect effects associated with vehicles for construction workers and deliveries. Operational impacts can occur on two levels: regional impacts resulting from growth-inducing development, and local hot spot effects stemming from sensitive receivers being placed close to highly congested roadways. In the case of this project, the primary source of emissions would be construction activities and mobile emissions due to the change in vehicle miles traveled calculated for each of the scenarios.

The analysis of impacts is based on state and federal ambient air quality standards (AAQS) and is assessed in accordance with the guidelines, policies, and standards established by the City of Riverside and the SCAQMD. Project compatibility with the adopted air quality plan for the area is also assessed.

## 2.1 Project Description

The proposed project is located in the city of Riverside, California. The project area is generally bounded by John F Kennedy Drive and Hermosa Drive to the south, Adams Street and the State Route 91 (SR-91) freeway to the west, Arlington Avenue to the north, and Alessandro Boulevard and Trautwein Road to the east. Figure 1 shows the regional location, and Figure 2 shows the project area on an aerial photograph.

The proposed project involves the evaluation of four circulation scenarios associated with Overlook Parkway. Overlook Parkway runs east-west from Washington Street to Alessandro Boulevard; however, Overlook Parkway is not connected between Brittanee Delk Court and Sandtrack Road and over the Alessandro Arroyo between Crystal View Terrace and Via Vista Drive. In addition, Overlook Parkway does not extend west past Washington Street; therefore, a connection to SR-91 does not exist from Overlook Parkway. As a result of the approval of two separate tract maps, gates at Crystal View Terrace and Green Orchard Place were installed to prevent cut-through traffic until Overlook Parkway was completed across the Alessandro Arroyo. Four circulation scenarios are being analyzed in order to provide decision makers with sufficient information to select a preferred scenario.

**Scenario 1** — Gates closed to through traffic, no connection of Overlook Parkway: Under Scenario 1, both Crystal View Terrace and Green Orchard Place gates would remain in place and be closed until Overlook Parkway is connected to the east across the Alessandro Arroyo, to Alessandro Boulevard, and a connection westerly of Washington Street is built.

**Scenario 2** — Gates removed, no connection of Overlook Parkway: Under Scenario 2, the gates at both Crystal View Terrace and Green Orchard Place would be removed, and there would be no connection of Overlook Parkway across the Alessandro Arroyo. Overlook Parkway and connection to the SR-91 would remain on the General Plan 2025 Master Plan of Roadways.

**Scenario 3** — Gates removed, Overlook Parkway connected: Under Scenario 3, the gates at Crystal View Terrace and Green Orchard Place would be removed, and Overlook Parkway would be connected between Via Vista Drive and Sandtrack Road with the construction of a fill crossing and over the Alessandro Arroyo with a bridge crossing, allowing for a through connection to Alessandro Boulevard. The connection to the SR-91 would not be considered and would be removed from the Master Plan of Roadways in the General Plan 2025.

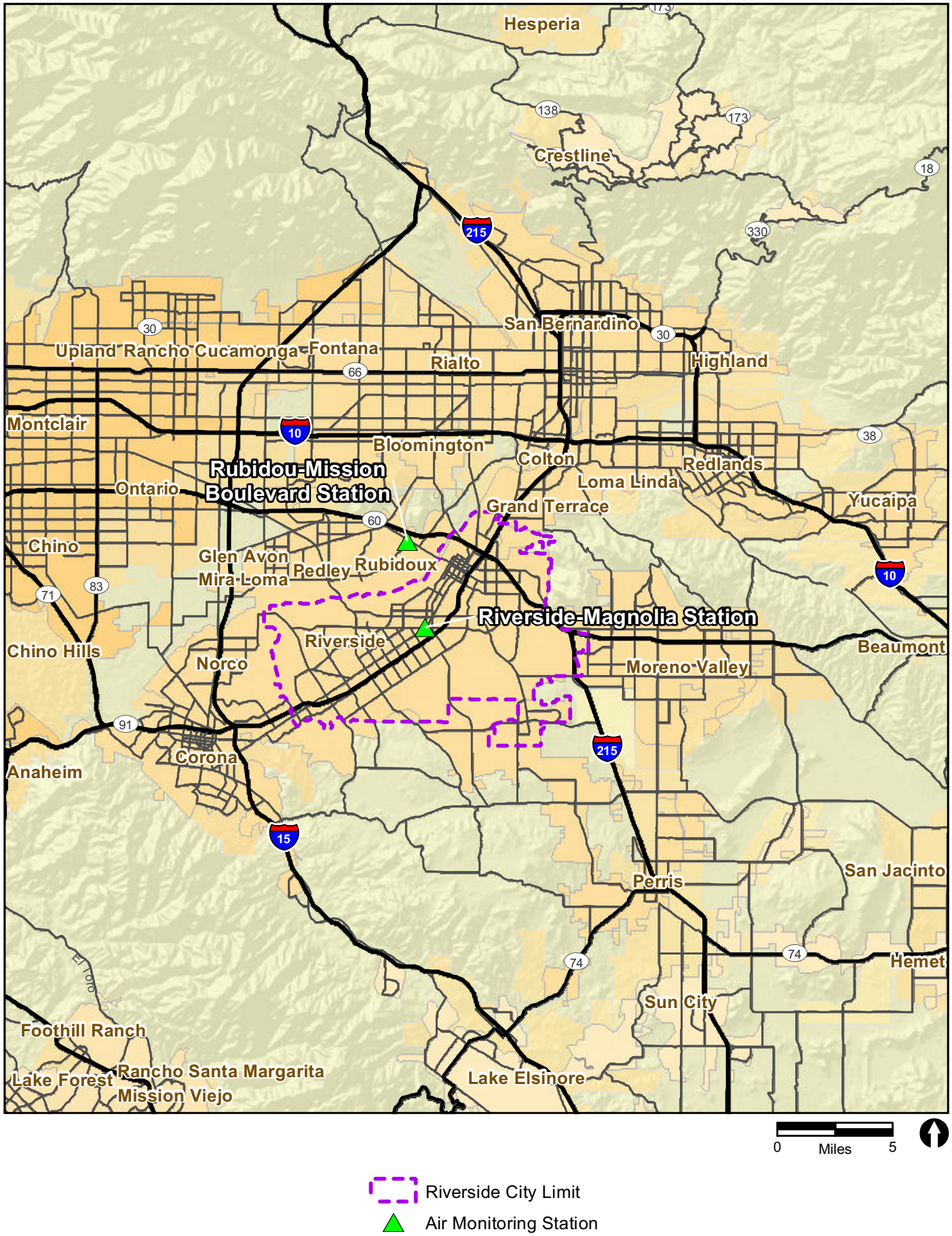


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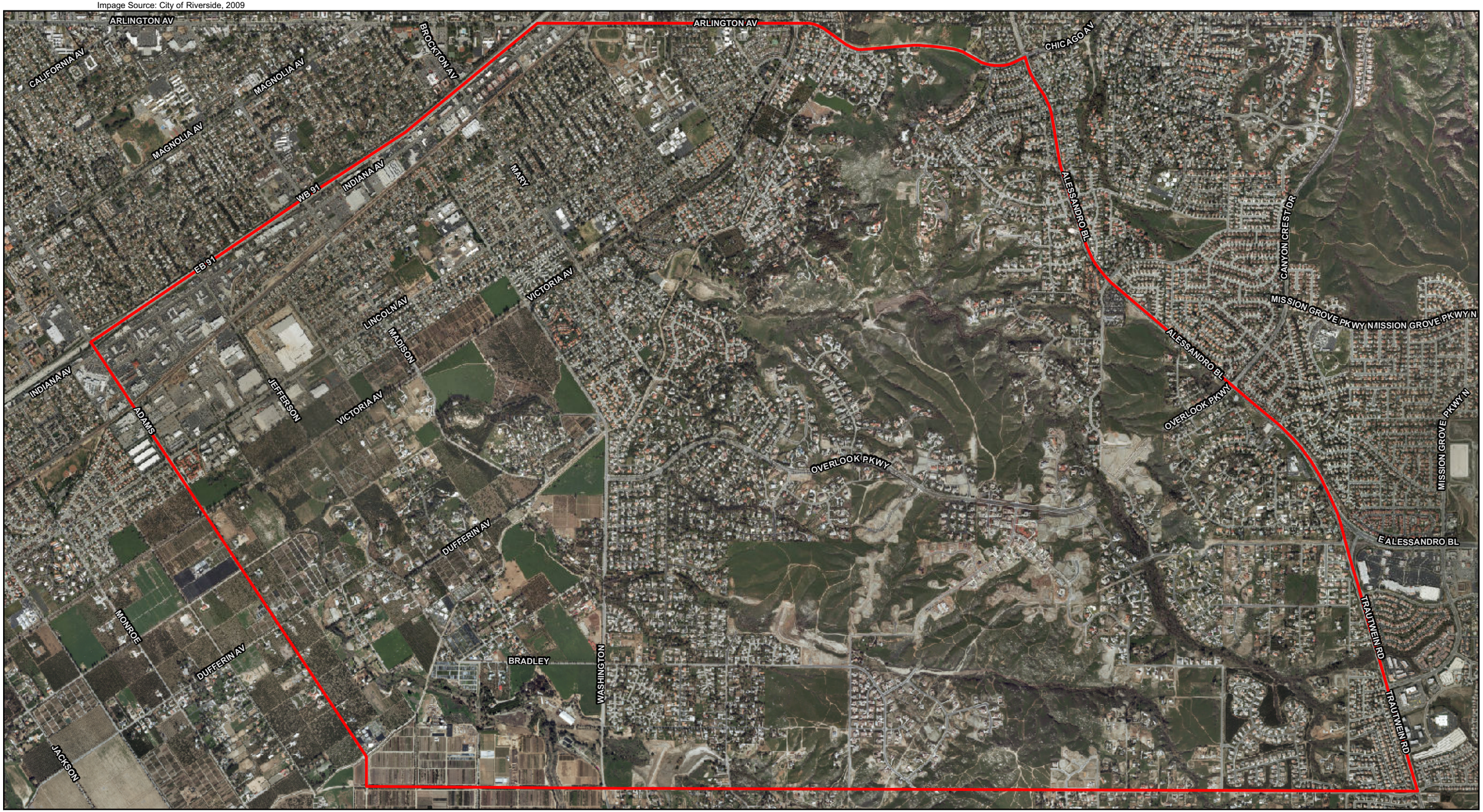
FIGURE 1

Regional Location

Impage Source: City of Riverside, 2009




Project Boundary

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FIGURE 2

Aerial Photograph of Project and Vicinity

**Scenario 4** — Gates removed, Overlook Parkway connected, and the Proposed C Street constructed west of Washington Street: Under Scenario 4, both Crystal View Terrace and Green Orchard Place gates would be removed and Overlook Parkway would be connected east across Alessandro Arroyo and to Alessandro Boulevard. In addition, a roadway (the Proposed C Street) would also be extended west of Washington Street.

The project area lies within five neighborhoods: the Alessandro Heights (northern portion), Canyon Crest (southwestern portion), Casa Blanca (northern portion), Arlington Heights (northeastern portion), and the Hawarden Hills (western portion). The land uses in the project area primarily include agricultural, rural residential, hillside residential, and very low density residential. A greater variety and intensity of land uses occurs between Victoria Avenue and SR-91, including commercial and higher density residential uses. The residential land uses near Crystal View Terrace and Green Orchard Place are categorized as hillside residential and very low density. The land uses near the new alignment for Washington Street also include agricultural, rural residential, hillside residential, and very low density residential. There are no schools or hospitals located adjacent to the proposed alignments.

Figures 3a through 3d depict each of the four scenarios.

## 2.2 Project Background

In May 2001, a subdivision (TM-29515) was approved that proposed extending a road (Green Orchard Place) to ultimately connect with an existing segment of Green Orchard Place, built on what was then unincorporated County land. To avoid cut-through traffic using this local residential street, the City Council approved a condition of the map and a mitigation measure in the related Mitigated Negative Declaration prohibiting any connection between the two street segments "until the Overlook Parkway extension across the Alessandro Arroyo has been completed."

In February 2006, the City Council approved a subdivision map (TM-29628) that included the extension of Crystal View Terrace from Overlook Parkway to connect with an existing stretch of Crystal View Terrace that extended from Berry Road. The City Council also adopted a condition of approval and a mitigation measure of the accompanying EIR requiring "a barrier strip at the [then] City limits along Crystal View Terrace be installed until Overlook Parkway is connected to the east across the Alessandro Arroyo and to Alessandro Boulevard." This condition required a gate to be installed to allow for emergency vehicle access, but otherwise prohibit through traffic.

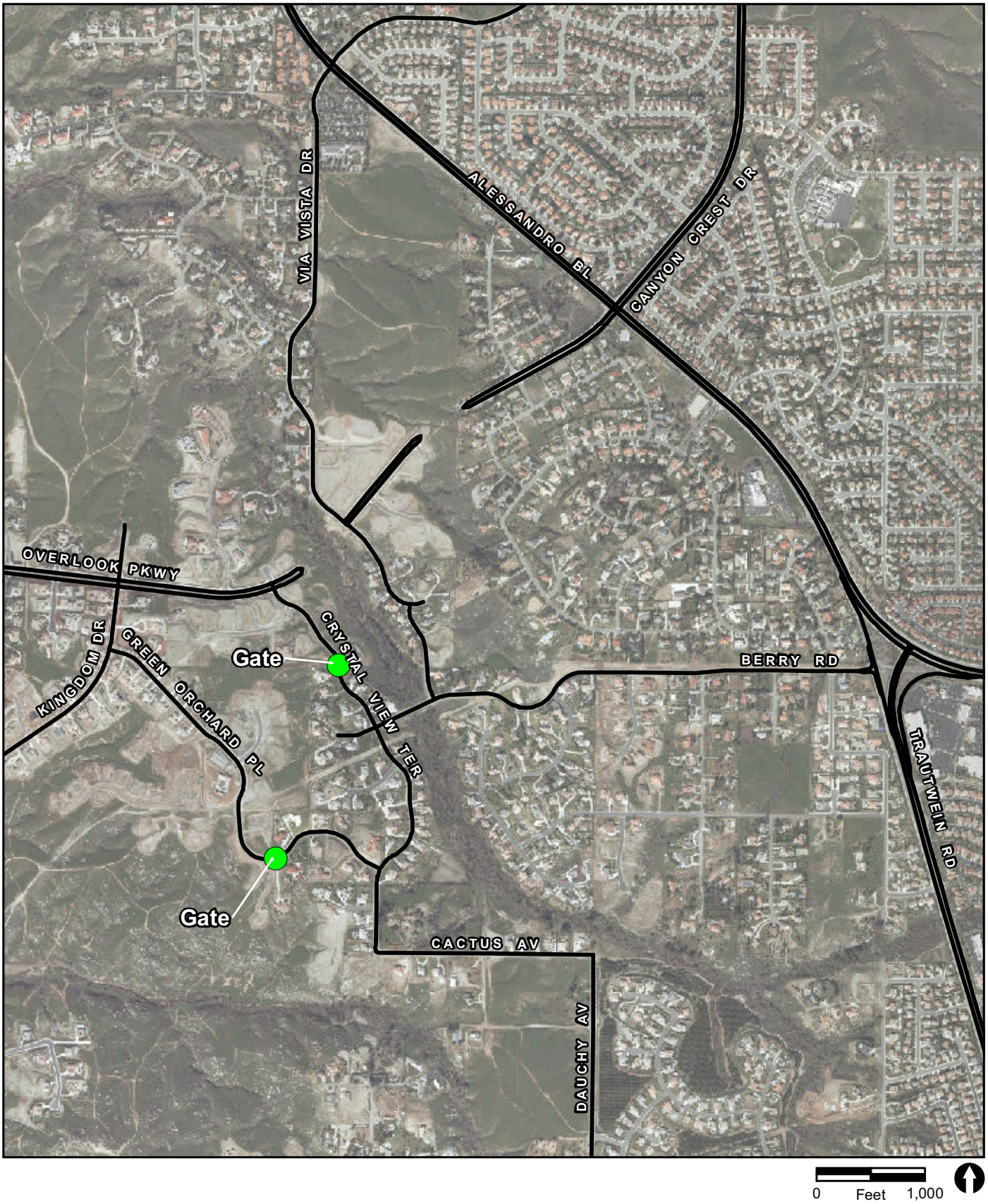


FIGURE 3a

Scenario 1

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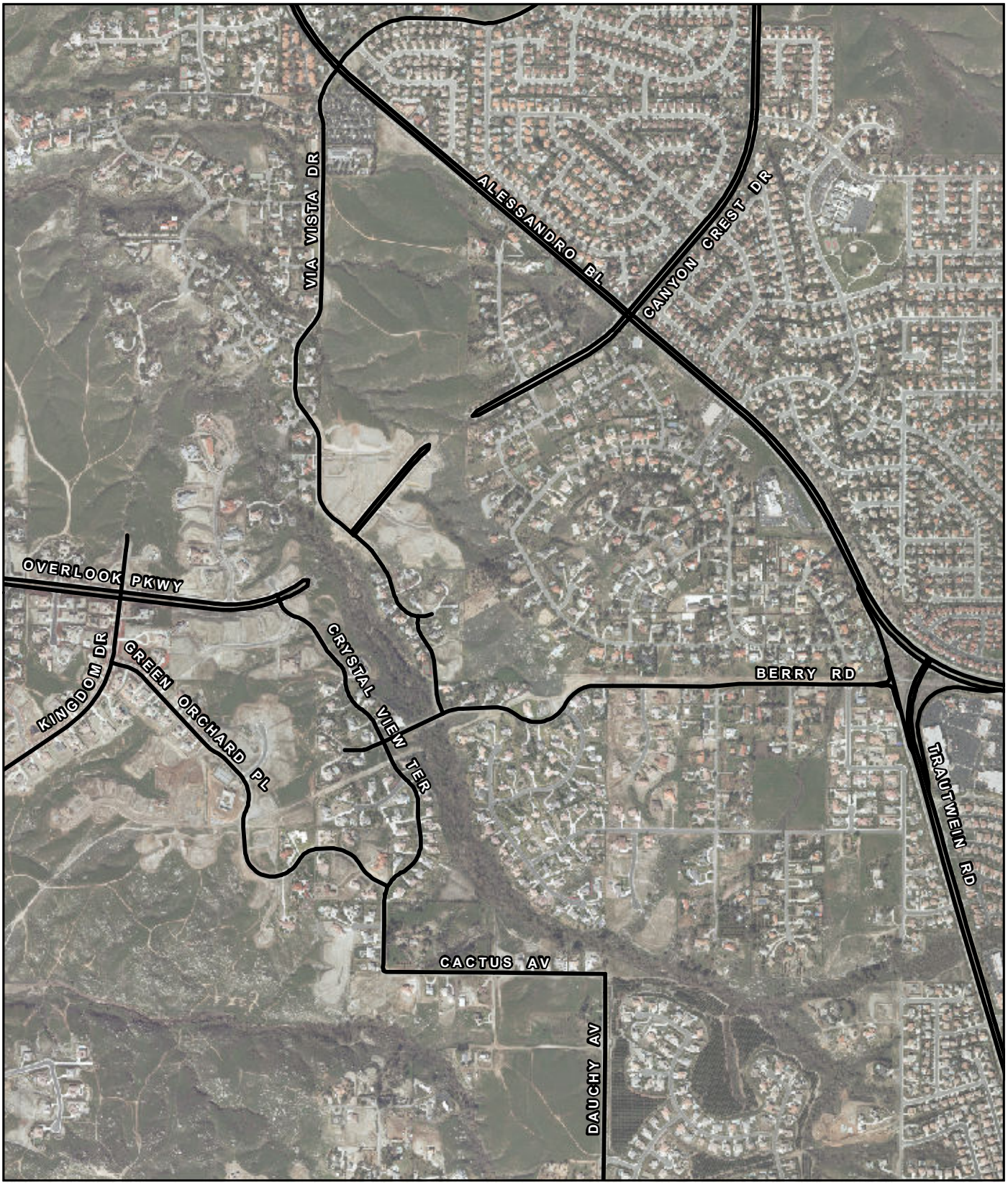


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FIGURE 3b

Scenario 2

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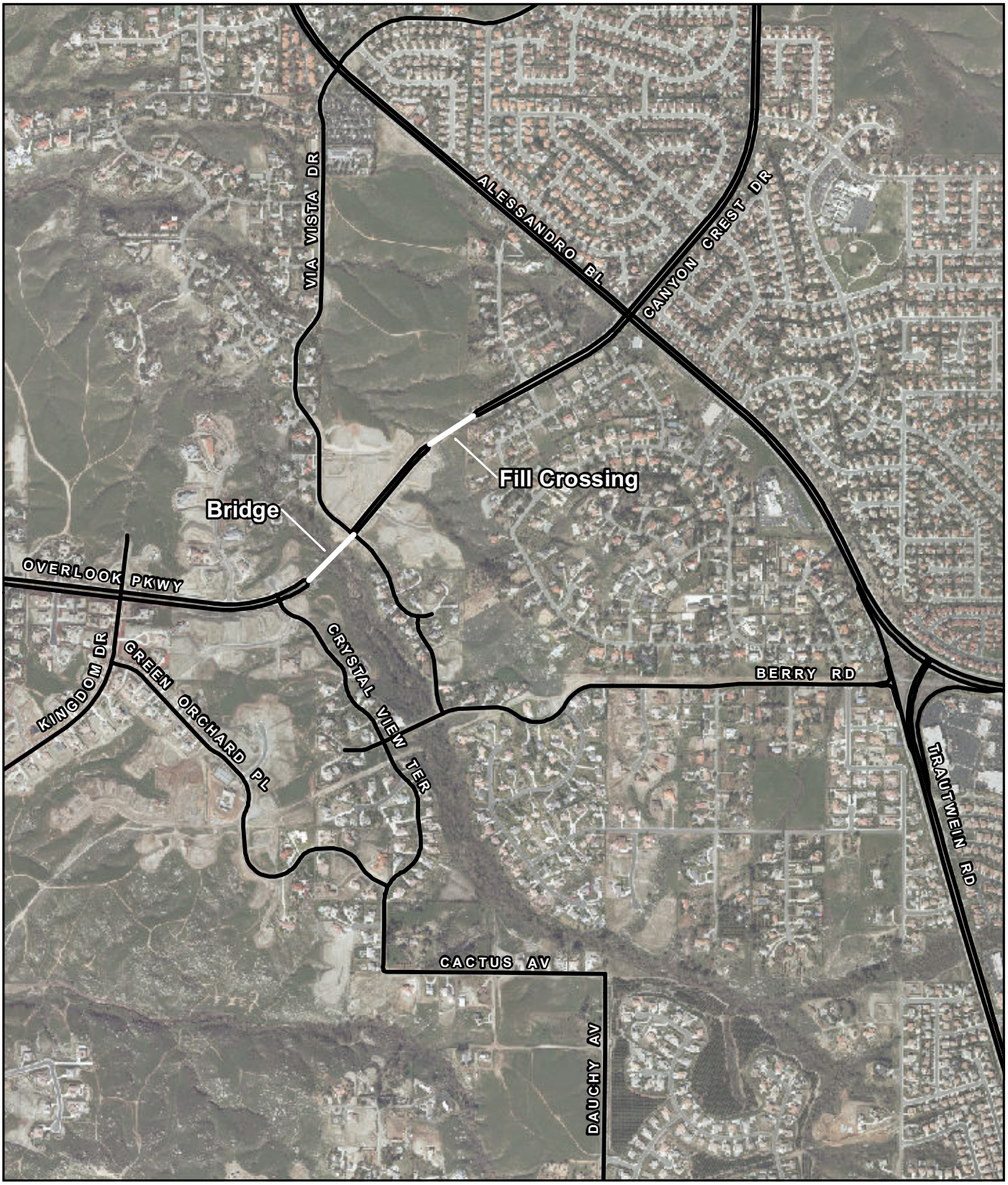


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FIGURE 3c

Scenario 3

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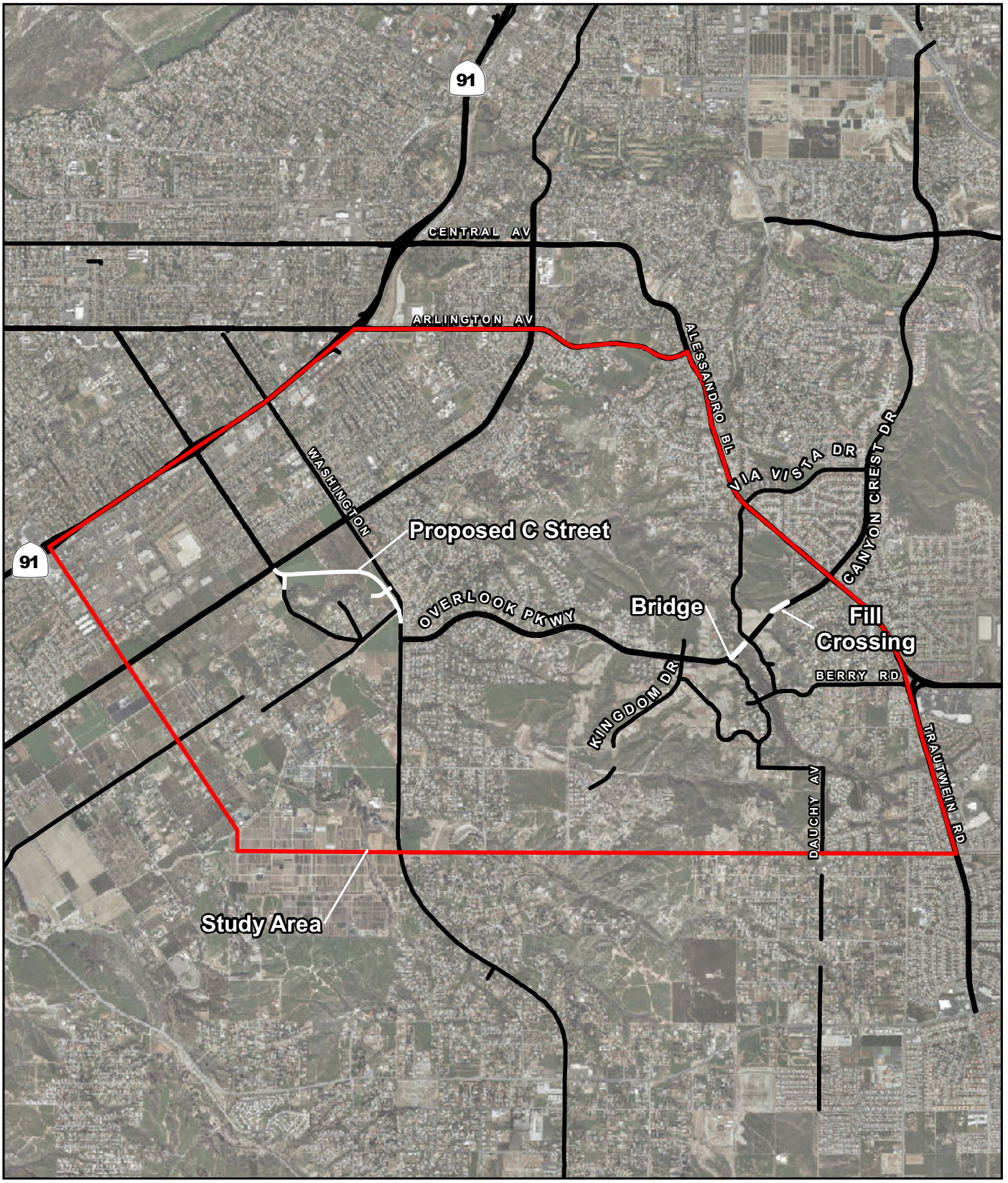


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FIGURE 3d

Scenario 4

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Because Overlook Parkway is not connected, the Riverside General Plan 2025 includes a policy to "prohibit the removal of the Crystal View Terrace barrier prior to the connection of Overlook Parkway across the Alessandro Arroyo." General Plan 2025 Objective CCM-4 and the four related policies are detailed as follows:

***Objective CCM-4:*** Provide a connection between Washington Street and SR-91 via an extension of Overlook Parkway.

**Policy CCM-4.1:** Limit the Overlook Parkway completion over the arroyo to a two-lane roadway within a 110-foot right-of-way.

**Policy CCM-4.2:** The connection of Overlook Parkway across the Alessandro Arroyo shall not be completed until a detailed specific plan analyzing potential connection routes between Washington Street and the SR-91 has been adopted. Analysis of the fore mentioned connection route should, at a minimum, include the area bounded by Mary Street, Adams Street, Dufferin Street, and SR-91.

**Policy CCM-4.3:** Ensure that LOS D or better is maintained along Victoria Avenue for intersections related to the Overlook Parkway extension.

**Policy CCM-4.4:** Prohibit the removal of the Crystal View Terrace barrier prior to the connection of Overlook Parkway across the Alessandro Arroyo.

## 2.3 Project Baseline

The gates are required to be closed by General Plan 2025 policy, consistent with the project conditions for two tract map projects as discussed above. The gates are regularly opened and closed by local residents at undetermined intervals without City permission or knowledge. At the time of preparation of the Notice of Preparation for the proposed project, gates were in place, but open on both Green Orchard Place and Crystal View Terrace. Therefore, primarily for traffic conditions, it is necessary to establish two environmental baselines for the project:

- Gates Closed – The required condition due to existing mitigation measures and General Plan 2025 policies that require the gates to remain in place until such time that Overlook Parkway is connected.

- Gates Open – On the Notice of Preparation release date, the gates were open.

This report analyzes the four circulation scenarios against both Gates Closed and Gates Open.

# 3.0 Regulatory Framework

The regulatory framework described below details the federal and state agencies that are in charge of monitoring and controlling air pollutants and the policies that impact management of air quality in the SCAB.

State and federal agencies such as the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (U.S. EPA) establish emission standards for mobile and stationary sources. Mobile sources of air pollution include on-road vehicles such as cars, trucks, and buses (which comprise more than half of all air pollution in the SCAB), off-road equipment such as airplanes, and agricultural and construction equipment. Stationary sources of air pollution are non-moving sources and include power plants, manufacturing and industrial facilities, chemical plants, and oil refineries. Stationary sources are generally regulated through the permitting process as implemented by the local air district.

Reducing mobile source emissions requires the technological improvement of existing mobile sources and the examination of future mobile sources such as those associated with new or modified projects. The State of California has developed state-wide programs to encourage cleaner cars and cleaner fuels. The regulatory framework described below details the federal and state agencies that are in charge of monitoring and controlling mobile source air pollutants and the measures currently being taken to achieve and maintain healthful air quality in the SCAB.

The State of California is divided geographically into 15 air basins for the purpose of managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. If an air basin is not in either federal or state attainment for a particular pollutant, the basin is classified as a moderate, serious, severe, or extreme non-attainment area (there is also a marginal classification for federal non-attainment areas).

## 3.1 Federal Regulations

Ambient air quality standards represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 U.S.C. 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA [42 U.S.C. 7409], the U.S. EPA developed primary and secondary national ambient air quality standards (NAAQS).

Seven pollutants of primary concern have been designated: ozone ($O_3$), $PM_{10}$, $PM_{2.5}$, CO, $NO_2$, sulfur dioxide ($SO_2$), and lead (Pb). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" (42 U.S.C. 7409(b)(2)). The primary standards were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties).

**Ozone – $O_3$**

Nitrogen oxides and hydrocarbons (reactive organic gases [ROG]) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. In 1997, the U.S. EPA promulgated a new eight-hour ozone standard of 8 parts per hundred million (pphm) to replace the existing one-hour standard of 12 pphm. On June 15, 2004, the portion of the SCAB containing the project area was designated a "Severe 17" non-attainment area for the eight-hour ozone standard under Subpart 2 of Part D of the federal CAA. As a Severe 17 area subject to Subpart 2, and per section 181(a) of the federal CAA, the period of attainment for the eight-hour ozone standard is no more than 17 years from the effective date of designation. Consequently, the SCAB must demonstrate attainment of the eight-hour ozone standard by June 15, 2021.

Per the U.S. EPA's final Phase 1 rule for implementing the eight-hour ozone standard, the one-hour ozone standard was to be revoked "in full, including the associated designations and classifications, one year following the effective date of the designations for the eight-hour NAAQS [for ozone]" (69 FR 23951). As such, the one-hour ozone standard was revoked in the SCAB on June 15, 2005. Requirements for transitioning from the one-hour to eight-hour ozone standard are described in the final rule.

On March 12, 2008, the U.S. EPA revised the eight-hour ozone standard to 7.5 pphm. On March 12, 2009, CARB submitted its recommendations for area designations for the revised federal eight-hour ozone standard. The recommendations were based on ozone measurements collected during 2006 through 2008. It was recommended that the SCAB be classified as nonattainment for the revised standard. The U.S. EPA was required to issue final area designations no later than March 2010. However, there was insufficient information to make these designations, and the U.S. EPA extended the deadline to March 2011.

However, criticism of the standards proposed in March 2008 resulted in the reconsideration of those standards by the EPA. On January 16, 2010, the EPA again proposed revision of the eight-hour ozone standards. The U.S. EPA proposed to set the primary standard at a level ranging between 6 and 7 pphm. The U.S. EPA also proposed

establishing a distinct cumulative, seasonal "secondary" standard, designed to protect sensitive vegetation and ecosystems, including forests, parks, wildlife refuges and wilderness areas. The U.S. EPA proposed to set the secondary standard at a level within the range of 7-15 parts per million-hours.

The U.S. EPA was to issue final standards by August 31, 2010, but to date this has not occurred. Rather, on December 8, 2010, the EPA Administrator asked the Clean Air Scientific Advisory Committee (CASAC) for further interpretation of the epidemiological and clinical studies used to make their recommendation. On January 26, 2011, the U.S. EPA provided "charge questions" to the CASAC regarding the reconsideration of the 2008 ozone standards. The U.S. EPA reviewed the additional input CASAC provided and set the final eight-hour ozone standard to 0.070 ppm in July 2011. However, the new standard has not gone into effect. On September 2, 2011, President Obama directed the U.S. EPA to withdraw the draft revised ozone NAAQS. Therefore, the U.S. EPA will continue to implement the standards set during the previous administration (2008 eight-hour ozone) while the ongoing five-year review of the updated science continues, which is scheduled to be completed in 2013.

**Particulate Matter – $PM_{10}$ and $PM_{2.5}$**

That portion of the SCAB containing the project area has been designated a non-attainment area for the $PM_{10}$ standard, and was reclassified from a moderate to serious non-attainment area on February 8, 1993 (58 FR 3334). The SCAQMD adopted the first $PM_{10}$ attainment plan in 1991. In various revisions, the SCAQMD adopted increasingly stringent dust emission control measures and, as a result, the SCAB attained the 24-hour $PM_{10}$ standard by the 2006 attainment date deadline. On January 8, 2010, the SCAQMD adopted the $PM_{10}$ Redesignation Request and Maintenance Plan for the South Coast (South Coast $PM_{10}$ Maintenance Plan). The plan officially requests that the SCAB be redesignated to attainment for the $PM_{10}$ standard and charts the course for continued maintenance of the standard through 2030 (State of California 2010). However, a formal request for redesignation has not been submitted to the U.S. EPA; therefore, the region remains in non-attainment for the federal $PM_{10}$ standard.

That portion of the SCAB containing the project area has been designated a non-attainment area for the $PM_{2.5}$ standard, effective April 5, 2005 (U.S. EPA 2004). Under Section 172(b) of the CAA, the SCAQMD has up to three years from the date of the final designation to submit a State Implementation Plan (SIP) that includes, among other things, a demonstration showing how it will attain the ambient standards by the specified attainment date (70 FR 65984). The latest plan, the 2007 Air Quality Management Plan, was adopted by the SCAQMD Governing Board on June 1, 2007. Attainment of the $PM_{2.5}$ standards must be achieved 10 years after the final designation date. Consequently, the SCAB must demonstrate attainment by April 5, 2015.

On September 21, 2006, the EPA revised the primary NAAQS for particulate matter. The U.S. EPA strengthened the 24-hour $PM_{2.5}$ standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$. The existing standard for annual $PM_{2.5}$ of 15 $\mu g/m^3$ remained the same. In addition, the U.S. EPA also revised the standard for $PM_{10}$. Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual $PM_{10}$ standard (effective December 17, 2006). The portion of the SCAB containing the project area was classified as non-attainment for the new 24-hour $PM_{2.5}$ standard (U.S. EPA 2009).

**Carbon Monoxide – CO**

In 1971, the U.S. EPA set the one-hour and eight-hour federal standards for CO at 9 ppm and 35 ppm, respectively. These standards were reviewed in 1994 and were not revised. The SCAB is an attainment area for the CO standards.

**Nitrogen Dioxide – $NO_2$**

On January 22, 2010, the U.S. EPA strengthened the one-hour $NO_2$ standard to 100 parts per billion (ppb) based on the three-year average of the 98$^{th}$ percentile of the annual distribution of daily maximum one-hour average concentrations. The annual $NO_2$ standard of 53 ppb remained unchanged. The U.S. EPA intends to complete designations for the new standards within two years of promulgation, which would be by January 2012.

To determine compliance with the standard, the new $NO_2$ rule also establishes a new ambient air monitoring network and reporting requirements. Once the expanded network of $NO_2$ monitors is fully deployed and three years of air quality data have been collected, the U.S. EPA intends to redesignate areas in 2016 or 2017, as appropriate, based on the air quality data from the new monitoring network.

All areas of the state, including the SCAB, are either unclassified or in attainment of the previous $NO_2$ standards.

**Sulfur Dioxide – $SO_2$**

On June 22, 2010, the EPA finalized a new one-hour $SO_2$ standard, effective August 23, 2010 (75 FR 35520). The revised standard is based on the three-year average of the annual 99$^{th}$ percentile of one-hour daily maximum concentrations. 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 EPA intends to complete designations for the new standards within two years of promulgation, which would be June 2012. Areas designated nonattainment would be required to submit SIPs within two years that demonstrate how the standard would be met no later than August 2017. All other areas would be required to submit maintenance plans by June 2013.

The secondary standards for $SO_2$ are undergoing separate review. On July 12, 2011, the EPA recommended that the existing secondary $SO_2$ standards be retained, and recommended a new additional secondary standard of 75 ppb averaged over one hour (76 FR 46084).

The SCAB is an attainment area for the old $SO_2$ standards.

**Lead**

In 2008, the U.S. EPA revised the primary standard for lead from 1.5 µg/m$^3$ to 0.15 µg/m$^3$ over a rolling three-month period, and revised the secondary standard to be identical to the primary standard. The 1978 lead NAAQS will be retained until one year after designations for the new standards, except in current nonattainment areas. The SCAB is in attainment of the 1978 lead NAAQS.

CARB was required to provide the U.S. EPA with designation recommendations by October 2009. On October 14, 2009, the CARB recommended to the U.S. EPA that the SCAB be designated unclassifiable for the new lead standard. Although the CARB was required to make area designation recommendations by October 2009, the U.S. EPA recognized that the current lead sampling network was not adequate in most areas. Therefore, the U.S. EPA may take an additional two years to designate areas with insufficient data. New lead samplers will be deployed during this time period to collect additional data needed to identify designations for many areas with no or limited monitoring data. The final lead ambient air monitoring requirements were established by the U.S. EPA on December 14, 2010. It is unknown at this time how this may affect the designation of the SCAB, and no designation action has occurred to date.

The current federal (and state) AAQS are presented in Table 1.

## 3.2 State Regulations

The U.S. EPA allows states the option to develop different (stricter) standards. The state of California generally has set more stringent limits on the seven criteria pollutants (see Table 1). The California CAA, also known as the Sher Bill, or AB 2595, was signed into law on September 30, 1988, and became effective on January 1, 1989. The California CAA requires that districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. The California CAA requires that a district must (SCAQMD 2007):

- Demonstrate the overall effectiveness of the air quality program;
- Reduce nonattainment pollutants at a rate of 5 percent per year, or include all feasible measures and expeditious adoption schedule;

**TABLE 1**
**AMBIENT AIR QUALITY STANDARDS**

| Pollutant | Averaging Time | California Standards[1] | | Federal Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Ozone | 1 Hour | 0.09 ppm (180 µg/m$^3$) | Ultraviolet Photometry | – | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.07 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 µg/m$^3$ | | |
| Carbon Monoxide (CO) | 1 Hour | 20 ppm (23 mg/m$^3$) | Non-dispersive Infrared Photometry | 35 ppm (40 mg/m$^3$) | – | Non-dispersive Infrared Photometry |
| | 8 Hour | 9.0 ppm (10 mg/m$^3$) | | 9 ppm (10 mg/m$^3$) | – | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m$^3$) | | – | – | |
| Nitrogen Dioxide ($NO_2$)[8] | 1 Hour | 0.18 ppm (339 µg/m$^3$) | Gas Phase Chemi-luminescence | 100 ppb (188 µg/m$^3$) | – | Gas Phase Chemiluminescence |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m$^3$) | | 53 ppb (100 µg/m$^3$) | Same as Primary Standard | |
| Sulfur Dioxide ($SO_2$)[9] | 1 Hour | 0.25 ppm (655 µg/m$^3$) | Ultraviolet Fluorescence | 75 ppb (196 µg/m$^3$) | – | Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) |
| | 3 Hour | – | | – | 0.5 ppm (1300 µg/m$^3$) | |
| | 24 Hour | 0.04 ppm (105 µg/m$^3$) | | 0.14 ppm (for certain areas)[9] | – | |
| | Annual Arithmetic Mean | – | | 0.030 ppm (for certain areas)[9] | – | |

**TABLE 1**
**AMBIENT AIR QUALITY STANDARDS**
**(continued)**

| Pollutant | Averaging Time | California Standards[1] | | Federal Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Lead[10,11] | 30 Day Average | 1.5 µg/m$^3$ | Atomic Absorption | – | – | High Volume Sampler and Atomic Absorption |
| | Calendar Quarter | – | | 1.5 µg/m$^3$ (for certain areas)[11] | Same as Primary Standard | |
| | Rolling 3-Month Average | – | | 0.15 µg/m$^3$ | | |
| Visibility Reducing Particles[12] | 8 Hour | See footnote 12 | 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[10] | 24 Hour | 0.01 ppm (26 µg/m$^3$) | Gas Chromatography | | | |

SOURCE: CARB 2012.
ppm = parts per million; ppb = parts per billion; µg/m$^3$ = micrograms per cubic meter; – = not applicable.

[1]California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, 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 arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For $PM_{10}$, 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 national policies.

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

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

**TABLE 1**
**AMBIENT AIR QUALITY STANDARDS**
**(continued)**

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

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

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

[8]To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 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, a new 1-hour $SO_2$ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99$^{th}$ percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 $SO_2$ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

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

[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]The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

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

- Reduce population exposure to severe nonattainment pollutants according to a prescribed schedule; and
- Rank control measures by cost-effectiveness and implementation priority.

In addition to the federal criteria pollutants, the California AAQS also specify standards for visibility-reducing particles (which consist of suspended particulate matter), sulfates, hydrogen sulfide, and vinyl chloride (see Table 1). The portion of the SCAB containing the project area is a state non-attainment area for both one-hour and eight-hour ozone, $PM_{10}$, $PM_{2.5}$, and $NO_2$.

**Ozone**

On April 28, 2005, the CARB approved staff recommendations to amend the ozone standard. The recommendations were based on a review of the scientific literature on the health effects of ozone that was conducted by the CARB and the Office of Environmental Health Hazard Assessment. The staff report recommended retaining the existing one-hour standard of 0.09 ppm and established a new eight-hour ozone standard of 0.07 ppm. The SCAB is a non-attainment area for both the state one-hour and eight-hour ozone standards. As discussed above, ROGs contribute to the formation of ozone.

**Particulate Matter – $PM_{10}$ and $PM_{2.5}$**

On May 3, 2002, CARB staff released a final staff report which recommended lowering the level of the annual standard for $PM_{10}$ from 30 µg/m$^3$ to 20 µg/m$^3$, and established a new annual standard for $PM_{2.5}$ of 12 µg/m$^3$. The 24-hour average standard of 50 µg/m$^3$ for $PM_{10}$ was retained. The new standards became effective on July 5, 2003. The SCAB is a non-attainment area for both the state standards for $PM_{10}$ and $PM_{2.5}$.

**Carbon Monoxide – CO**

The SCAB is an attainment area for the state CO standards.

**Nitrogen Dioxide – $NO_2$**

On February 22, 2007, the CARB approved staff recommendations to amend the state $NO_2$ standard. The reports recommended lowering the one-hour average standard of 0.25 ppm to 0.18 ppm, not to be exceeded, and established a new annual average standard of 0.030 ppm, not to be exceeded. The SCAB is a non-attainment area for state $NO_2$ standards.

**Sulfur Dioxide – $SO_2$**

The SCAB is an attainment area for the state $SO_2$ standards.

**Lead**

The SCAB is an attainment area for the state lead standards.

## 3.3 Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (AB 1807: Health and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of toxic air contaminants and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The Act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health.

Diesel-exhaust particulate matter emissions have been established as TACs. Diesel emissions generated within the county and surrounding areas pose a potential hazard to residents and visitors. Following the identification of diesel particulate matter as an air toxic in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from diesel particulate matter. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (State of California 2000). A stated goal of the plan is to reduce the cancer risk statewide arising from exposure to diesel particulate matter 75 percent by 2010 and 85 percent by 2020.

A number of programs and strategies to reduce diesel particulate matter that have been implemented or are in the process of being developed include (State of California 2007, 2008):

- **The Carl Moyer Memorial Air Quality Standards Attainment Program:** This program, administered by CARB, was initially approved in February 1999 and provides incentive grants to cover an incremental portion of the cost of upgrading to cleaner-than-required engines, equipment, and other sources of pollution providing early or extra emission reductions. Eligible projects include cleaner on-road, off-road, marine, locomotive, and agricultural sources. The program guidelines are revised regularly (most recently in January 2011).

- **On-road Heavy-duty Diesel Engine Reduced Emission Standards**: This rule reduces emission standards for 2007 and subsequent model year heavy-duty diesel engines (66 FR 5002, January 18, 2001).

- **On-Road Heavy-duty Diesel Engine In-Use Compliance Program**: This program requires in-use compliance testing to ensure that existing vehicles/engines meet applicable emission standards throughout their useful life.

Other programs include:

- **Off-road Mobile Sources Emission Reduction Program:** The goal of this program is to develop regulations to control emissions from diesel, gasoline, and alternative-fueled off-road mobile engines. These sources include a range of equipment, from lawn mowers to construction equipment to locomotives.

- **Heavy-duty Vehicle Inspection and Periodic Smoke Inspection Programs:** The Heavy-Duty Vehicle Inspection and Periodic Smoke Inspection Programs were established to control excessive smoke emissions and tampering from heavy-duty diesel trucks and buses.

    - **Heavy-Duty Vehicle Inspection Program:** The Heavy-Duty Vehicle Inspection Program was adopted into law in 1988 (SB 1997), with the regulations (13 CCR 2180-2189) governing this program last amended in 2007. The program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering, and engine certification label compliance. Any heavy-duty vehicle traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations.

    - **Periodic Smoke Inspection Program:** The Periodic Smoke Inspection Program was adopted into law in 1990 (Senate Bill 2330), with the regulations (13 CCR 2190-2194) governing this program last amended in 2007. The program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance.

- **Lower-Emission School Bus Program:** Under this program, and in coordination with the California Energy Commission and local air districts, CARB developed guidelines to provide criteria for the purchase of new school buses and the retrofit of existing school buses to reduce particulate matter emissions. In addition, Proposition 1B, which was approved by the voters on November 7, 2006, enacts the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. This bond act authorizes $200 million for replacing and retrofitting school buses.

- **School Bus Idling Airborne Toxic Control Measure**: Beginning in July 2003, the CARB approved an airborne toxic control measure (ATCM) that limits school bus idling and idling at or near schools. The ATCM to limit idling is intended to reduce diesel exhaust particulate matter and other TACs and air pollutants from heavy-duty motor vehicle exhaust. The ATCM requires a driver of a school bus or vehicle, transit bus, or other commercial motor vehicle to manually turn off the bus or vehicle engine upon arriving at a school and to restart no more than 30 seconds before departing. A driver of a school bus or vehicle is subject to the same requirement when operating within 100 feet of a school and is prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or other commercial motor vehicle is prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns is exempt from these restrictions.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of diesel particulate emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public exposure to diesel particulate matter will continue to decline.

## 3.4 State Implementation Plan

The SIP is a collection of documents that set forth the state's strategies for achieving the federal air quality standards. The SCAQMD is responsible for preparing and implementing the portion of the SIP applicable to the SCAB. The SCAQMD adopts rules, regulations, and programs to attain state and federal air quality standards, and appropriates money (including permit fees) to achieve these objectives.

## 3.5 California Environmental Quality Act

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of any inconsistencies between the proposed project and applicable general plans and regional plans, including the applicable air quality attainment or maintenance plan (or SIP).

## 3.6 South Coast Air Quality Management District

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties. The agency's primary responsibility is assuring that the national and state ambient air quality standards are attained and maintained in the SCAB. SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions and conducting public education campaigns, as well as many other activities.

## 3.7 2007 Air Quality Management Plan

Periodically, the SCAQMD prepares an AQMP describing air quality improvement strategies to be submitted for inclusion in the SIP. The Final 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The 2007 AQMP, prepared by the SCAQMD in conjunction with CARB, the Southern California Association of Governments, and the EPA, is intended to provide for continued progress toward cleaner air and to comply with state and federal requirements. The plan meets state and federal CAA planning requirements for all areas under the jurisdiction of the SCAQMD.

The AQMP includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. Despite improvements in Southern California's air quality, the region is a federal non-attainment area for $PM_{10}$, $PM_{2.5}$, and eight-hour surface-level ozone. The AQMP proposes attainment demonstration of the federal $PM_{10}$, $PM_{2.5}$, and ozone standards.

The SCAQMD is currently preparing the 2012 AQMP.

# 3.8 Good Neighbor Guidelines

In September 2005, the Western Riverside Council of Governments and the Regional Air Quality Task Force approved the *Good Neighbor Guidelines For Siting New and/or Modified Warehouse/Distribution Facilities* (referred to as Good Neighbor Guidelines). These Good Neighbor Guidelines focus on the relationship between land use, permitting, and air quality, highlighting strategies that can help minimize the impacts of diesel emissions associated with warehouse/distribution centers. These Guidelines are intended to assist developers, property owners, elected officials, community organizations, and the general public address some of the complicated choices associated with siting warehouse/distribution facilities and understanding the options available when addressing environmental issues. The Guidelines help to minimize the impacts of diesel particulate matter from on-road trucks associated with warehouses and distribution centers on existing communities and sensitive receptors located in the City. Sensitive receptors include residential neighborhoods, schools, parks, playgrounds, day care centers, nursing homes, hospitals, and other public places where residents are most likely to spend time.

On October 14, 2008, the City of Riverside adopted a version of these Good Neighbor Guidelines as Resolution No. 21734 to “provide the City and developers with a variety of strategies that can be used to reduce diesel emissions from heavy-duty trucks that are delivering goods to and from warehouse and distribution centers” (City of Riverside 2008). These Guidelines are intended to be used when issuing permits and mitigating potential impacts when siting new uses. The City of Riverside Good Neighbor Guidelines include the following goals and strategies:

Goal 1: Minimize exposure to diesel emissions to neighbors that are situated in close proximity to the warehouse/distribution center.

Goal 2: Eliminate diesel trucks from unnecessarily traversing through residential neighborhoods.

Goal 3: Eliminate trucks from using residential areas and repairing vehicles on the streets.

Goal 4: Reduce and/or eliminate diesel idling within the warehouse/distribution center.

The City of Riverside Good Neighbor Guidelines also provide recommended strategies that support each of these goals.

# 4.0 Environmental Setting

## 4.1 Geographic Setting

The proposed project is located in the city of Riverside, about 35 miles from the Pacific Ocean in the northwestern portion of Riverside County. The mountains to the north and east of Riverside tend to restrict airflow and concentrate pollutants in the valleys and low-lying areas below.

## 4.2 Climate

The city of Riverside, like the rest of the inland valley areas within the SCAB, is characterized by a Mediterranean climate consisting of warm, dry summers and mild, wet winters. The average annual precipitation is 10 inches, falling primarily from November to April. The average maximum temperature is about 80 degrees Fahrenheit (°F), and the average minimum temperature is about 49°F. The average summer and winter temperatures are 75°F and 54°F, respectively (Western Regional Climate Center [WRCC] 2011).

The prevailing wind in the SCAB is from a westerly direction and allows for the areas within the basin to be influenced by the cool waters of the Pacific Ocean. Occasionally, however, high pressure over the Great Basin will result in hot, dry easterly winds that are regionally called “Santa Ana” winds. These winds that blow offshore typically bring some of the warmest temperatures of the year to coastal southern California and occur most often during the late summer or early fall months. During these Santa Ana wind events, air pollutants in the basin are pushed westward out to sea, resulting in some of the best air quality days for the residents of the inland valley areas. Generally speaking, the overall air quality within the basin is typically better during the winter months.

## 4.3 Existing Air Quality

Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and throughout the basin. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by the CARB or federal standards set by the U.S. EPA. As of 2007, the SCAQMD was operating 32 air-quality monitoring stations throughout the SCAB; an additional monitoring station within the SCAB is operated by CARB. Air

pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels. Table 2 summarizes the number of days per year during which state and federal standards were exceeded in the SCAB overall during the years 2006 to 2010. The Riverside—Magnolia Avenue monitoring station, located approximately two miles northwest of the project area, and the Rubidoux—Mission Boulevard monitoring station, located approximately six miles northwest of the project area, are the nearest stations to the project area (see Figure 1). The Riverside—Magnolia Avenue monitoring station measures CO and $PM_{2.5}$. The Rubidoux—Mission Boulevard monitoring station measures ozone, CO, $NO_2$, $SO_2$, $PM_{10}$, and $PM_{2.5.}$ Table 3 provides a summary of measurements of ozone, CO, $NO_2$, $SO_2$, $PM_{10}$, and $PM_{2.5}$ collected at the Riverside—Magnolia Avenue and Rubidoux—Mission Boulevard monitoring stations for the years 2006 through 2010.

## 4.3.1 Ozone

Nitrogen oxides and hydrocarbons (ROGs) are known as the chief “precursors” of ozone. These compounds react in the presence of sunlight to produce ozone, which is the primary air pollution problem in the SCAB. Because sunlight plays such an important role in its formation, ozone pollution, or smog, is mainly a concern during the daytime in summer months. The SCAB is currently designated a federal and state non-attainment area for ozone. During the past 30 years, the SCAB had experienced a decline in ozone concentrations despite the region’s growth in population and vehicle miles traveled (SCAQMD 2012).

In the SCAB overall, during the five-year period of 2006 to 2010, the state one-hour ozone standard of 0.09 ppm was exceeded 102 days in 2006, 96 days in 2007, 102 days in 2008, 102 days in 2009, and 79 days in 2010.

At the Rubidoux—Mission Boulevard monitoring station, the one-hour state standard for ozone of 0.09 ppm was exceeded 45 days in 2006, 31 days in 2007, 54 days in 2008, 25 days in 2009, and 31 days in 2010.

In order to address adverse health effects due to prolonged exposure, the U.S. EPA phased out the national one-hour ozone standard and replaced it with the more protective eight-hour ozone standard. The SCAB is currently a nonattainment area for the previous (1997) national eight-hour standard and is recommended as a nonattainment area for the revised (2008) national eight-hour standard of 0.075 ppm.

**TABLE 2**
**AMBIENT AIR QUALITY SUMMARY – SOUTH COAST AIR BASIN**

| Pollutant | Average Time | California Ambient Air Quality Standards[a] | Attainment Status | National Ambient Air Quality Standards[b] | Attainment Status[c] | Maximum Concentration | | | | | Number of Days Exceeding State Standard | | | | | Number of Days Exceeding National Standard | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2006 | 2007 | 2008 | 2009 | 2010 | 2006 | 2007 | 2008 | 2009 | 2010 | 2006 | 2007 | 2008 | 2009 | 2010 |
| $O_3$ | 1 hour | 0.09 ppm | N | N/A[d] | N/A | 0.180 | 0.171 | 0.176 | 0.176 | 0.143 | 102 | 96 | 102 | 102 | 79 | N/A | N/A | N/A | N/A | N/A |
| $O_3$ | 8 hours | 0.07ppm | N | 0.075 ppm[e] | N | 0.142 | 0.137 | 0.131 | 0.128 | 0.123 | 121 | 128 | 140 | 133 | 131 | 86 | 108 | 120 | 113 | 102 |
| CO | 1 hour | 20 ppm | A | 35 ppm | A | 8 | 8 | 7 | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CO | 8 hours | 9 ppm | A | 9 ppm | A | 6.4 | 5.1 | 4.3 | 4.6 | 3.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $NO_2$ | 1 hour | 0.18 ppm | N | 0.100 ppm[f] | A | 0.14 | 0.12 | 0.13 | 0.12 | 0.10 | 0 | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | 0 |
| $NO_2$ | Annual | 0.030 ppm | N | 0.053 ppm | A | 0.0310 | 0.0318 | 0.0302 | 0.0281 | 0.0262 | EX | EX | EX | NX | NX | NX | NX | NX | NX | NX |
| $SO_2$ | 1 hour | 0.25 ppm | A | 0.075 ppm | A | 0.03 | 0.11 | 0.09 | 0.02 | 0.04 | 0 | 0 | 0 | 0 | 0 | 0 | Na | Na | 0 | 0 |
| $SO_2$ | 24 hours | 0.04 ppm | A | N/A | N/A | 0.010 | 0.011 | 0.012 | 0.020 | 0.006 | 0 | 0 | 0 | 0 | 0 | N/A | N/A | N/A | N/A | N/A |
| $PM_{10}$ | 24 hours | 50 $\mu g/m^3$ | N | 150 $\mu g/m^3$ | N | 142 | 142 | 135 | 108 | 89 | 75 | 79 | 68 | 60 | 34 | 0 | 0 | 0 | 0 | 0 |
| $PM_{10}$ | Annual | 20 $\mu g/m^3$ | N | N/A | N/A | 64.0 | 68.5 | 57.4 | 53.4 | 42.3 | EX | EX | EX | EX | EX | N/A | N/A | N/A | N/A | N/A |
| $PM_{2.5}$ | 24 hours | N/A | N/A | 35 $\mu g/m^3$ | N | 72.2 | 82.9 | 78.3 | 72.1 | 54.2 | N/A | N/A | N/A | N/A | N/A | 32 | 48 | 28 | 27 | 13 |
| $PM_{2.5}$ | Annual | 12 $\mu g/m^3$ | N | 15 $\mu g/m^3$ | N | 20.6 | 21.0 | 18.2 | 16.9 | 15.2 | EX | EX | EX | EX | EX | EX | EX | EX | EX | EX |

SOURCE: SCAQMD 2012
ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter.
[a]California standards for ozone, carbon monoxide (except at Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and $PM_{10}$ are values that are not to be exceeded. Some measurements gathered for pollutants with air quality standards that are based upon 1-hour, 8-hour, or 24-hour averages, may be excluded if the CARB determines they would occur less than once per year on average.
[b]National standards other than for ozone and particulates, and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one.
[c]A = attainment; N = non-attainment; U = Unclassifiable; N/A = not applicable; Na = data not available; NX = annual average not exceeded; EX = annual average exceeded.
[d] The federal 1-hour ozone standard was revoked and replaced by the 8-hour average ozone standard effective June 15, 2005.
[e]U.S. EPA has revised the federal 8-hour ozone standard from 0.08 ppm to 0.075 ppm, effective May 27, 2008.
[f]Effective January 22, 2010. Not applicable to monitoring through 2009.
[g]Measured Days/Estimated Days. Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

**TABLE 3**
**SUMMARY OF AIR QUALITY MEASUREMENTS RECORDED AT THE RIVERSIDE - MAGNOLIA AVENUE AND RUBIDOUX - MISSION BOULEVARD MONITORING STATIONS**

| Pollutant/Standard | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| RIVERSIDE—MAGNOLIA AVENUE | | | | | |
| Carbon Monoxide | | | | | |
| Days State 1-hour Standard Exceeded (20 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days State 8-hour Standard Exceeded (9 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days Federal 1-hour Standard Exceeded (35 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days Federal 8-hour Standard Exceeded (9 ppm) | 0 | 0 | 0 | 0 | 0 |
| Max. 1-hour (ppm) | 4.0 | 4.0 | 7.0 | 3.0 | 3.0 |
| Max. 8-hour (ppm) | 2.3 | 2.1 | 2.0 | 1.8 | 1.7 |
| $PM_{2.5}$* | | | | | |
| Measured Days ’97 Federal 24-hour Standard Exceeded (65 $\mu g/m^3$) | 0 | 1 | 0 | 0 | 0 |
| Calculated Days ’97 Federal 24-hour Standard Exceeded (65 $\mu g/m^3$) | 0 | Na | 0 | 0 | 0 |
| Measured Days ’06 Federal 24-hour Standard Exceeded (35 $\mu g/m^3$) | 9 | 8 | 4 | 2 | 2 |
| Calculated Days ’06 Federal 24-hour Standard Exceeded (35 $\mu g/m^3$) | 31.3 | | 12.4 | 6.0 | 6.3 |
| Max. Daily ($\mu g/m^3$) | 55.3 | 68.6 | 43.0 | 42.2 | 43.7 |
| State Annual Average ($\mu g/m^3$) | Na | Na | 13.3 | Na | 11.0 |
| Federal Annual Average ($\mu g/m^3$) | 16.9 | 18.3 | 13.2 | 13.3 | |
| RUBIDOUX—MISSION BOULEVARD | | | | | |
| Ozone | | | | | |
| Days State 1-hour Standard Exceeded (0.09 ppm) | 45 | 31 | 54 | 25 | 31 |
| Days State 8-hour Standard Exceeded (0.07 ppm) | 59 | 69 | 88 | 57 | 74 |
| Days ’97 Federal 8-hour Standard Exceeded (0.08 ppm) | 30 | 15 | 38 | 35 | Na |
| Days ’08 Federal 8-hour Standard Exceeded (0.075 ppm) | 57 | 46 | 64 | 36 | 47 |
| Max. 1-hour (ppm) | 0.151 | 0.131 | 0.146 | 0.116 | 0.128 |
| Max. 8-hour (ppm) | 0.116 | 0.111 | 0.116 | 0.100 | 0.098 |
| Carbon Monoxide | | | | | |
| Days State 1-hour Standard Exceeded (20 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days State 8-hour Standard Exceeded (9 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days Federal 1-hour Standard Exceeded (35 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days Federal 8-hour Standard Exceeded (9 ppm) | 0 | 0 | 0 | 0 | 0 |
| Max. 1-hour (ppm) | 3.0 | 4.0 | 3.0 | 2.0 | 3.0 |
| Max. 8-hour (ppm) | 2.1 | 2.9 | 2.0 | 1.9 | 1.8 |
| Nitrogen Dioxide | | | | | |
| Days State 24-hour Standard Exceeded (0.18 ppm) | 0 | 0 | 0 | 0 | 0 |
| Max. Daily (ppm) | 0.076 | 0.072 | 0.092 | 0.078 | 0.065 |
| Annual Average (ppm) | 0.020 | 0.020 | 0.019 | 0.017 | Na |
| Sulfur Dioxide | | | | | |
| Days State 24-hour Standard Exceeded (0.04 ppm) | 0 | 0 | 0 | 0 | 0 |
| Max. Daily (ppm) | 0.004 | 0.002 | 0.003 | 0.003 | 0.005 |
| Annual Average (ppm) | 0.0013 | 0.0017 | 0.0009 | 0.001 | 0.001 |
| $PM_{10}$* | | | | | |
| Measured Days State 24-hour Standard Exceeded (50 $\mu g/m^3$) | 69 | 65 | 46 | 27 | 7 |
| Calculated Days State 24-hour Standard Exceeded (50 $\mu g/m^3$) | 213.7 | 201.9 | 140.4 | 120.1 | 42.7 |
| Measured Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$) | 0 | 1 | 0 | 0 | 0 |
| Calculated Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$) | 0 | 3.1 | 0 | 0 | 0 |
| Max. Daily ($\mu g/m^3$) | 109 | 118 | 115 | 77 | 75 |
| State Annual Average ($\mu g/m^3$) | 52.7 | 57.0 | 44.8 | 41.9 | 33.8 |
| Federal Annual Average ($\mu g/m^3$) | 55.1 | 59.5 | 46.5 | 40.0 | 33.1 |
| $PM_{2.5}$* | | | | | |
| Measured Days ’97 Federal 24-hour Standard Exceeded (65 $\mu g/m^3$) | 1 | 3 | 0 | 0 | 0 |
| Calculated Days ’97 Federal 24-hour Standard Exceeded (65 $\mu g/m^3$) | Na | Na | 0 | 0 | 0 |
| Measured Days ’06 Federal 24-hour Standard Exceeded (35 $\mu g/m^3$) | 32 | 33 | 14 | 15 | 4 |
| Calculated Days ’06 Federal 24-hour Standard Exceeded (35 $\mu g/m^3$) | Na | Na | 15.0 | 15.1 | 4.0 |
| Max. Daily ($\mu g/m^3$) | 68.5 | 75.7 | 57.7 | 54.5 | 46.5 |
| State Annual Average ($\mu g/m^3$) | Na | 19.8 | Na | 17.1 | 13.9 |
| Federal Annual Average ($\mu g/m^3$) | 19.0 | 18.9 | 16.3 | 15.6 | 13.2 |

SOURCE: SCAQMD 2012, State of California 2011.
Na = Not available, N/A = Not applicable.
*Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

In the SCAB overall, during the five-year period of 2006 to 2010, the revised national eight-hour standard of 0.075 was exceeded by 86 days in 2006, 108 days in 2007, 120 days in 2008, 113 days in 2009, and 102 days in 2010. The stricter state eight-hour ozone standard of 0.07 ppm was exceeded by 121 days in 2006, 128 days in 2007, 140 days in 2008, 133 days in 2009, and 131 days in 2010.

At the Rubidoux—Mission Boulevard monitoring station, the previous national eight-hour standard of 0.08 ppm was exceeded 30 days in 2006, 15 days in 2007, 38 days in 2008, and 35 days in 2009. Data was not available for 2010. The revised national eight-hour standard of 0.075 ppm was exceeded 57 days in 2006, 46 days in 2007, 64 days in 2008, 36 days in 2009, and 47 days in 2010. The stricter state eight-hour ozone standard of 0.07 ppm was exceeded 59 days in 2006, 69 days in 2007, 88 days in 2008, 57 days in 2009, and 74 days in 2010.

Not all of the air basin's pollutants are created within the basin. The SCAB has been classified as a transport contributor to downwind air basins. Under certain meteorological conditions, such as during Santa Ana wind events, ozone and other pollutants are transported from the SCAB to other air basins. The Mojave Desert Air Basin (which includes the eastern portion of Riverside County), the Salton Sea Air Basin, the San Diego Air Basin, and the South Central Coast Air Basin are all affected by ozone concentrations from the SCAB. Similarly, inversion and ocean winds transport pollutants from other basins into the SCAB and from western portions of the SCAB into the Project vicinity.

### 4.3.2 Carbon Monoxide

The SCAB is classified as a state and federal attainment area, as shown in Table 2. From 2006 to 2010, SCAB had zero days exceeding the eight-hour federal and state CO standards.

Small-scale, localized concentrations of CO above the state and national standards have the potential to occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as "CO hot spots" and are a concern at congested intersections, where automobile engines burn fuel less efficiently and their exhaust contains more CO.

### 4.3.3 $PM_{10}$

$PM_{10}$ is particulate matter with an aerodynamic diameter of 10 microns or less. Ten microns is about one-seventh of the diameter of a human hair. Particulate matter is a complex mixture of very tiny solid or liquid particles composed of chemicals, soot, and dust. Sources of $PM_{10}$ emissions in the SCAB consist mainly of urban activities, dust

suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

Particles classified under the $PM_{10}$ category are mainly emitted directly from activities that disturb the soil, including travel on roads and construction, mining, or agricultural operations. Other sources include windblown dust and the burning of fuels such as gasoline, oil, diesel, or wood. For several reasons related to the area's dry climate, the SCAB has special difficulty in developing adequate tactics to meet present state particulate standards. While emission controls for ozone also reduce levels of $PM_{10}$, additional controls aimed specifically at $PM_{10}$ will be required to reduce the high levels.

The SCAB is designated as state and federal nonattainment area for $PM_{10}$. The measured federal $PM_{10}$ standard of 150 $\mu g/m^3$ was not exceeded in the SCAB during the years 2006 to 2010. The state standard of 50 $\mu g/m^3$ was exceeded 75 days in 2006, 79 days in 2007, 68 days in 2008, 60 days in 2009, and 34 days in 2010 in the SCAB.

At the Rubidoux—Mission Boulevard monitoring station, the national 24-hour $PM_{10}$ standard was exceeded one day in 2007. The exceedance occurred at a time when major wildfires were raging throughout the county. Consequently, this exceedance was likely caused by the wildfires and would be beyond the control of the SCAQMD. As such, this event is covered under the U.S. EPA's Natural Events Policy that permits, under certain circumstances, the exclusion of air quality data attributable to uncontrollable natural events (e.g., volcanic activity, wild land fires, and high wind events). The stricter state 24-hour $PM_{10}$ standard was exceeded 69 days in 2006, 65 days in 2007, 46 days in 2008, 27 days in 2009, and 7 days in 2010.

### 4.3.4 $PM_{2.5}$

Airborne, inhalable particles with aerodynamic diameters of 2.5 microns or less have been recognized as an air quality concern requiring regular monitoring. Federal $PM_{2.5}$ standards established in 1997 include an annual arithmetic mean of 15 $\mu g/m^3$ and a 24-hour concentration of 65 $\mu g/m^3$. As discussed above, the 24-hour $PM_{2.5}$ standard has been changed to 35 $\mu g/m^3$. However, this does not apply to the monitoring from 2004 to 2006. State $PM_{2.5}$ standards established in 2002 are an annual arithmetic mean of 12 $\mu g/m^3$.

Table 3 shows that the prior federal 24-hour $PM_{2.5}$ standard of 65 $\mu g/m^3$ was exceeded 1 day in 2006, and 3 days in 2007 at the Rubidoux—Mission Boulevard monitoring station, and 1 day in 2007 at the Riverside—Magnolia Avenue monitoring station. The new federal standard of 35 $\mu g/m^3$ was exceeded 32 days in 2006, 33 days in 2007, 14 days in 2008, 15 days in 2009, and 4 days in 2010 at the Rubidoux—Mission Boulevard monitoring station, and 9 days in 2006, 8 days in 2007, 4 days in 2008, 2 days in 2009, and 2 days in 2010 at the Riverside—Magnolia Avenue monitoring station.

The SCAB is a non-attainment area for the state and federal $PM_{2.5}$ standards.

### 4.3.5 Other Criteria Pollutants

The SCAB is a state non-attainment area for $NO_2$. Additionally, Los Angeles County, which is also within the SCAB, is a state non-attainment area for lead. Note that emissions of lead are not analyzed in this report. Fuel used in construction equipment and most other vehicles is not leaded. The proposed project would not be a source of lead.

The national and state standards for sulfur oxide ($SO_x$) are being met in the SCAB. As discussed above, new standards for these pollutants have been adopted, and new designations for the SCAB will be determined in the future. The SCAB is also in attainment of the state standards for hydrogen sulfides, sulfates, and visibility reducing particles.

# 5.0 Thresholds of Significance

## 5.1 California Air Resources Board

For purposes of assessing the significance of air quality impacts, the CARB has established guidelines, as described below.

For long-term emissions, the direct impacts of a project can be measured by the degree to which the project is consistent with regional plans to improve and maintain air quality. The regional plan for Riverside is the 2007 AQMP. The CARB provides criteria for determining whether a project conforms to the regional plan (State of California 1989), which include the following:

1. Is a regional air quality plan being implemented in the project area?
2. Is the project consistent with the growth assumptions in the regional air quality plan?
3. Does the project incorporate all feasible and available air quality control measures?

## 5.2 City of Riverside

The City of Riverside relies on significance thresholds from Appendix G of the CEQA Guidelines. A significant impact will occur if implementation of the proposed project:

- Conflicts with or obstructs implementation of the applicable air quality plan;
- Violates any air quality standard or contribute substantially to an existing or projected air quality violation. In this regard, the City applies SCAQMD CEQA Regional Significance Thresholds as follows:

**TABLE 4**
**SCAQMD CEQA REGIONAL SIGNIFICANCE THRESHOLDS**
**(POUNDS/DAY)**

| Emission Threshold | ROG | $NO_x$ | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| Construction | 75 | 100 | 550 | 150 | 150 | 55 |
| Operation | 55 | 55 | 550 | 150 | 150 | 55 |

NOTE: The SCAQMD threshold for lead is not included in this table since lead was not analyzed in this report (see Section 4.3.5).

- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state AAQS (including release emissions which exceed quantitative thresholds for ozone precursors);
- Exposes sensitive receptors to substantial pollutant concentration; or
- Creates objectionable odors affecting a substantial number of people.

Note that the SCAQMD localized significance thresholds are applicable only to projects that are less than or equal to five acres and are not designed to evaluate localized impacts from mobile sources traveling over roadways (SCAQMD 2011a). They are therefore not appropriate for evaluating the proposed project.

# 6.0 Air Quality Assessment

Air quality impacts can result from the construction and operation of a project. In the case of this project, the primary source of emissions would be construction activities and mobile emissions due to the change in vehicle miles traveled as a result of the proposed project.

## 6.1 Construction-related Air Quality Effects

Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include:

- Fugitive dust from grading activities;
- Construction equipment exhaust;
- Construction-related trips by workers, delivery trucks, and material-hauling trucks; and
- Construction-related power consumption.

Construction emissions were estimated for each scenario using the California Emissions Estimator Model (CalEEMod) that was released in March 2011 by the CARB. This model estimates air emissions from construction and operational emissions sources. In brief, the model estimates criteria air pollutants and GHG emissions by multiplying emission source intensity factors by estimated quantities of emission sources based on the land use information entered by the user in the first module of the model. In the first module, the user defines the specific land uses that will occur at the project site. The user also selects the appropriate land use setting (urban or rural), operational year, air basin, and utility provider. The input land uses, size features, and population are used throughout CalEEMod in determining default variables and calculations in each of the subsequent modules. The subsequent modules include construction (including off-road vehicle emissions), mobile (on-road vehicle emissions), area sources (woodstoves, fireplaces, consumer products [cleansers, aerosols, solvents], landscape maintenance equipment, architectural coatings), water and wastewater, and solid waste. Each module comprises multiple components including an associated mitigation module to account for further reductions in the reported baseline calculations.

In the case of the proposed project, only the construction-related portions of the model were utilized. Operational (vehicle) emission calculations are discussed below in Section 6.2. Construction inputs to CalEEMod include such items as the air basin containing the project, duration of construction phases, construction equipment usage, grading areas, season, and ambient temperature, as well as other parameters. Emissions of nitrogen oxide ($NO_x$), CO, $SO_x$, $PM_{10}$, $PM_{2.5}$, and ROGs, an ozone precursor, are calculated. Emission factors are not available for lead, and consequently, lead emissions are not calculated. Fuel used in construction equipment and most other vehicles is not leaded, and the Project would not be a source of lead emissions; consequently, lead emissions are not calculated.

### 6.1.1 Scenario 1

Under Scenario 1, both Crystal View Terrace and Green Orchard Place gates would remain in place and be closed. This scenario addresses the use of traffic control devices and does not include roadway construction. Because traffic flows would be the same as those required for the legal condition with the gates in place, no construction would occur under Scenario 1. Because no construction would occur, Scenario 1 would not produce construction-related emission or result in a violation or worsening of air quality. Therefore, construction air emission impacts under Scenario 1 would be less than significant.

### 6.1.2 Scenario 2

Under Scenario 2, the gates at both Crystal View Terrace and Green Orchard Place would be removed, and there would be no connection of Overlook Parkway across the Alessandro Arroyo and to Alessandro Boulevard. Like Scenario 1, no construction would occur under Scenario 2, as the removal of the gates is a minor procedure. Because Scenario 2 does not involve construction, there would be no increase in criteria pollutants. Construction air emission impacts under Scenario 2 would be less than significant.

### 6.1.3 Scenario 3

Under Scenario 3, the gates at Crystal View Terrace and Green Orchard Place would be removed and Overlook Parkway would be connected across the Alessandro Arroyo and approximately 500 feet west of Sandtrack Road and over the Alessandro Arroyo. In addition, storm drains, water lines, and gas and electric power lines would be extended to tie into existing lines concurrent with roadway construction. Temporary construction activities would occur within a construction easement on either side of the proposed roadways. Construction staging would be accommodated primarily on Overlook Parkway.

Construction-related pollutants result from dust raised during demolition and grading, emissions from construction vehicles, and chemicals used during construction. Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, the silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust.

Heavy-duty construction equipment is usually diesel powered. In general, emissions from diesel-powered equipment contain more nitrogen oxides, sulfur oxides, and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less carbon monoxide and less ROGs than do gasoline-powered

engines. Standard construction equipment includes dozers, rollers, scrapers, dewatering pumps, backhoes, loaders, paving equipment, delivery/haul trucks, jacking equipment, welding machines, pile drivers, and so on. CalEEMod assumes that all construction equipment would be diesel powered. Based on typical construction fleets, this is a reasonable assumption and was used in this analysis.

Grading would be required to construct the missing section of roadway between Brittanee Court and Sandtrack Road. This fill crossing construction is anticipated to last approximately two months. It was assumed that construction would begin after the avian breeding season in September 2012. Additionally, a bridge is proposed to connect Overlook Parkway from Crystal View Terrace to Via Vista Drive and span the Alessandro Arroyo. The bridge construction is anticipated to last approximately nine months. The bridge construction would be divided into three phases: abutment construction (two months), bent construction (one month), and superstructure construction (six months). It was assumed that these construction phases (i.e., abutment construction, bent construction, superstructure construction, and fill crossing construction) would not overlap. Installation/construction of utilities (water, sewer, electrical) would be concurrent with these phases and was taken into account in CalEEMod. Table 5 summarizes the phases of construction, the equipment required for each task, and the default horsepower and load factor for each piece of equipment. It was assumed that each piece of equipment would operate eight hours per day and for five days a week. An area of three acres would be graded. The City is planning to install/construct utilities in the roadway concurrent with the construction of the new roadway segments and bridge. It was determined that this would be more efficient and limit any subsequent surface disturbance. A trencher was included in the CalEEMod calculations.

**TABLE 5**
**CONSTRUCTION EQUIPMENT PARAMETERS FOR THE FILL CROSSING AND BRIDGE**

| Phase | Length (days)* | Equipment | Horsepower | Load Factor |
|---|---|---|---|---|
| Abutment Construction | 40 | 1 Excavator | 157 | 0.57 |
| | | 1 Backhoe | 75 | 0.55 |
| | | 1 Bob Cat | 37 | 0.55 |
| | | 1 Pile Driver and Lead | 82 | 0.75 |
| | | 1 Crawler Crane | 208 | 0.43 |
| | | 1 Mobile Crane | 208 | 0.43 |
| | | 1 Concrete Pump | 84 | 0.74 |
| | | 2 Portable Generators | 84 | 0.74 |
| | | 2 Air Compressors | 78 | 0.48 |
| Bent Construction | 20 | 1 Backhoe | 75 | 0.55 |
| | | 1 Bob Cat | 37 | 0.55 |
| | | 1 Pile Drill Rig | 82 | 0.75 |
| | | 1 Crawler Crane | 208 | 0.43 |
| | | 1 Mobile Crane | 208 | 0.43 |
| | | 1 Concrete Pump | 208 | 0.43 |
| | | 2 Portable Generators | 84 | 0.74 |
| | | 2 Air Compressors | 84 | 0.74 |
| Superstructure Construction | 120 | 1 Backhoe | 75 | 0.55 |
| | | 2 Forklifts | 149 | 0.30 |
| | | 1 Pile Drill Rig | 82 | 0.75 |
| | | 2 Mobile Cranes | 208 | 0.43 |
| | | 2 Concrete Pumps | 208 | 0.43 |
| | | 2 Portable Generators | 84 | 0.74 |
| | | 2 Air Compressors | 84 | 0.74 |
| Fill Crossing | 40 | 1 Loader | 75 | 0.55 |
| | | 2 Backhoes | 75 | 0.55 |
| | | 1 Trencher | 69 | 0.75 |
| | | 1 Paving Machine | 89 | 0.62 |
| | | 1 Compactor | 8 | 0.43 |
| | | 1 Curb and Gutter Machine | 82 | 0.53 |

SOURCE: Personal communication with Simon Wong, Rick Engineering, and City of Riverside Public Works Department.

*Assumes construction would occur five days per week.

In addition to the equipment listed in Table 5, trucks would be required for material delivery and hauling. Abutment construction would require 10 flatbed trucks, 40 concrete trucks, and 50 dump trucks. Bent construction would require 10 flatbed trucks and 30 concrete trucks. Superstructure construction would require 20 flatbed trucks and 260 concrete trucks. Fill crossing construction would require two dump trucks and one concrete truck. It was assumed that these trips would be distributed evenly over the construction phase during which it would occur (i.e., 10 flatbed trucks, 40 concrete trucks, and 50 dump trucks were distributed evenly over the abutment construction phase, etc.). Default trip lengths of 7.3 miles for vendor trips and 20 miles for hauling

trips provided by the model for the region were assumed. These values are based on construction surveys performed by the SCAQMD and are appropriate for this analysis.

Other construction emissions would be those associated with work commute. Bridge construction would require 15 workers and fill crossing construction would require 10 workers. It was assumed that each worker would make two trips per day: one in the morning to the site, and one in the afternoon returning home from the site. A default worker trip length of 10.8 miles provided by the model for the region was assumed. This trip rate and length are based on construction surveys performed by the SCAQMD.

Table 6 shows the total projected construction maximum daily emission levels for each criteria pollutant. The CalEEMod input and output files for fill crossing and bridge construction emissions are contained in Attachment 1.

**TABLE 6**
**SUMMARY OF WORST-CASE CONSTRUCTION EMISSIONS**
**FOR THE FILL CROSSING AND BRIDGE**
**(pounds/day)**

| Pollutant | Year 2012 | Year 2013 | SCAQMD Significance Threshold |
|---|---|---|---|
| ROG | 9.22 | 8.49 | 75 |
| $NO_x$ | 67.44 | 62.67 | 100 |
| CO | 40.42 | 39.71 | 550 |
| $SO_x$[1] | 0.08 | 0.08 | 150 |
| $PM_{10}$ Dust | 0.56 | 0.42 | -- |
| $PM_{10}$ Exhaust | 4.53 | 4.10 | -- |
| $PM_{10}$ | 4.95 | 4.52 | 150 |
| $PM_{2.5}$ Dust | 0.02 | 0.02 | -- |
| $PM_{2.5}$ Exhaust | 4.53 | 4.10 | -- |
| $PM_{2.5}$ | 4.55 | 4.12 | 55 |

[1]Emissions calculated by CalEEMod are for $SO_2$.

Note that the emissions summarized in Table 6 are the maximum emissions for each pollutant and that they may occur during different phases of construction. They would not occur simultaneously. These are, therefore, the worst-case emissions. For assessing the significance of the air quality emissions resulting during construction of the proposed project under Scenario 3, the construction emissions were compared to the SCAQMD thresholds used for evaluating this project as discussed previously. Note that the terms ROG and volatile organic compound are essentially synonymous and are used interchangeably in this analysis. As seen in Table 6, the level of maximum daily construction emissions is projected to be below the applicable thresholds for all criteria pollutants.

As noted previously, diesel particulate matter has been identified as a toxic air contaminant. The health risks associated with diesel particulate matter are those related to long-term exposures (i.e., cancer and chronic effects). With certain exceptions related to workers and other factors, long-term health risk effects to residents are generally evaluated for an exposure period of 70 years (i.e., lifetime exposure). Because risk is based on a lifetime of exposure and because construction of Scenario 3 would be short-term, impacts due to construction diesel particulate matter would be less than significant.

### 6.1.4 Scenario 4

Under Scenario 4, both Crystal View Terrace and Green Orchard Place gates would be removed and Overlook Parkway would be connected east across the Alessandro Arroyo and to Alessandro Boulevard. In addition, the Proposed C Street would also be constructed west of Washington Street.

Construction emissions due to connecting Overlook Parkway east to Alessandro Boulevard would be the same as those described for the road and bridge crossing discussed above and summarized in Table 6 (see Section 6.1.3, Scenario 3). As seen in Table 6, the level of maximum daily construction emissions is projected to be less than the applicable thresholds for all criteria pollutants. The level of impacts would be less than significant. Construction activities would also occur west of Washington Street for the Proposed C Street. This construction would not occur at the same time as the fill crossing and bridge construction.

Construction of the Proposed C Street would include grading and paving. It is anticipated that these construction activities would last up to 90 days and would require the grading of a maximum of 15.3 acres depending on the final number of lanes that would be constructed. It was assumed that construction would begin in 2013 after the fill crossing and bridge construction discussed above. Table 7 summarizes the phases of construction, the equipment required for each task, and the default horsepower and load factor for each piece of equipment. It was assumed that each piece of equipment would operate eight hours per day and for five days per week.

**TABLE 7**
**CONSTRUCTION EQUIPMENT PARAMETERS FOR THE PROPOSED C STREET**

| Phase | Length (days) | Equipment | Horsepower | Load Factor |
|---|---|---|---|---|
| Grading | 60 | 2 Excavators | 157 | 0.57 |
| | | 1 Grader | 162 | 0.61 |
| | | 1 Rubber Tired Dozer | 358 | 0.59 |
| | | 2 Scrapers | 356 | 0.72 |
| | | 2 Tractors/Loaders/Backhoes | 75 | 0.55 |
| Paving | 30 | 1 Paver | 89 | 0.62 |
| | | 1 Paving Equipment | 82 | 0.53 |
| | | 1 Roller | 84 | 0.56 |

In addition, construction emissions associated with work commute were estimated using the model defaults, which were 10 workers for grading and four workers for paving.

Table 8 shows the total projected construction maximum daily emission levels for each criteria pollutant. The CalEEMod input and output files for the Proposed C Street construction emissions are contained in Attachment 2.

**TABLE 8**
**SUMMARY OF WORST-CASE CONSTRUCTION EMISSIONS**
**FOR THE PROPOSED C STREET**
**(pounds/day)**

| Pollutant | Year 2013 | SCAQMD Significance Threshold |
|---|---|---|
| ROG | 11.95 | 75 |
| $NO_x$ | 97.60 | 100 |
| CO | 54.18 | 550 |
| $SO_x$[1] | 0.10 | 150 |
| $PM_{10}$ Dust | 6.55 | -- |
| $PM_{10}$ Exhaust | 4.60 | -- |
| $PM_{10}$ | 11.15 | 150 |
| $PM_{2.5}$ Dust | 3.32 | -- |
| $PM_{2.5}$ Exhaust | 4.60 | -- |
| $PM_{2.5}$ | 7.92 | 55 |

[1]Emissions calculated by CalEEMod are for $SO_2$.

As seen in Table 8, the level of maximum daily construction emissions is projected to be less than the applicable thresholds for all criteria pollutants.

Additionally, similar to Scenario 3, because risk is based on a lifetime of exposure and because construction of Scenario 4 would be short-term, impacts due to construction diesel particulate matter would be less than significant.

## 6.1.5 Off-site

Off-site measures consist of improvements such as signalization, restriping, and minor repaving for additional turn lanes at key intersections. Construction would involve a minimal amount of construction equipment and would be short term. The improvements, if implemented, would also occur after the completion of grading associated with roadway improvements described for the proposed project and would not occur simultaneously with the construction activities discussed above. Therefore, these improvements would not violate any air quality standard or contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in any criteria pollutant. No impacts are identified.

# 6.2 Operation-related Emissions

## 6.2.1 Mobile Emissions

In order to address operational emissions, the County of Riverside was selected as a study area in order to capture the trips produced and attracted, some of which originate from outside the City boundaries and some of which have a destination outside the City boundary. This was especially important because features of the project could affect traffic flows throughout the entire City circulation system, and some of the roads within the project vicinity include major roads that are near the City boundary or provide direct routes of travel beyond City limits.

The total existing traffic volume in Riverside County is 5,531,645 average daily traffic (ADT), and the total projected buildout traffic volume in Riverside County is 11,222,346 ADT (Iteris 2012). The increase in ADT from existing to buildout is due to population growth in the region. The proposed project is the evaluation of four circulation scenarios associated with Overlook Parkway. The scenarios consider traffic patterns and controls for roadways, but do not propose development that would generate new or additional trips. Therefore, the project would not result in an increase in ADT to the roadway network. Therefore, the existing and future total traffic volumes in the region are the same for each scenario. However, each scenario would affect vehicle traffic patterns and trip length on road segments in the county. The following is an analysis of the regional vehicle miles traveled (VMT) under each proposed scenario.

The buildout year for the project is 2035. Existing and buildout vehicle emissions for each scenario were calculated using emission factors calculated by the EMFAC 2007 program (State of California 2006). The EMFAC 2007 program requires a variety of inputs, including horizon year, ambient air temperature, vehicle mix, percent hot and cold starts, and vehicle speed. Emission factors were calculated for winter and summer average conditions of 50°F and 80°F, respectively, and 50 percent humidity (WRCC 2011). Other default parameters provided by the model for Riverside County were used in the calculation of individual emission factors for each type of vehicle in the fleet. The EMFAC 2007 default 2011 and 2035 vehicle mixes for Riverside County was assumed. These values are based on an analysis of Department of Motor Vehicles registration data specific to the region. EMFAC 2007 output files are contained in Attachment 3.

Existing (year 2011) and buildout (year 2035) emission factors in summer and winter conditions are summarized in Tables 9a, 9b, 9c, and 9d.

**TABLE 9a**
**EXISTING WINTER EMISSION FACTORS**
**(grams per mile)**

| Speed (mph) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 25 | 0.163 | 0.872 | 3.357 | 0.005 | 0.062 | 0.045 |
| 30 | 0.136 | 0.833 | 3.071 | 0.004 | 0.055 | 0.038 |
| 35 | 0.120 | 0.810 | 2.862 | 0.004 | 0.051 | 0.034 |
| 40 | 0.111 | 0.800 | 2.722 | 0.004 | 0.048 | 0.032 |
| 45 | 0.108 | 0.803 | 2.651 | 0.004 | 0.047 | 0.031 |
| 50 | 0.112 | 0.821 | 2.660 | 0.004 | 0.048 | 0.032 |
| 55 | 0.123 | 0.855 | 2.770 | 0.004 | 0.050 | 0.034 |
| 60 | 0.143 | 0.907 | 3.025 | 0.004 | 0.054 | 0.037 |
| 65 | 0.175 | 0.984 | 3.504 | 0.005 | 0.059 | 0.042 |

**TABLE 9b**
**EXISTING SUMMER EMISSION FACTORS**
**(grams per mile)**

| Speed (mph) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 25 | 0.161 | 0.696 | 3.683 | 0.005 | 0.062 | 0.045 |
| 30 | 0.133 | 0.665 | 3.367 | 0.005 | 0.055 | 0.038 |
| 35 | 0.116 | 0.647 | 3.126 | 0.004 | 0.051 | 0.034 |
| 40 | 0.106 | 0.639 | 2.952 | 0.004 | 0.048 | 0.032 |
| 45 | 0.103 | 0.642 | 2.843 | 0.004 | 0.047 | 0.031 |
| 50 | 0.106 | 0.657 | 2.807 | 0.004 | 0.048 | 0.032 |
| 55 | 0.116 | 0.685 | 2.86 | 0.004 | 0.050 | 0.034 |
| 60 | 0.134 | 0.728 | 3.037 | 0.005 | 0.054 | 0.037 |
| 65 | 0.163 | 0.791 | 3.402 | 0.005 | 0.059 | 0.042 |

**TABLE 9c**
**BUILDOUT WINTER EMISSION FACTORS**
**(grams per mile)**

| Speed (mph) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 25 | 0.046 | 0.234 | 1.048 | 0.005 | 0.051 | 0.035 |
| 30 | 0.040 | 0.217 | 0.972 | 0.005 | 0.046 | 0.030 |
| 35 | 0.036 | 0.204 | 0.912 | 0.004 | 0.043 | 0.027 |
| 40 | 0.034 | 0.196 | 0.867 | 0.004 | 0.041 | 0.026 |
| 45 | 0.034 | 0.191 | 0.838 | 0.004 | 0.041 | 0.025 |
| 50 | 0.035 | 0.191 | 0.827 | 0.004 | 0.041 | 0.026 |
| 55 | 0.039 | 0.195 | 0.842 | 0.004 | 0.042 | 0.027 |
| 60 | 0.045 | 0.204 | 0.892 | 0.005 | 0.044 | 0.029 |
| 65 | 0.055 | 0.219 | 0.999 | 0.005 | 0.048 | 0.032 |

**TABLE 9d**
**BUILDOUT SUMMER EMISSION FACTORS**
**(grams per mile)**

| Speed (mph) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 25 | 0.047 | 0.19 | 1.196 | 0.006 | 0.051 | 0.035 |
| 30 | 0.040 | 0.176 | 1.107 | 0.005 | 0.046 | 0.030 |
| 35 | 0.036 | 0.165 | 1.033 | 0.005 | 0.043 | 0.027 |
| 40 | 0.034 | 0.158 | 0.975 | 0.005 | 0.041 | 0.026 |
| 45 | 0.033 | 0.154 | 0.933 | 0.004 | 0.041 | 0.025 |
| 50 | 0.035 | 0.154 | 0.908 | 0.005 | 0.041 | 0.026 |
| 55 | 0.038 | 0.157 | 0.904 | 0.005 | 0.042 | 0.027 |
| 60 | 0.044 | 0.164 | 0.931 | 0.005 | 0.044 | 0.029 |
| 65 | 0.053 | 0.177 | 1.004 | 0.006 | 0.048 | 0.032 |

Traffic information for the project was obtained from ITERIS, Inc. (2012). Traffic speeds, volumes, and segment lengths for each roadway segment in Riverside County were provided for each scenario. The VMT for each scenario was calculated by multiplying the ADT for each segment by the length of each segment. Attachment 4 shows the speed, ADT, and VMT for each roadway segment analyzed in this study for each scenario.

The VMT for each segment was multiplied by the appropriate emission factors (a function of vehicle speed) calculated by EMFAC 2007 to obtain the total vehicle emission of ROG, $NO_x$, CO, $SO_x$, $PM_{10}$, and $PM_{2.5}$. Potential impacts to the air basin were determined by summing the pollutant concentrations of each segment for each scenario and comparing these totals to the baseline condition and the SCAQMD significance thresholds for project operation.

Existing and buildout daily VMT and emissions in summer and winter conditions are summarized in Tables 10a, 10b, 10c, and 10d. Where VMT and emissions for a specific pollutant are higher than the Gates Closed or Gates Open baseline condition, the result is in shaded text. Because Scenario 1 represents the Gates Closed condition, and because Scenario 2 represents the Gates Open condition, there is no change reported when compared to the comparable baseline condition.

**TABLE 10a**
**EXISTING TOTAL DAILY SUMMER RUNNING MOBILE EMISSIONS**
**(pounds per day)**

| | VMT (miles per day) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|---|
| TOTAL | | | | | | | |
| Scenario 1/Gates Closed | 48,610,947 | 15,170 | 78,923 | 343,232 | 497 | 5,884 | 4,100 |
| Scenario 2/Gates Open | 48,607,167 | 15,169 | 78,918 | 343,215 | 496 | 5,884 | 4,100 |
| Scenario 3 | 48,605,055 | 15,168 | 78,913 | 343,204 | 496 | 5,884 | 4,100 |
| Scenario 4 | 48,615,745 | 15,170 | 78,928 | 343,274 | 497 | 5,885 | 4,100 |
| COMPARISON TO GATES CLOSED BASELINE | | | | | | | |
| Scenario 1 – Gates Closed | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 2 – Gates Closed | -3,780 | -1 | -5 | -17 | 0 | 0 | 0 |
| Scenario 3 – Gates Closed | -5,892 | -2 | -9 | -28 | 0 | -1 | 0 |
| Scenario 4 – Gates Closed | 4,798 | 0 | 5 | 42 | 0 | 0 | 0 |
| COMPARISON TO GATES OPEN BASELINE | | | | | | | |
| Scenario 1 – Gates Open | 3,780 | 1 | 5 | 17 | 0 | 0 | 0 |
| Scenario 2 – Gates Open | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 3 – Gates Open | -2,112 | -1 | -4 | -12 | 0 | 0 | 0 |
| Scenario 4 – Gates Open | 8,578 | 2 | 10 | 59 | 0 | 1 | 1 |
| *SCAQMD Significance Threshold* | -- | *55* | *55* | *550* | *150* | *150* | *55* |

**TABLE 10b**
**EXISTING TOTAL DAILY WINTER RUNNING MOBILE EMISSIONS**
**(pounds per day)**

| | VMT (miles per day) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|---|
| TOTAL | | | | | | | |
| Scenario 1/Gates Closed | 48,610,947 | 16,171 | 98,359 | 342,014 | 492 | 5,884 | 4,100 |
| Scenario 2/Gates Open | 48,607,167 | 16,169 | 98,353 | 341,993 | 492 | 5,884 | 4,100 |
| Scenario 3 | 48,605,055 | 16,168 | 98,348 | 341,978 | 492 | 5,884 | 4,100 |
| Scenario 4 | 48,615,745 | 16,171 | 98,367 | 342,042 | 492 | 5,885 | 4,100 |
| COMPARISON TO GATES CLOSED BASELINE | | | | | | | |
| Scenario 1 – Gates Closed | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 2 – Gates Closed | -3,780 | -1 | -6 | -22 | 0 | 0 | 0 |
| Scenario 3 – Gates Closed | -5,892 | -2 | -11 | -37 | 0 | -1 | 0 |
| Scenario 4 – Gates Closed | 4,798 | 0 | 7 | 28 | 0 | 0 | 0 |
| COMPARISON TO GATES OPEN BASELINE | | | | | | | |
| Scenario 1 – Gates Open | 3,780 | 1 | 6 | 22 | 0 | 0 | 0 |
| Scenario 2 – Gates Open | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 3 – Gates Open | -2,112 | -1 | -5 | -15 | 0 | 0 | 0 |
| Scenario 4 – Gates Open | 8,578 | 2 | 13 | 49 | 0 | 1 | 1 |
| *SCAQMD Significance Threshold* | -- | *55* | *55* | *550* | *150* | *150* | *55* |

**TABLE 10c**
**BUILDOUT TOTAL DAILY SUMMER RUNNING MOBILE EMISSIONS**
**(pounds per day)**

| | VMT (miles per day) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|---|
| TOTAL | | | | | | | |
| Scenario 1/Gates Closed | 102,093,231 | 10,153 | 37,754 | 218,413 | 1,219 | 10,147 | 6,625 |
| Scenario 2/Gates Open | 102,055,383 | 10,150 | 37,741 | 218,336 | 1,219 | 10,144 | 6,623 |
| Scenario 3 | 102,089,360 | 10,152 | 37,753 | 218,410 | 1,219 | 10,147 | 6,625 |
| Scenario 4 | 102,063,715 | 10,150 | 37,744 | 218,362 | 1,219 | 10,144 | 6,623 |
| COMPARISON TO GATES CLOSED BASELINE | | | | | | | |
| Scenario 1 – Gates Closed | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 2 – Gates Closed | -37,848 | -3 | -13 | -77 | 0 | -4 | -2 |
| Scenario 3 – Gates Closed | -3,871 | -1 | -1 | -3 | 0 | 0 | 0 |
| Scenario 4 – Gates Closed | -29,516 | -3 | -10 | -51 | 0 | -3 | -2 |
| COMPARISON TO GATES OPEN BASELINE | | | | | | | |
| Scenario 1 – Gates Open | 37,848 | 3 | 13 | 77 | 0 | 4 | 2 |
| Scenario 2 – Gates Open | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 3 – Gates Open | 33,977 | 2 | 12 | 74 | 0 | 3 | 2 |
| Scenario 4 – Gates Open | 8,332 | 0 | 3 | 26 | 0 | 1 | 0 |
| *SCAQMD Significance Threshold* | *--* | *55* | *55* | *550* | *150* | *150* | *55* |

**TABLE 10d**
**BUILDOUT TOTAL DAILY WINTER RUNNING MOBILE EMISSIONS**
**(pounds per day)**

| | VMT (miles per day) | ROG | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|---|
| TOTAL | | | | | | | |
| Scenario 1/Gates Closed | 102,093,231 | 10,453 | 46,772 | 209,109 | 1,034 | 10,147 | 6,625 |
| Scenario 2/Gates Open | 102,055,383 | 10,450 | 46,756 | 209,038 | 1,034 | 10,144 | 6,623 |
| Scenario 3 | 102,089,360 | 10,452 | 46,770 | 209,102 | 1,034 | 10,147 | 6,625 |
| Scenario 4 | 102,063,715 | 10,450 | 46,760 | 209,056 | 1,034 | 10,144 | 6,623 |
| COMPARISON TO GATES CLOSED BASELINE | | | | | | | |
| Scenario 1 – Gates Closed | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 2 – Gates Closed | -37,848 | -3 | -16 | -72 | 0 | -4 | -2 |
| Scenario 3 – Gates Closed | -3,871 | -1 | -2 | -7 | 0 | 0 | 0 |
| Scenario 4 – Gates Closed | -29,516 | -3 | -12 | -53 | 0 | -3 | -2 |
| COMPARISON TO GATES OPEN BASELINE | | | | | | | |
| Scenario 1 – Gates Open | 37,848 | 3 | 16 | 72 | 0 | 4 | 2 |
| Scenario 2 – Gates Open | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scenario 3 – Gates Open | 33,977 | 2 | 15 | 64 | 0 | 3 | 2 |
| Scenario 4 – Gates Open | 8,332 | 0 | 4 | 19 | 0 | 1 | 0 |
| *SCAQMD Significance Threshold* | *--* | *55* | *55* | *550* | *150* | *150* | *55* |

As discussed in Section 2.3, Project Baseline, two scenarios represent the baseline condition: Gates Closed (the current required condition for Crystal View Terrace and Green Orchard Place based on the conditions of two approved projects) and Gates Open (the "existing" condition). Existing traffic counts were made throughout the project area under both of these scenarios (ITERIS, Inc. 2012). The following is an analysis of all four scenarios compared to these two baseline conditions.

#### 6.2.1.1 Gates Closed Baseline Comparison

##### a. Scenario 1

This scenario is equivalent to the Gates Closed baseline. Therefore, there is no difference in VMT or pollutant emissions between Scenario 1 and the Gates Closed baseline.

As also shown in Tables 10a through 10d, emissions of ROG, $NO_x$, and CO would be less at buildout than the existing condition even though there is an increase in VMT. This is due to state and federal mandates which will cause exhaust emissions per vehicle to continue to improve in the future as well as emission reductions that occur due to the replacement of older, more polluting vehicles in the fleet population.

##### b. Scenario 2

As shown in Tables 10a through 10d, Scenario 2 with the gates removed currently generates 48,607,167 daily VMT and would generate 102,055,383 daily VMT at buildout. These are decreases in VMT relative to the baseline. When compared to the Gates Closed baseline, this decrease in VMT results in a decrease in emissions in both the existing and buildout conditions. Additionally, emissions of ROG, $NO_x$, and CO would be less at buildout than in the existing condition due to a decrease in exhaust emissions and the turnover of the older vehicle fleet population. Because emissions would decrease relative to the Gates Closed baseline condition, air quality impacts due to project operation under Scenario 2 would be less than significant.

##### c. Scenario 3

As shown in Tables 10a through 10d, Scenario 3 with the gates removed and the Overlook connection complete would generate 48,605,055 daily VMT with the existing traffic conditions (i.e., the existing plus project scenario), and would generate 102,089,360 daily VMT at buildout. These are decreases in VMT relative to the baseline. When compared to the Gates Closed baseline, this decrease in VMT results in a decrease in emissions in both the existing and buildout conditions. Additionally, as discussed above, emissions of ROG, $NO_x$, and CO would be less at buildout than in the existing plus Scenario 3 condition due to a decrease in exhaust emissions and the turnover of the older vehicle fleet population. Because emissions would decrease

relative to the Gates Closed baseline condition, air quality impacts due to project operation under Scenario 3 would be less than significant.

### d. Scenario 4

As shown in Tables 10a through 10d, Scenario 4 with the gates removed, the Overlook connection complete, and the construction of the Proposed C Street would generate 48,615,745 daily VMT with the existing traffic conditions (i.e., the existing plus project scenario), and would generate 102,063,715 daily VMT at buildout. In the existing condition, the daily VMT under Scenario 4 is greater than the existing Gates Closed baseline daily VMT. This results in a net increase of approximately 5 pounds of $NO_x$ per day and 42 pounds of CO per day in the summer months, and 7 pounds of $NO_x$ per day and 28 pounds of CO per day in the winter months. The net increases in emissions of ROG, $SO_2$, $PM_{10}$, and $PM_{2.5}$ are negligible. These increases are less than the SCAQMD significance thresholds for project operation. Therefore, air quality impacts due to operation of the project under existing plus Scenario 4 conditions would be less than significant.

At buildout, the daily VMT under Scenario 4 is less than the daily VMT under buildout of the Gates Closed baseline. This results in a decrease in emissions. Additionally, as discussed above, emissions of ROG, $NO_x$, and CO would be less at buildout than in the existing plus Scenario 4 condition due to a decrease in exhaust emissions and the turnover of the older vehicle fleet population. Because emissions would decrease relative to the Gates Closed baseline condition, air quality impacts due to project operation at buildout under Scenario 4 would be less than significant.

### e. Summary

In the existing plus project condition, Scenario 3 represents the lowest VMT for the network, followed by Scenario 2, Scenario 1, and Scenario 4. However, only Scenario 4 would result in an incremental increase in $NO_x$ and CO emissions. These incremental increases would be less than the applicable thresholds for $NO_x$ and CO, and would be less than significant. Emissions of all other pollutants under each scenario would be less than or equal to the existing condition.

In the buildout with project condition, Scenario 2 represents the lowest VMT for the network, followed by Scenario 4, Scenario 3, and Scenario 1. Emissions of all pollutants under each scenario would be less than or equal to the buildout of the Gates Closed condition. Under all scenarios, impacts would be less than significant.

### 6.2.1.2 Gates Open Baseline Comparison

#### a. Scenario 1

As shown in Tables 10a through 10d, the existing and buildout VMTs under Scenario 1 with the gates closed are greater than the existing and buildout VMTs under the Gates Open baseline. In the existing condition, this results in a net increase of approximately 1 pound of ROG, 5 pounds of $NO_x$, and 17 pounds of CO in summer months, and 1 pound of ROG, 6 pounds of $NO_x$, and 22 pounds of CO in winter months when compared to the Gates Open baseline. At buildout, this results in a net increase of approximately 3 pounds of ROG, 13 pounds of $NO_x$, 77 pounds of CO, 4 pounds of $PM_{10}$, and 2 pounds of $PM_{2.5}$ in the summer months, and 3 pounds of ROG, 16 pounds of $NO_x$, 72 pounds of CO, 4 pounds of $PM_{10}$, and 2 pounds of $PM_{2.5}$ in the winter months when compared to the Gates Open baseline. The net increases in emissions of $SO_2$ are negligible. These increases are less than the SCAQMD significance thresholds for project operation. Therefore, air quality impacts due to operation of Scenario 1 would be less than significant when compared to the Gates Open baseline.

#### b. Scenario 2

Scenario 2 is equivalent to the Gates Open baseline. Therefore, there is no difference in VMT or pollutant emissions between Scenario 2 and the Gates Open baseline, and air quality impacts due to operation of Scenario 2 would be less than significant when compared to the Gates Open baseline.

#### c. Scenario 3

In the existing condition, the daily VMT under Scenario 3 is less than the existing Gates Open baseline daily VMT. This results in a decrease in emissions. At buildout, the daily VMT under Scenario 3 is greater than the buildout Gates Open daily VMT. This results in a net increase of approximately 2 pounds of ROG, 12 pounds of $NO_x$, 74 pounds of CO, 3 pounds of $PM_{10}$, and 2 pounds of $PM_{2.5}$ in the summer months, and 2 pound of ROG, 15 pounds of $NO_x$, 64 pounds of CO, 3 pounds of $PM_{10}$, and 2 pounds of $PM_{2.5}$ in the winter months. The net increases in emissions of $SO_2$ are negligible. These increases are less than the SCAQMD significance thresholds for project operation. Additionally, as discussed above, emissions of ROG, $NO_x$, and CO would be less at buildout than in the existing plus Scenario 3 condition due to a decrease in exhaust emissions and the turnover of the older vehicle fleet population. Therefore, air quality impacts due to operation of Scenario 3 would be less than significant when compared to the Gates Open baseline.

### d. Scenario 4

As shown in Tables 10a through 10d, the existing and buildout VMTs under Scenario 4 are greater than the existing and buildout VMTs under the Gates Open baseline. In the existing condition, this results in a net increase of approximately 2 pounds of ROG, 10 pounds of $NO_x$, 59 pounds of CO, 1 pound of $PM_{10}$, and 1 pound of $PM_{2.5}$ in summer months, and 2 pound of ROG, 13 pounds of $NO_x$, 49 pounds of CO, 1 pound of $PM_{10}$, and 1 pound of $PM_{2.5}$ in winter months when compared to the Gates Open baseline. At buildout, this results in a net increase of approximately 3 pounds of $NO_x$, 26 pounds of CO, and 1 pound of $PM_{10}$ in the summer months, and 4 pounds of $NO_x$, 19 pounds of CO, and 1 pound of $PM_{10}$ in the winter months when compared to the Gates Open baseline. The net increases in emissions of $SO_2$ in the existing condition and $SO_2$ and ROG at buildout are negligible. These increases are less than the SCAQMD significance thresholds for project operation. Therefore, air quality impacts due to operation of Scenario 4 would be less than significant when compared to the Gates Open baseline.

### e. Summary

In the existing plus project condition, Scenario 3 represents the lowest VMT for the network, followed by Scenario 2, Scenario 1, and Scenario 4. Scenario 1 would result in an incremental increase in ROG, $NO_x$, and CO emissions, and Scenario 4 would result in an incremental increase in ROG, $NO_x$, CO, $PM_{10}$, and $PM_{2.5}$. However, these incremental increases would be less than the applicable thresholds, and impacts would be less than significant.

In the buildout with project condition, Scenario 2 represents the lowest VMT for the network, followed by Scenario 4, Scenario 3, and Scenario 1. However, the incremental increases in pollutant emissions would be less than the applicable thresholds. Under all scenarios, impacts would be less than significant.

## 6.2.2 Localized Carbon Monoxide Impacts

Sensitive receptors in the Project vicinity are mostly residential uses, but also include public parks, religious facilities, day cares, Victoria Elementary School, California School for the Deaf, Raincross High School, Gage Middle School, Washington Elementary School, Riverside Montessori Academy, and Hawarden Hills Academy.

Small-scale, localized concentrations of CO above the state and national standards have the potential to occur near stagnation points of heavily traveled intersections. Localized, high concentrations of CO are referred to as “CO hot spots.” CO hot spots can occur when projects contribute traffic to area intersections. CO hot spots almost exclusively occur near intersections with LOS E or worse in combination with relatively high traffic volumes on all roadways (Garza et al. 1997, pages 4-7 and 4-8). A CO hot spot analysis was performed using CALINE (California Department of Transportation [Caltrans] 1989)

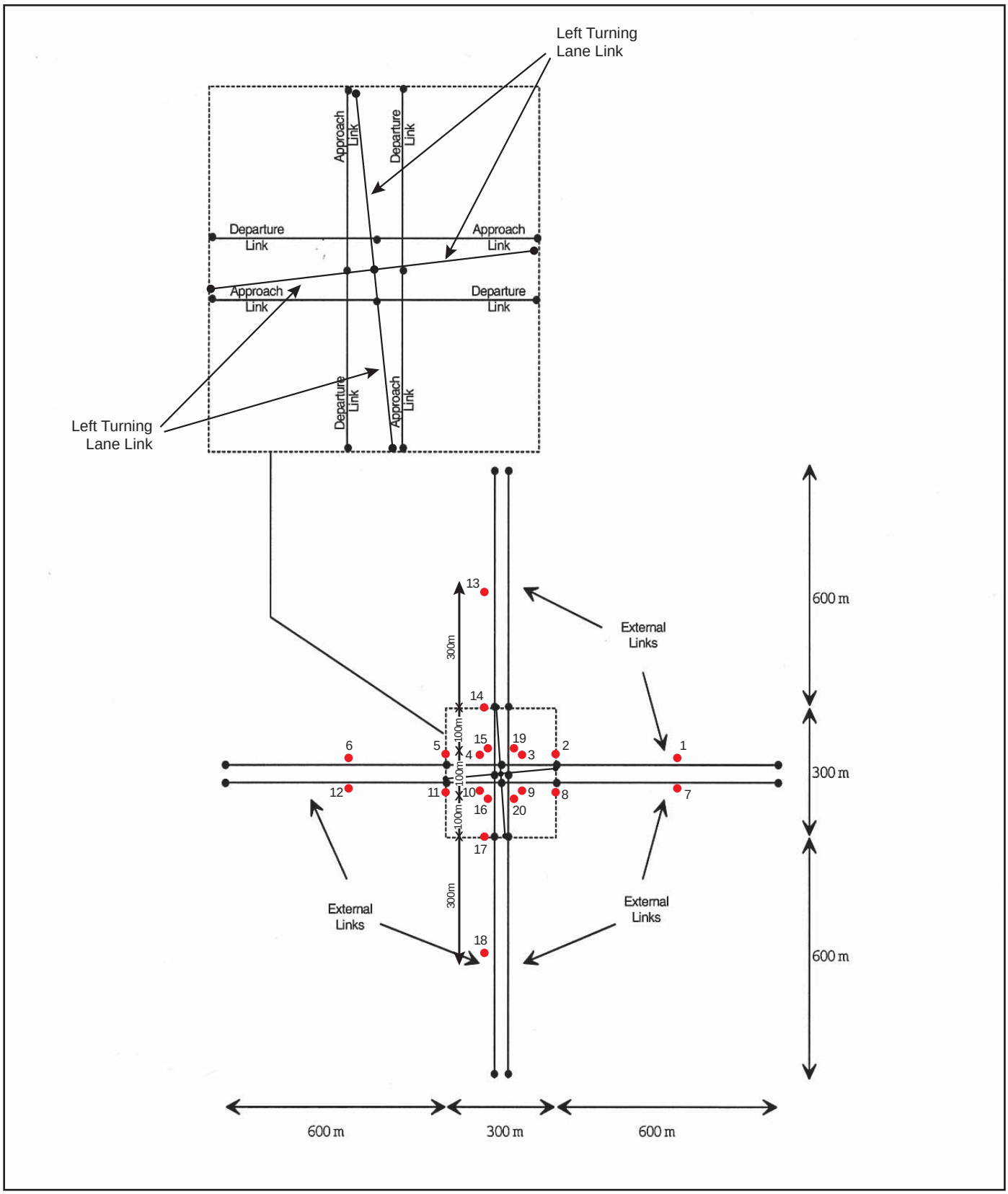
and emission rates calculated by EMFAC (State of California 2006). The CO hot spot model was prepared in accordance with the Transportation Project-Level Carbon Monoxide Protocol (Protocol) established by Caltrans (Garza et al. 1997). The procedure followed is detailed in Appendix B of the Protocol.

A micro-scale CO hot spot analysis was performed at all study area intersections projected to operate at LOS E or F at buildout in order to assess potential exposure of sensitive receptors to CO concentrations above the state and national standards. All other intersections analyzed in the traffic report would operate at LOS D or better. Traffic volumes and intersection configurations were provided by the traffic report prepared for the project (ITERIS, Inc. 2012). Speeds were also provided by the traffic engineer (ITERIS, Inc. 2012). The year 2035 plus project volumes for the intersections were used for this hot spot analysis since they are the highest traffic volumes and would result in a worst case scenario. The worst-case peak hours (either AM or PM) for each intersection were used. In the case where the A.M. and P.M. LOS values were equal, the peak hour with the longest delay was modeled.

Worst-case emission factors calculated by EMFAC and used in the hot spot analysis were for year 2011. As discussed above in Section 6.2.1.1, emissions of CO would be less at buildout than the existing condition because of state and federal mandates which will cause exhaust emissions per vehicle to continue to improve in the future as well as emission reductions that occur due to the replacement of older, more polluting vehicles in the fleet population. Using the existing worst-case emission factors and the buildout plus project traffic volumes results in a worst-case CO hot spot analysis.

Concentrations were calculated for 20 receptors for each intersection. The basic configuration of the intersections and the receptor locations for a typical intersection are illustrated in Figure 4.

Following the established policy described in the Protocol, a receptor distance of 3 meters from the edge of the roadways was used. The 3-meter distance provides worst-case CO concentration estimates. As shown in Table 3, the highest one-hour and eight-hour measured CO concentrations at the Riverside—Magnolia Avenue monitoring station were 2.0 ppm and 2.0 ppm, respectively, and the highest one-hour and eight-hour measured CO concentrations at the Rubidoux—Mission Boulevard monitoring station were 4.0 ppm and 2.9 ppm, respectively. The worst case background concentrations typically occur in the winter. With the development of cleaner technologies, background CO concentrations are expected to fall over time. Therefore, the maximum one-hour and eight-hour CO concentrations of 7.0 ppm and 2.9 ppm were used in the CO hot spot analysis as the worst-case background CO concentration. The eight-hour CO concentrations were calculated from the modeled one-hour CO concentrations using a persistence factor of 0.7, as recommended in the EPA's Guideline for Modeling Carbon Monoxide from Roadway Intersections (1992).




● Receptors at 3m from edge of roadway and 1.8m high

● Link end point

FIGURE 4

Link and Receptor Network For a Single Intersection with Dedicated Left Turn Lanes

RECON

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The following is a discussion of the worst-case CO concentrations at the intersections projected to operate at LOS E or F under each of the proposed scenarios.

## a. Scenario 1

Under Scenario 1, the following 12 intersections are projected to operate at LOS E or F at buildout (the modeled worst peak hours are shown in parentheses). The intersection numbers indicated below correspond to the intersection numbers in the TIA.

- #2 Madison Street and SR-91 EB Ramps (PM LOS E)
- #3 Madison Street and Indiana Avenue (PM LOS F)
- #7 Washington Street and Indiana Avenue (PM LOS F)
- #8 Washington Street and Victoria Avenue (PM LOS F)
- #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue (PM LOS E)
- #11 Indiana Avenue-SR-91 EB Ramps and Arlington Avenue (PM LOS E)
- #12 Victoria Avenue and Arlington Avenue (AM LOS F)
- #13 Alessandro Boulevard and Arlington Avenue (PM LOS F)
- #14 Alessandro Boulevard and Overlook Parkway (PM LOS F)
- #19 Trautwein Road and John F. Kennedy Drive (AM LOS F)
- #20 Washington Street and Bradley Street (PM LOS E)
- #22 Mary Street and Victoria Avenue (AM LOS F)

Table 11a presents estimates of worst-case CO concentrations at these intersections. CALINE output files are included as Attachment 5. As shown, the modeled one-hour CO concentrations range from 7.5 to 11.8 ppm. This is below the 20 ppm state standard and the 35 ppm national standard. The calculated eight-hour winter CO concentrations at the roadway segments range from 3.3 to 6.3 ppm. This is below the state's 9 ppm standard. Thus, CO hot spot impacts under buildout of Scenario 1 would be less than significant.

## b. Scenario 2

Under Scenario 2, the following 12 intersections are projected to operate at LOS E or F at buildout (the modeled worst peak hours are shown in parentheses):

- #2 Madison Street and SR-91 EB Ramps (PM LOS E)
- #3 Madison Street and Indiana Avenue (PM LOS F)
- #7 Washington Street and Indiana Avenue (AM LOS F)
- #8 Washington Street and Victoria Avenue (PM LOS F)
- #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue (PM LOS E)
- #11 Indiana Avenue-SR-91 EB Ramps and Arlington Avenue (PM LOS E)
- #12 Victoria Avenue and Arlington Avenue (AM LOS F)
- #13 Alessandro Boulevard and Arlington Avenue (PM LOS F)
- #14 Alessandro Boulevard and Overlook Parkway (PM LOS F)
- #15 Alessandro Boulevard and Trautwein Road (AM LOS E)
- #19 Trautwein Road and John F. Kennedy Drive (AM LOS F)
- #22 Mary Street and Victoria Avenue (AM LOS F)

Table 11b presents estimates of worst-case CO concentrations at these intersections. CALINE output files are included as Attachment 6. As shown, the modeled one-hour CO concentrations range from 7.5 to 12.2 ppm. This is below the 20 ppm state standard and the 35 ppm national standard. The calculated eight-hour winter CO concentrations at the roadway segments range from 3.3 to 6.5 ppm. This is below the state's 9 ppm standard. Thus, CO hot spot impacts under buildout of Scenario 2 would be less than significant.

## c. Scenario 3

Under Scenario 3, the following 16 intersections are projected to operate at LOS E or F at buildout (the modeled worst peak hours are shown in parentheses):

- #2 Madison Street and SR-91 EB Ramps (PM LOS E)
- #3 Madison Street and Indiana Avenue (PM LOS F)
- #7 Washington Street and Indiana Avenue (AM LOS F)

- #8 Washington Street and Victoria Avenue (PM LOS F)
- #9 Washington Street and Overlook Parkway (AM LOS F)
- #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue (PM LOS E)
- #12 Victoria Avenue and Arlington Avenue (AM LOS F)
- #13 Alessandro Boulevard and Arlington Avenue (PM LOS F)
- #14 Alessandro Boulevard and Overlook Parkway (PM LOS F)
- #15 Alessandro Boulevard and Trautwein Road (AM LOS E)
- #16 Crystal View Terrace and Overlook Parkway (PM LOS E)
- #17 Kingdom Drive and Overlook Parkway (PM LOS F)
- #19 Trautwein Road and John F. Kennedy Drive (AM LOS F)
- #22 Mary Street and Victoria Avenue (AM LOS F)
- #24 Hawarden Drive and Overlook Parkway (PM LOS E)
- #28 Orozco Drive and Overlook Parkway (PM LOS F)

Table 11c presents estimates of worst-case CO concentrations at these intersections. CALINE output files are included as Attachment 7. As shown, the modeled one-hour CO concentrations range from 7.2 to 12.3 ppm. This is below the 20 ppm state standard and the 35 ppm national standard. The calculated eight-hour winter CO concentrations at the roadway segments range from 3.0 to 6.6 ppm. This is below the state's 9 ppm standard. Thus, CO hot spot impacts under buildout of Scenario 3 would be less than significant.

### d. Scenario 4

Under Scenario 4, the following 18 intersections are projected to operate at LOS E or F at buildout (the modeled worst peak hours are shown in parentheses):

- #2 Madison Street and SR-91 EB Ramps (PM LOS E)
- #3 Madison Street and Indiana Avenue (PM LOS F)
- #4 Madison Street and Lincoln Avenue (PM LOS E)
- #5 Madison Street and Victoria Avenue (PM LOS F)
- #7 Washington Street and Indiana Avenue (AM LOS F)

- #8 Washington Street and Victoria Avenue (PM LOS F)
- #9 Washington Street and Overlook Parkway (AM LOS F)
- #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue (PM LOS E)
- #12 Victoria Avenue and Arlington Avenue (AM LOS F)
- #13 Alessandro Boulevard and Arlington Avenue (PM LOS F)
- #14 Alessandro Boulevard and Overlook Parkway (PM LOS F)
- #15 Alessandro Boulevard and Trautwein Road (AM LOS E)
- #16 Crystal View Terrace and Overlook Parkway (PM LOS F)
- #17 Kingdom Drive and Overlook Parkway (PM LOS F)
- #19 Trautwein Road and John F. Kennedy Drive (AM LOS F)
- #22 Mary Street and Victoria Avenue (AM LOS F)
- #24 Hawarden Drive and Overlook Parkway (PM LOS F)
- #28 Orozco Drive and Overlook Parkway (PM LOS F)

Table 11d presents estimates of worst-case CO concentrations at these intersections. CALINE output files are included as Attachment 8. As shown, the modeled one-hour CO concentrations range from 7.2 to 12.3 ppm. This is below the 20 ppm state standard and the 35 ppm national standard. The calculated eight-hour winter CO concentrations at the roadway segments range from 3.0 to 6.6 ppm. This is below the state's 9 ppm standard. Thus, CO hot spot impacts under buildout of Scenario 4 would be less than significant.

### e. Summary

As shown in Tables 11a through 11d, the modeled one-hour and calculated eight-hour CO concentrations are projected to be less than the state and federal standards. Under all scenarios, impacts would be less than significant.

It can also be noted that because CO does not poison plants since it is rapidly oxidized to form carbon dioxide which is used for photosynthesis, and because CO hot spot concentration levels would be below state and federal standards (see Tables 11a through 11d), there would be no impact to plant life. The proposed project would not result in any pollutant hot spots or result in an increase in basin-wide pollutant levels (see Table 2). The proposed project would not impact vegetation.

**TABLE 11a**
**SCENARIO 1 WORST-CASE CO CONCENTRATIONS (ppm)**

| Receiver | #2 Madison Street and SR-91 EB Ramps | | #3 Madison Street and Indiana Avenue | | #7 Washington Street and Indiana Avenue | | #8 Washington Street and Victoria Avenue | | #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue | | #11 Indiana Avenue-SR-91 EB Ramps and Arlington Avenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 7.6 | 3.3 | 8.9 | 4.2 | 7.7 | 3.4 | 8.1 | 3.7 | 10.1 | 5.1 | 10.6 | 5.4 |
| 2 | 7.5 | 3.3 | 8.6 | 4.0 | 7.6 | 3.3 | 7.9 | 3.5 | 9.8 | 4.9 | 10.2 | 5.1 |
| 3 | 8.0 | 3.6 | 8.7 | 4.1 | 7.6 | 3.3 | 8.0 | 3.6 | 9.7 | 4.8 | 10.1 | 5.1 |
| 4 | 8.2 | 3.7 | 8.9 | 4.2 | 7.6 | 3.3 | 8.0 | 3.6 | 9.9 | 4.9 | 10.1 | 5.1 |
| 5 | 7.7 | 3.4 | 8.5 | 4.0 | 7.5 | 3.3 | 7.5 | 3.3 | 9.8 | 4.9 | 10.1 | 5.1 |
| 6 | 7.8 | 3.5 | 8.4 | 3.9 | 7.5 | 3.3 | 7.8 | 3.5 | 9.8 | 4.9 | 10.3 | 5.2 |
| 7 | 7.8 | 3.5 | 9.1 | 4.4 | 7.6 | 3.3 | 7.8 | 3.5 | 10.8 | 5.6 | 10.8 | 5.6 |
| 8 | 7.9 | 3.5 | 8.8 | 4.2 | 7.6 | 3.3 | 7.9 | 3.5 | 9.9 | 4.9 | 10.6 | 5.4 |
| 9 | 8.4 | 3.9 | 8.3 | 3.8 | 7.6 | 3.3 | 8.1 | 3.7 | 9.9 | 4.9 | 10.6 | 5.4 |
| 10 | 8.2 | 3.7 | 8.6 | 4.0 | 7.7 | 3.4 | 8.2 | 3.7 | 10.1 | 5.1 | 10.7 | 5.5 |
| 11 | 8.1 | 3.7 | 8.6 | 4.0 | 7.6 | 3.3 | 8.1 | 3.7 | 10.1 | 5.1 | 10.7 | 5.5 |
| 12 | 8.3 | 3.8 | 8.7 | 4.1 | 7.7 | 3.4 | 8.1 | 3.7 | 10.2 | 5.1 | 10.8 | 5.6 |
| 13 | 9.5 | 4.7 | 9.9 | 4.9 | 7.8 | 3.5 | 8.1 | 3.7 | 8.7 | 4.1 | 7.7 | 3.4 |
| 14 | 9.5 | 4.7 | 9.3 | 4.5 | 7.7 | 3.4 | 8.4 | 3.9 | 8.2 | 3.7 | 8.0 | 3.6 |
| 15 | 9.7 | 4.8 | 9.1 | 4.4 | 7.7 | 3.4 | 8.8 | 4.2 | 8.4 | 3.9 | 8.2 | 3.7 |
| 16 | 9.5 | 4.7 | 9.5 | 4.7 | 7.7 | 3.4 | 8.9 | 4.2 | 8.6 | 4.0 | 8.5 | 4.0 |
| 17 | 9.7 | 4.8 | 9.3 | 4.5 | 7.6 | 3.3 | 9.1 | 4.4 | 8.0 | 3.6 | 8.2 | 3.7 |
| 18 | 10.0 | 5.0 | 9.2 | 4.4 | 7.7 | 3.4 | 9.3 | 4.5 | 7.9 | 3.5 | 8.5 | 4.0 |
| 19 | 9.5 | 4.7 | 9.3 | 4.5 | 7.7 | 3.4 | 8.7 | 4.1 | 8.3 | 3.8 | 8.8 | 4.2 |
| 20 | 9.2 | 4.4 | 9.4 | 4.6 | 7.7 | 3.4 | 8.9 | 4.2 | 8.2 | 3.7 | 8.4 | 3.9 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11a**
**SCENARIO 1 WORST-CASE CO CONCENTRATIONS (ppm)**
**(continued)**

| | #12 Victoria Avenue and Arlington Avenue | | #13 Alessandro Boulevard and Arlington Avenue | | #14 Alessandro Boulevard and Overlook Parkway | | #19 Trautwein Road and John F. Kennedy Drive | | #20 Washington Street and Bradley Street | | #22 Mary Street and Victoria Avenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receiver | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 10.6 | 5.4 | 9.6 | 4.7 | 8.8 | 4.2 | 7.9 | 3.5 | 7.6 | 3.3 | 7.9 | 3.5 |
| 2 | 10.2 | 5.1 | 9.7 | 4.8 | 8.5 | 4.0 | 8.4 | 3.9 | 7.7 | 3.4 | 7.9 | 3.5 |
| 3 | 10.0 | 5.0 | 9.9 | 4.9 | 9.0 | 4.3 | 9.0 | 4.3 | 8.0 | 3.6 | 7.9 | 3.5 |
| 4 | 10.2 | 5.1 | 9.2 | 4.4 | 8.5 | 4.0 | 8.3 | 3.8 | 8.0 | 3.6 | 7.8 | 3.5 |
| 5 | 10.1 | 5.1 | 10.0 | 5.0 | 8.2 | 3.7 | 8.4 | 3.9 | 7.5 | 3.3 | 7.8 | 3.5 |
| 6 | 10.1 | 5.1 | 10.5 | 5.4 | 7.7 | 3.4 | 8.8 | 4.2 | 7.6 | 3.3 | 7.8 | 3.5 |
| 7 | 10.2 | 5.1 | 9.6 | 4.7 | 8.7 | 4.1 | 7.7 | 3.4 | 7.7 | 3.4 | 8.0 | 3.6 |
| 8 | 9.8 | 4.9 | 9.8 | 4.9 | 8.4 | 3.9 | 8.2 | 3.7 | 7.6 | 3.3 | 7.9 | 3.5 |
| 9 | 9.8 | 4.9 | 10.6 | 5.4 | 8.6 | 4.0 | 8.6 | 4.0 | 7.9 | 3.5 | 8.0 | 3.6 |
| 10 | 10.0 | 5.0 | 10.3 | 5.2 | 9.1 | 4.4 | 8.6 | 4.0 | 8.0 | 3.6 | 7.9 | 3.5 |
| 11 | 9.8 | 4.9 | 10.3 | 5.2 | 8.3 | 3.8 | 8.3 | 3.8 | 7.8 | 3.5 | 7.9 | 3.5 |
| 12 | 9.9 | 4.9 | 10.8 | 5.6 | 7.7 | 3.4 | 8.7 | 4.1 | 7.8 | 3.5 | 8.3 | 3.8 |
| 13 | 8.6 | 4.0 | 10.1 | 5.1 | 11.0 | 5.7 | 10.0 | 5.0 | 9.9 | 4.9 | 7.9 | 3.5 |
| 14 | 8.3 | 3.8 | 10.5 | 5.4 | 10.4 | 5.3 | 9.7 | 4.8 | 9.7 | 4.8 | 7.8 | 3.5 |
| 15 | 8.4 | 3.9 | 11.2 | 5.8 | 10.6 | 5.4 | 9.8 | 4.9 | 9.7 | 4.8 | 7.8 | 3.5 |
| 16 | 8.3 | 3.8 | 10.7 | 5.5 | 10.2 | 5.1 | 9.7 | 4.8 | 9.7 | 4.8 | 7.8 | 3.5 |
| 17 | 8.2 | 3.7 | 10.9 | 5.6 | 11.2 | 5.8 | 9.2 | 4.4 | 9.7 | 4.8 | 7.7 | 3.4 |
| 18 | 8.4 | 3.9 | 11.6 | 6.1 | 11.8 | 6.3 | 9.1 | 4.4 | 9.9 | 4.9 | 7.6 | 3.3 |
| 19 | 8.7 | 4.1 | 10.7 | 5.5 | 10.9 | 5.6 | 9.6 | 4.7 | 9.5 | 4.7 | 7.7 | 3.4 |
| 20 | 8.8 | 4.2 | 10.6 | 5.4 | 10.6 | 5.4 | 10.1 | 5.1 | 9.4 | 4.6 | 8.0 | 3.6 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11b**
**SCENARIO 2 WORST-CASE CO CONCENTRATIONS (ppm)**

| | #2 Madison Street and SR-91 EB Ramps | | #3 Madison Street and Indiana Avenue | | #7 Washington Street and Indiana Avenue | | #8 Washington Street and Victoria Avenue | | #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue | | #11 Indiana Avenue-SR-91 EB Ramps and Arlington Avenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receiver | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 7.6 | 3.3 | 9.1 | 4.4 | 7.6 | 3.3 | 8.2 | 3.7 | 10.2 | 5.1 | 10.8 | 5.6 |
| 2 | 7.5 | 3.3 | 8.9 | 4.2 | 7.6 | 3.3 | 8.0 | 3.6 | 9.8 | 4.9 | 10.5 | 5.4 |
| 3 | 8.1 | 3.7 | 9.0 | 4.3 | 7.5 | 3.3 | 8.0 | 3.6 | 9.9 | 4.9 | 10.3 | 5.2 |
| 4 | 8.2 | 3.7 | 9.1 | 4.4 | 7.6 | 3.3 | 8.1 | 3.7 | 10.1 | 5.1 | 10.3 | 5.2 |
| 5 | 7.7 | 3.4 | 8.7 | 4.1 | 7.5 | 3.3 | 7.6 | 3.3 | 10.0 | 5.0 | 10.3 | 5.2 |
| 6 | 7.8 | 3.5 | 8.7 | 4.1 | 7.5 | 3.3 | 7.9 | 3.5 | 10.0 | 5.0 | 10.5 | 5.4 |
| 7 | 8.0 | 3.6 | 9.2 | 4.4 | 7.6 | 3.3 | 7.9 | 3.5 | 10.9 | 5.6 | 10.9 | 5.6 |
| 8 | 8.0 | 3.6 | 8.9 | 4.2 | 7.5 | 3.3 | 8.0 | 3.6 | 10.0 | 5.0 | 10.8 | 5.6 |
| 9 | 8.4 | 3.9 | 8.4 | 3.9 | 7.6 | 3.3 | 8.3 | 3.8 | 9.9 | 4.9 | 10.8 | 5.6 |
| 10 | 8.3 | 3.8 | 8.8 | 4.2 | 7.6 | 3.3 | 8.4 | 3.9 | 10.1 | 5.1 | 10.8 | 5.6 |
| 11 | 8.2 | 3.7 | 8.8 | 4.2 | 7.6 | 3.3 | 8.2 | 3.7 | 10.1 | 5.1 | 10.8 | 5.6 |
| 12 | 8.4 | 3.9 | 9.0 | 4.3 | 7.6 | 3.3 | 8.2 | 3.7 | 10.3 | 5.2 | 11.0 | 5.7 |
| 13 | 9.5 | 4.7 | 10.1 | 5.1 | 7.8 | 3.5 | 8.2 | 3.7 | 8.9 | 4.2 | 7.7 | 3.4 |
| 14 | 9.6 | 4.7 | 9.4 | 4.6 | 7.8 | 3.5 | 8.6 | 4.0 | 8.4 | 3.9 | 8.1 | 3.7 |
| 15 | 9.8 | 4.9 | 9.2 | 4.4 | 7.8 | 3.5 | 9.0 | 4.3 | 8.6 | 4.0 | 8.6 | 4.0 |
| 16 | 9.5 | 4.7 | 9.7 | 4.8 | 7.7 | 3.4 | 9.2 | 4.4 | 8.7 | 4.1 | 8.6 | 4.0 |
| 17 | 9.7 | 4.8 | 9.5 | 4.7 | 7.7 | 3.4 | 9.4 | 4.6 | 8.1 | 3.7 | 8.5 | 4.0 |
| 18 | 10.1 | 5.1 | 9.3 | 4.5 | 7.8 | 3.5 | 9.6 | 4.7 | 7.8 | 3.5 | 8.7 | 4.1 |
| 19 | 9.5 | 4.7 | 9.5 | 4.7 | 8.1 | 3.7 | 8.8 | 4.2 | 8.4 | 3.9 | 8.9 | 4.2 |
| 20 | 9.6 | 4.7 | 9.5 | 4.7 | 8.0 | 3.6 | 9.0 | 4.3 | 8.6 | 4.0 | 8.5 | 4.0 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11b**
**SCENARIO 2 WORST-CASE CO CONCENTRATIONS (ppm)**
**(continued)**

| | #12 Victoria Avenue and Arlington Avenue | | #13 Alessandro Boulevard and Arlington Avenue | | #14 Alessandro Boulevard and Overlook Parkway | | #15 Alessandro Boulevard and Trautwein Road | | #19 Trautwein Road and John F. Kennedy Drive | | #22 Mary Street and Victoria Avenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receiver | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 10.8 | 5.6 | 9.8 | 4.9 | 8.7 | 4.1 | 8.5 | 4.0 | 7.9 | 3.5 | 7.8 | 3.5 |
| 2 | 10.4 | 5.3 | 9.9 | 4.9 | 8.4 | 3.9 | 8.7 | 4.1 | 8.4 | 3.9 | 7.8 | 3.5 |
| 3 | 10.3 | 5.2 | 10.1 | 5.1 | 9.0 | 4.3 | 9.1 | 4.4 | 9.0 | 4.3 | 7.9 | 3.5 |
| 4 | 10.5 | 5.4 | 9.3 | 4.5 | 8.6 | 4.0 | 9.0 | 4.3 | 8.3 | 3.8 | 7.7 | 3.4 |
| 5 | 10.4 | 5.3 | 10.1 | 5.1 | 8.2 | 3.7 | 8.9 | 4.2 | 8.4 | 3.9 | 7.7 | 3.4 |
| 6 | 10.4 | 5.3 | 10.7 | 5.5 | 7.7 | 3.4 | 9.1 | 4.4 | 8.9 | 4.2 | 7.8 | 3.5 |
| 7 | 10.6 | 5.4 | 9.7 | 4.8 | 8.5 | 4.0 | 10.0 | 5.0 | 7.8 | 3.5 | 7.7 | 3.4 |
| 8 | 10.1 | 5.1 | 9.9 | 4.9 | 8.3 | 3.8 | 10.1 | 5.1 | 8.3 | 3.8 | 7.7 | 3.4 |
| 9 | 10.0 | 5.0 | 10.7 | 5.5 | 8.7 | 4.1 | 10.3 | 5.2 | 8.7 | 4.1 | 7.8 | 3.5 |
| 10 | 10.2 | 5.1 | 10.4 | 5.3 | 9.0 | 4.3 | 10.1 | 5.1 | 8.6 | 4.0 | 7.7 | 3.4 |
| 11 | 10.1 | 5.1 | 10.4 | 5.3 | 8.3 | 3.8 | 10.0 | 5.0 | 8.3 | 3.8 | 7.8 | 3.5 |
| 12 | 10.2 | 5.1 | 10.9 | 5.6 | 7.7 | 3.4 | 10.2 | 5.1 | 8.9 | 4.2 | 8.1 | 3.7 |
| 13 | 8.6 | 4.0 | 10.2 | 5.1 | 11.4 | 6.0 | 10.3 | 5.2 | 10.0 | 5.0 | 7.8 | 3.5 |
| 14 | 8.3 | 3.8 | 10.6 | 5.4 | 11.3 | 5.9 | 10.1 | 5.1 | 9.7 | 4.8 | 7.8 | 3.5 |
| 15 | 8.5 | 4.0 | 11.3 | 5.9 | 11.3 | 5.9 | 10.1 | 5.1 | 9.5 | 4.7 | 7.8 | 3.5 |
| 16 | 8.4 | 3.9 | 10.7 | 5.5 | 10.9 | 5.6 | 10.2 | 5.1 | 9.7 | 4.8 | 7.7 | 3.4 |
| 17 | 8.2 | 3.7 | 11.0 | 5.7 | 11.1 | 5.8 | 9.9 | 4.9 | 9.4 | 4.6 | 7.6 | 3.3 |
| 18 | 8.4 | 3.9 | 11.6 | 6.1 | 12.2 | 6.5 | 9.9 | 4.9 | 9.4 | 4.6 | 7.5 | 3.3 |
| 19 | 8.8 | 4.2 | 10.7 | 5.5 | 11.1 | 5.8 | 10.1 | 5.1 | 9.7 | 4.8 | 7.6 | 3.3 |
| 20 | 8.9 | 4.2 | 10.6 | 5.4 | 10.9 | 5.6 | 10.3 | 5.2 | 10.1 | 5.1 | 7.8 | 3.5 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11c**
**SCENARIO 3 WORST-CASE CO CONCENTRATIONS (ppm)**

| | #2 Madison Street and SR-91 EB Ramps | | #3 Madison Street and Indiana Avenue | | #7 Washington Street and Indiana Avenue | | #8 Washington Street and Victoria Avenue | | #9 Washington Street and Overlook Parkway | | #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue | | #12 Victoria Avenue and Arlington Avenue | | #13 Alessandro Boulevard and Arlington Avenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receiver | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 7.6 | 3.3 | 9.0 | 4.3 | 7.6 | 3.3 | 8.3 | 3.8 | 8.1 | 3.7 | 10.2 | 5.1 | 10.5 | 5.4 | 9.9 | 4.9 |
| 2 | 7.5 | 3.3 | 8.9 | 4.2 | 7.5 | 3.3 | 8.0 | 3.6 | 7.9 | 3.5 | 9.8 | 4.9 | 10.1 | 5.1 | 9.8 | 4.9 |
| 3 | 8.1 | 3.7 | 9.0 | 4.3 | 7.5 | 3.3 | 8.1 | 3.7 | 8.1 | 3.7 | 9.8 | 4.9 | 10.0 | 5.0 | 10.0 | 5.0 |
| 4 | 8.2 | 3.7 | 9.0 | 4.3 | 7.5 | 3.3 | 8.2 | 3.7 | 8.3 | 3.8 | 10.0 | 5.0 | 10.2 | 5.1 | 9.2 | 4.4 |
| 5 | 7.7 | 3.4 | 8.7 | 4.1 | 7.5 | 3.3 | 7.6 | 3.3 | 7.8 | 3.5 | 9.9 | 4.9 | 10.1 | 5.1 | 9.9 | 4.9 |
| 6 | 7.8 | 3.5 | 8.7 | 4.1 | 7.5 | 3.3 | 8.0 | 3.6 | 7.4 | 3.2 | 9.9 | 4.9 | 10.1 | 5.1 | 10.4 | 5.3 |
| 7 | 7.9 | 3.5 | 9.2 | 4.4 | 7.5 | 3.3 | 7.9 | 3.5 | 8.0 | 3.6 | 10.9 | 5.6 | 10.2 | 5.1 | 9.8 | 4.9 |
| 8 | 8.0 | 3.6 | 8.8 | 4.2 | 7.5 | 3.3 | 8.0 | 3.6 | 7.7 | 3.4 | 9.9 | 4.9 | 9.8 | 4.9 | 9.8 | 4.9 |
| 9 | 8.4 | 3.9 | 8.6 | 4.0 | 7.6 | 3.3 | 8.3 | 3.8 | 8.2 | 3.7 | 9.9 | 4.9 | 9.7 | 4.8 | 10.5 | 5.4 |
| 10 | 8.3 | 3.8 | 8.8 | 4.2 | 7.6 | 3.3 | 8.4 | 3.9 | 7.9 | 3.5 | 10.1 | 5.1 | 9.9 | 4.9 | 10.3 | 5.2 |
| 11 | 8.2 | 3.7 | 8.8 | 4.2 | 7.6 | 3.3 | 8.3 | 3.8 | 7.7 | 3.4 | 10.1 | 5.1 | 9.8 | 4.9 | 10.3 | 5.2 |
| 12 | 8.4 | 3.9 | 9.0 | 4.3 | 7.6 | 3.3 | 8.3 | 3.8 | 7.4 | 3.2 | 10.3 | 5.2 | 9.9 | 4.9 | 10.7 | 5.5 |
| 13 | 9.5 | 4.7 | 10.1 | 5.1 | 7.9 | 3.5 | 8.5 | 4.0 | 9.5 | 4.7 | 8.9 | 4.2 | 8.6 | 4.0 | 10.0 | 5.0 |
| 14 | 9.6 | 4.7 | 9.4 | 4.6 | 7.9 | 3.5 | 8.8 | 4.2 | 9.2 | 4.4 | 8.4 | 3.9 | 8.3 | 3.8 | 10.4 | 5.3 |
| 15 | 9.8 | 4.9 | 9.3 | 4.5 | 7.9 | 3.5 | 9.2 | 4.4 | 9.2 | 4.4 | 8.5 | 4.0 | 8.4 | 3.9 | 11.0 | 5.7 |
| 16 | 9.5 | 4.7 | 9.7 | 4.8 | 7.8 | 3.5 | 9.4 | 4.6 | 9.0 | 4.3 | 8.7 | 4.1 | 8.3 | 3.8 | 10.5 | 5.4 |
| 17 | 9.7 | 4.8 | 9.5 | 4.7 | 7.7 | 3.4 | 9.6 | 4.7 | 8.9 | 4.2 | 8.1 | 3.7 | 8.2 | 3.7 | 10.7 | 5.5 |
| 18 | 10.1 | 5.1 | 9.3 | 4.5 | 7.9 | 3.5 | 9.8 | 4.9 | 8.7 | 4.1 | 7.9 | 3.5 | 8.2 | 3.7 | 11.4 | 6.0 |
| 19 | 9.5 | 4.7 | 9.5 | 4.7 | 8.1 | 3.7 | 9.0 | 4.3 | 9.7 | 4.8 | 8.4 | 3.9 | 8.7 | 4.1 | 10.5 | 5.4 |
| 20 | 9.6 | 4.7 | 9.5 | 4.7 | 8.1 | 3.7 | 9.2 | 4.4 | 10.1 | 5.1 | 8.6 | 4.0 | 8.9 | 4.2 | 10.3 | 5.2 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11c**
**SCENARIO 3 WORST-CASE CO CONCENTRATIONS (ppm)**
**(continued)**

| | #14 Alessandro Boulevard and Overlook Parkway | | #15 Alessandro Boulevard and Trautwein Road | | #16 Crystal View Terrace and Overlook Parkway | | #17 Kingdom Drive and Overlook Parkway | | #19 Trautwein Road and John F. Kennedy Drive | | #22 Mary Street and Victoria Avenue | | #24 Hawarden Drive and Overlook Parkway | | #28 Orozco Drive and Overlook Parkway | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receiver | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 8.7 | 4.1 | 8.5 | 4.0 | 8.8 | 4.2 | 8.8 | 4.2 | 7.8 | 3.5 | 7.7 | 3.4 | 8.6 | 4.0 | 8.7 | 4.1 |
| 2 | 8.5 | 4.0 | 8.7 | 4.1 | 8.7 | 4.1 | 8.6 | 4.0 | 8.2 | 3.7 | 7.8 | 3.5 | 8.4 | 3.9 | 8.5 | 4.0 |
| 3 | 8.8 | 4.2 | 9.1 | 4.4 | 8.7 | 4.1 | 8.5 | 4.0 | 8.7 | 4.1 | 7.8 | 3.5 | 8.3 | 3.8 | 8.4 | 3.9 |
| 4 | 8.9 | 4.2 | 9.0 | 4.3 | 8.6 | 4.0 | 8.5 | 4.0 | 8.2 | 3.7 | 7.6 | 3.3 | 8.4 | 3.9 | 8.5 | 4.0 |
| 5 | 8.4 | 3.9 | 8.9 | 4.2 | 8.6 | 4.0 | 8.5 | 4.0 | 8.4 | 3.9 | 7.7 | 3.4 | 8.3 | 3.8 | 8.5 | 4.0 |
| 6 | 8.8 | 4.2 | 9.1 | 4.4 | 8.8 | 4.2 | 8.6 | 4.0 | 8.6 | 4.0 | 7.7 | 3.4 | 8.5 | 4.0 | 8.5 | 4.0 |
| 7 | 8.4 | 3.9 | 9.9 | 4.9 | 8.7 | 4.1 | 8.9 | 4.2 | 7.7 | 3.4 | 7.6 | 3.3 | 8.7 | 4.1 | 8.9 | 4.2 |
| 8 | 8.6 | 4.0 | 10.0 | 5.0 | 8.7 | 4.1 | 8.8 | 4.2 | 8.1 | 3.7 | 7.7 | 3.4 | 8.5 | 4.0 | 8.6 | 4.0 |
| 9 | 9.2 | 4.4 | 10.3 | 5.2 | 8.7 | 4.1 | 8.7 | 4.1 | 8.5 | 4.0 | 7.8 | 3.5 | 8.5 | 4.0 | 8.5 | 4.0 |
| 10 | 9.1 | 4.4 | 10.0 | 5.0 | 8.7 | 4.1 | 8.8 | 4.2 | 8.4 | 3.9 | 7.6 | 3.3 | 8.6 | 4.0 | 8.6 | 4.0 |
| 11 | 8.7 | 4.1 | 9.9 | 4.9 | 8.8 | 4.2 | 8.9 | 4.2 | 8.4 | 3.9 | 8.0 | 3.6 | 8.6 | 4.0 | 8.7 | 4.1 |
| 12 | 8.8 | 4.2 | 10.1 | 5.1 | 8.9 | 4.2 | 8.9 | 4.2 | 8.6 | 4.0 | 8.1 | 3.7 | 8.7 | 4.1 | 8.7 | 4.1 |
| 13 | 11.3 | 5.9 | 10.4 | 5.3 | 7.2 | 3.0 | 7.2 | 3.0 | 9.9 | 4.9 | 7.9 | 3.5 | 7.3 | 3.1 | 7.4 | 3.2 |
| 14 | 11.4 | 6.0 | 10.3 | 5.2 | 7.3 | 3.1 | 7.3 | 3.1 | 9.6 | 4.7 | 7.9 | 3.5 | 7.3 | 3.1 | 7.3 | 3.1 |
| 15 | 11.6 | 6.1 | 10.2 | 5.1 | 7.6 | 3.3 | 7.6 | 3.3 | 9.7 | 4.8 | 7.9 | 3.5 | 7.6 | 3.3 | 7.7 | 3.4 |
| 16 | 11.1 | 5.8 | 10.3 | 5.2 | 7.6 | 3.3 | 7.7 | 3.4 | 9.6 | 4.7 | 7.8 | 3.5 | 7.6 | 3.3 | 7.6 | 3.3 |
| 17 | 11.4 | 6.0 | 10.1 | 5.1 | 7.3 | 3.1 | 7.3 | 3.1 | 9.3 | 4.5 | 7.6 | 3.3 | 7.3 | 3.1 | 7.3 | 3.1 |
| 18 | 12.3 | 6.6 | 10.0 | 5.0 | 7.3 | 3.1 | 7.4 | 3.2 | 9.4 | 4.6 | 7.5 | 3.3 | 7.3 | 3.1 | 7.2 | 3.0 |
| 19 | 10.9 | 5.6 | 10.2 | 5.1 | 7.6 | 3.3 | 7.6 | 3.3 | 9.8 | 4.9 | 7.6 | 3.3 | 7.5 | 3.3 | 7.6 | 3.3 |
| 20 | 11.1 | 5.8 | 10.4 | 5.3 | 7.7 | 3.4 | 7.6 | 3.3 | 10.1 | 5.1 | 7.9 | 3.5 | 7.6 | 3.3 | 7.6 | 3.3 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11d**
**SCENARIO 4 WORST-CASE CO CONCENTRATIONS (ppm)**

| Receiver | #2 Madison Street and SR-91 EB Ramps | | #3 Madison Street and Indiana Avenue | | #4 Madison Street and Lincoln Avenue | | #5 Madison Street and Victoria Avenue | | #7 Washington Street and Indiana Avenue | | #8 Washington Street and Victoria Avenue | | #9 Washington Street and Overlook Parkway | | #10 Riverside Avenue-SR-91 WB Ramps and Arlington Avenue | | #12 Victoria Avenue and Arlington Avenue | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 7.6 | 3.3 | 8.8 | 4.2 | 7.7 | 3.4 | 7.4 | 3.2 | 7.5 | 3.3 | 7.8 | 3.5 | 8.3 | 3.8 | 10.1 | 5.1 | 10.4 | 5.3 |
| 2 | 7.5 | 3.3 | 8.7 | 4.1 | 7.8 | 3.5 | 7.6 | 3.3 | 7.5 | 3.3 | 7.5 | 3.3 | 8.0 | 3.6 | 9.7 | 4.8 | 10.1 | 5.1 |
| 3 | 8.1 | 3.7 | 8.9 | 4.2 | 7.8 | 3.5 | 7.8 | 3.5 | 7.4 | 3.2 | 7.7 | 3.4 | 8.2 | 3.7 | 9.8 | 4.9 | 10.0 | 5.0 |
| 4 | 8.3 | 3.8 | 8.9 | 4.2 | 7.9 | 3.5 | 7.9 | 3.5 | 7.5 | 3.3 | 7.6 | 3.3 | 8.5 | 4.0 | 10.0 | 5.0 | 10.2 | 5.1 |
| 5 | 7.7 | 3.4 | 8.5 | 4.0 | 7.6 | 3.3 | 7.5 | 3.3 | 7.4 | 3.2 | 7.5 | 3.3 | 7.9 | 3.5 | 9.9 | 4.9 | 10.0 | 5.0 |
| 6 | 7.8 | 3.5 | 8.7 | 4.1 | 7.9 | 3.5 | 7.6 | 3.3 | 7.4 | 3.2 | 7.4 | 3.2 | 7.4 | 3.2 | 9.9 | 4.9 | 10.0 | 5.0 |
| 7 | 7.9 | 3.5 | 8.9 | 4.2 | 7.6 | 3.3 | 7.5 | 3.3 | 7.5 | 3.3 | 7.6 | 3.3 | 8.2 | 3.7 | 10.8 | 5.6 | 10.1 | 5.1 |
| 8 | 8.0 | 3.6 | 8.4 | 3.9 | 7.8 | 3.5 | 7.6 | 3.3 | 7.5 | 3.3 | 7.5 | 3.3 | 8.1 | 3.7 | 9.9 | 4.9 | 9.7 | 4.8 |
| 9 | 8.5 | 4.0 | 8.7 | 4.1 | 8.1 | 3.7 | 7.9 | 3.5 | 7.5 | 3.3 | 7.6 | 3.3 | 8.3 | 3.8 | 9.8 | 4.9 | 9.6 | 4.7 |
| 10 | 8.3 | 3.8 | 8.8 | 4.2 | 7.9 | 3.5 | 7.9 | 3.5 | 7.6 | 3.3 | 7.8 | 3.5 | 8.0 | 3.6 | 10.0 | 5.0 | 9.8 | 4.9 |
| 11 | 8.2 | 3.7 | 8.7 | 4.1 | 7.9 | 3.5 | 7.7 | 3.4 | 7.5 | 3.3 | 7.6 | 3.3 | 7.8 | 3.5 | 10.1 | 5.1 | 9.7 | 4.8 |
| 12 | 8.4 | 3.9 | 9.0 | 4.3 | 8.1 | 3.7 | 7.7 | 3.4 | 7.5 | 3.3 | 7.5 | 3.3 | 7.4 | 3.2 | 10.2 | 5.1 | 9.8 | 4.9 |
| 13 | 9.6 | 4.7 | 10.2 | 5.1 | 9.1 | 4.4 | 9.4 | 4.6 | 7.8 | 3.5 | 8.0 | 3.6 | 9.9 | 4.9 | 8.9 | 4.2 | 8.6 | 4.0 |
| 14 | 9.6 | 4.7 | 9.7 | 4.8 | 9.1 | 4.4 | 9.3 | 4.5 | 7.7 | 3.4 | 8.1 | 3.7 | 9.5 | 4.7 | 8.4 | 3.9 | 8.3 | 3.8 |
| 15 | 9.8 | 4.9 | 9.6 | 4.7 | 9.1 | 4.4 | 9.4 | 4.6 | 7.7 | 3.4 | 8.1 | 3.7 | 9.5 | 4.7 | 8.5 | 4.0 | 8.4 | 3.9 |
| 16 | 9.6 | 4.7 | 9.9 | 4.9 | 9.1 | 4.4 | 9.3 | 4.5 | 7.6 | 3.3 | 8.1 | 3.7 | 9.3 | 4.5 | 8.7 | 4.1 | 8.3 | 3.8 |
| 17 | 9.8 | 4.9 | 9.7 | 4.8 | 9.1 | 4.4 | 9.4 | 4.6 | 7.6 | 3.3 | 8.5 | 4.0 | 9.0 | 4.3 | 8.1 | 3.7 | 8.2 | 3.7 |
| 18 | 10.1 | 5.1 | 9.6 | 4.7 | 9.2 | 4.4 | 9.6 | 4.7 | 7.7 | 3.4 | 8.6 | 4.0 | 8.9 | 4.2 | 7.9 | 3.5 | 8.2 | 3.7 |
| 19 | 9.6 | 4.7 | 9.3 | 4.5 | 8.8 | 4.2 | 9.1 | 4.4 | 8.0 | 3.6 | 8.3 | 3.8 | 9.8 | 4.9 | 8.4 | 3.9 | 8.6 | 4.0 |
| 20 | 9.7 | 4.8 | 9.6 | 4.7 | 8.7 | 4.1 | 9.0 | 4.3 | 7.9 | 3.5 | 8.4 | 3.9 | 10.3 | 5.2 | 8.5 | 4.0 | 8.9 | 4.2 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

**TABLE 11d**
**SCENARIO 4 WORST-CASE CO CONCENTRATIONS (ppm)**
**(continued)**

| | #13 Alessandro Boulevard and Arlington Avenue | | #14 Alessandro Boulevard and Overlook Parkway | | #15 Alessandro Boulevard and Trautwein Road | | #16 Crystal View Terrace and Overlook Parkway | | #17 Kingdom Drive and Overlook Parkway | | #19 Trautwein Road and John F. Kennedy Drive | | #22 Mary Street and Victoria Avenue | | #24 Hawarden Drive and Overlook Parkway | | #28 Orozco Drive and Overlook Parkway | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receiver | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 1-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 8-hr CO | 8-hr CO | 1-hr CO | 8-hr CO | 1-hr CO | 8-hr CO |
| 1 | 9.9 | 4.9 | 8.6 | 4.0 | 7.7 | 3.4 | 9.0 | 4.3 | 9.0 | 4.3 | 7.8 | 3.5 | 7.7 | 3.4 | 8.9 | 4.2 | 8.9 | 4.2 |
| 2 | 9.8 | 4.9 | 8.5 | 4.0 | 8.5 | 4.0 | 8.9 | 4.2 | 8.8 | 4.2 | 8.2 | 3.7 | 7.7 | 3.4 | 8.8 | 4.2 | 8.8 | 4.2 |
| 3 | 9.9 | 4.9 | 8.8 | 4.2 | 9.5 | 4.7 | 8.8 | 4.2 | 8.7 | 4.1 | 8.7 | 4.1 | 7.7 | 3.4 | 8.8 | 4.2 | 8.7 | 4.1 |
| 4 | 9.1 | 4.4 | 8.9 | 4.2 | 9.1 | 4.4 | 8.7 | 4.1 | 8.8 | 4.2 | 8.2 | 3.7 | 7.6 | 3.3 | 8.8 | 4.2 | 8.8 | 4.2 |
| 5 | 9.8 | 4.9 | 8.6 | 4.0 | 8.7 | 4.1 | 8.8 | 4.2 | 8.8 | 4.2 | 8.4 | 3.9 | 7.6 | 3.3 | 8.8 | 4.2 | 8.8 | 4.2 |
| 6 | 10.4 | 5.3 | 9.0 | 4.3 | 8.9 | 4.2 | 9.0 | 4.3 | 9.0 | 4.3 | 8.6 | 4.0 | 7.7 | 3.4 | 9.0 | 4.3 | 8.9 | 4.2 |
| 7 | 9.8 | 4.9 | 8.4 | 3.9 | 7.7 | 3.4 | 8.9 | 4.2 | 9.1 | 4.4 | 7.7 | 3.4 | 7.6 | 3.3 | 8.9 | 4.2 | 9.1 | 4.4 |
| 8 | 9.8 | 4.9 | 8.7 | 4.1 | 8.5 | 4.0 | 8.8 | 4.2 | 9.0 | 4.3 | 8.1 | 3.7 | 7.6 | 3.3 | 8.8 | 4.2 | 8.8 | 4.2 |
| 9 | 10.5 | 5.4 | 9.2 | 4.4 | 9.4 | 4.6 | 8.8 | 4.2 | 8.9 | 4.2 | 8.5 | 4.0 | 7.7 | 3.4 | 8.8 | 4.2 | 8.7 | 4.1 |
| 10 | 10.3 | 5.2 | 9.1 | 4.4 | 9.3 | 4.5 | 8.8 | 4.2 | 9.0 | 4.3 | 8.4 | 3.9 | 7.6 | 3.3 | 8.7 | 4.1 | 8.8 | 4.2 |
| 11 | 10.3 | 5.2 | 8.7 | 4.1 | 9.2 | 4.4 | 8.9 | 4.2 | 9.0 | 4.3 | 8.4 | 3.9 | 7.7 | 3.4 | 8.8 | 4.2 | 8.8 | 4.2 |
| 12 | 10.7 | 5.5 | 8.9 | 4.2 | 9.9 | 4.9 | 9.1 | 4.4 | 9.1 | 4.4 | 8.6 | 4.0 | 8.0 | 3.6 | 8.9 | 4.2 | 8.9 | 4.2 |
| 13 | 10.0 | 5.0 | 11.2 | 5.8 | 10.9 | 5.6 | 7.2 | 3.0 | 7.2 | 3.0 | 9.9 | 4.9 | 7.6 | 3.3 | 7.5 | 3.3 | 7.4 | 3.2 |
| 14 | 10.3 | 5.2 | 11.4 | 6.0 | 10.6 | 5.4 | 7.3 | 3.1 | 7.3 | 3.1 | 9.6 | 4.7 | 7.6 | 3.3 | 7.5 | 3.3 | 7.3 | 3.1 |
| 15 | 11.0 | 5.7 | 11.7 | 6.2 | 10.3 | 5.2 | 7.6 | 3.3 | 7.7 | 3.4 | 9.7 | 4.8 | 7.5 | 3.3 | 7.7 | 3.4 | 7.7 | 3.4 |
| 16 | 10.5 | 5.4 | 11.1 | 5.8 | 10.8 | 5.6 | 7.7 | 3.4 | 7.7 | 3.4 | 9.6 | 4.7 | 7.6 | 3.3 | 7.6 | 3.3 | 7.7 | 3.4 |
| 17 | 10.7 | 5.5 | 11.4 | 6.0 | 10.3 | 5.2 | 7.3 | 3.1 | 7.4 | 3.2 | 9.3 | 4.5 | 7.5 | 3.3 | 7.4 | 3.2 | 7.3 | 3.1 |
| 18 | 11.3 | 5.9 | 12.3 | 6.6 | 10.1 | 5.1 | 7.4 | 3.2 | 7.4 | 3.2 | 9.4 | 4.6 | 7.4 | 3.2 | 7.3 | 3.1 | 7.2 | 3.0 |
| 19 | 10.4 | 5.3 | 10.9 | 5.6 | 9.9 | 4.9 | 7.7 | 3.4 | 7.7 | 3.4 | 9.8 | 4.9 | 7.5 | 3.3 | 7.7 | 3.4 | 7.7 | 3.4 |
| 20 | 10.2 | 5.1 | 11.1 | 5.8 | 10.5 | 5.4 | 7.7 | 3.4 | 7.7 | 3.4 | 10.1 | 5.1 | 7.7 | 3.4 | 7.7 | 3.4 | 7.6 | 3.3 |

NOTE: Assumes 7-ppm background hourly concentration and 2.9-ppm background 8-hour concentration.

## 6.2.3 Toxic Air Emissions and Odors

### 6.2.3.1 Diesel Particulate Matter

#### a. Construction

Construction equipment is diesel powered. As noted previously, diesel particulate matter has been identified as a toxic air contaminant. The health risks associated with diesel particulate matter are those related to long-term exposures (i.e., cancer and chronic effects) (California EPA Office of Environmental Health Hazard Assessment [OEHHA] 2003). Long-term health risk effects to residents are generally evaluated for an exposure period of 70 years (i.e., lifetime exposure) (OEHHA 2003). The nearest sensitive receptors are located as close as approximately 230 feet from the fill crossing, 350 feet from the bridge, and 70 feet from the Proposed C Street alignment. Because risk is based on a lifetime of exposure and because construction of any of the proposed scenarios would be short-term, impacts due to construction diesel particulate matter would be less than significant.

#### b. Operation

The health effects of exposure to diesel particulate matter generated by traffic on roadways have been raised as a potential concern. In April 2005, CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective*. The handbook makes recommendations directed at protecting sensitive land uses while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics, etc.). It notes that the handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Therefore, CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day should be avoided when possible.

The proposed Project does not propose any new sensitive land uses. Additionally, the proposed Project would not result in an increase in ADT to the roadway network in the County. The total existing traffic volume in Riverside County is 5,531,645 ADT, and the total projected buildout traffic volume in Riverside County is 11,222,346 ADT (ITERIS, Inc. 2012). The increase in ADT from existing to buildout is due to population growth in the region and is not due to the Project, since the Project would not generate trips. Therefore, the Project would not result in roadways of 100,000 vehicles per day or rural roads of 50,000 vehicles per day. Because the Project would not generate new trips or create new sensitive land uses, impacts would be less than significant.

### c. Off-site

Off-site measures consist of improvements such as signalization, restriping, and minor repaving for additional turn lanes at key intersections. Because of the limited equipment and construction duration (approximately one to two days for paving and restriping; one to two weeks for signalization), these improvements would not be expected expose sensitive receptors to substantial pollutant concentrations. No impact is identified.

## 6.2.3.2 Odors

### a. Scenario 1

Scenario 1 would not generate objectionable odors. No construction would be required under Scenario 1; therefore, there would be no odors associated with construction equipment exhaust.

### b. Scenario 2

Scenario 2 would not generate objectionable odors from removing the gate. No construction would be required under Scenario 2; therefore, there would be no odors associated with construction equipment exhaust.

### c. Scenario 3

Scenario 3 would not create a new odor source (e.g., landfill, waste treatment plant, industrial land use, etc.); therefore, operation of Scenario 3 would not generate objectionable odors. Potential odor emitters during construction activities include asphalt paving and the use of architectural coatings and solvents. Construction activity could generate airborne odors from exhaust emissions. However, odors generated from vehicles and/or equipment exhaust during construction would be temporary, localized at the construction site, and would not create a significant level of objectionable odors. The nearest sensitive receptors are located as close as approximately 230 feet from the fill crossing and 350 feet from the bridge. Impacts from construction would be less than significant. Additionally, SCAQMD Rules 1108 and 1113 limit the amount of volatile organic compounds from cutback asphalt and architectural coatings and solvents, respectively (SCAQMD 1985 and 2011b). Rule 1108 restricts the sale or use of any cutback asphalt containing more than 0.5 percent by volume of organic compounds in the SCAQMD. Rule 1113 requires any person who supplies, sells, offers for sale, or manufactures any architectural coating for use in the SCAQMD must comply with the current VOC standards. These standards are specific to each type of coating and are contained in the final rule. Additionally, as with Scenario 2, given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. As such, potential impacts during short-term construction would be less than significant.

### d. Scenario 4

Operation of Scenario 4 would not generate objectionable odors. Potential odor emitters during construction activities include asphalt paving and the use of architectural coatings and solvents. Construction activity could generate airborne odors from exhaust emissions. However, odors generated from vehicles and/or equipment exhaust during construction would be temporary, localized at the construction site, and would not create a significant level of objectionable odors. The nearest sensitive receptors are located as close as approximately 230 feet from the fill crossing, 350 feet from the bridge, and 70 feet from the Proposed C Street alignment. Impacts from construction would be less than significant. Additionally, as with Scenarios 2 and 3, given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. As such, potential impacts during short-term construction would be less than significant.

### e. Off-site

Roadway restriping and minor paving would be required at the intersection of Alessandro Boulevard and Trautwein Road. Construction activity could generate airborne odors from exhaust emissions. However, odors generated from vehicles and/or equipment exhaust during construction would be temporary, localized, and occur at levels that would not affect people. Therefore, impacts from construction would be less than significant. Additionally, SCAQMD Rules 1108 and 1113 limit the amount of volatile organic compounds from cutback asphalt and architectural coatings and solvents, respectively (SCAQMD 1985 and 2011). Rule 1108 restricts the sale or use of any cutback asphalt containing more than 0.5 percent by volume of organic compounds in the SCAQMD. Rule 1113 requires any person who supplies, sells, offers for sale, or manufactures any architectural coating for use in the SCAQMD must comply with the current VOC standards. These standards are specific to each type of coating and are contained in the final rule.

Given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. As such, potential impacts during short-term asphalt paving would be less than significant.

# 6.3 Conformance with Regional Plans and City of Riverside Criteria

## 6.3.1 California Air Resources Board

1. Is a regional air quality plan being implemented in the project area?

The project site is in the City of Riverside, which is within the SCAB. As discussed above, the SCAQMD was required to submit a SIP. The latest plan, the Final 2007 AQMP, was adopted by the SCAQMD Governing Board on June 1, 2007. The final plan includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The project does not propose new development or increase ADT to the roadway network. The status of the gates and construction of roadways identified in the Circulation & Community Mobility Element of the General Plan 2025 would not conflict with the AQMP. Therefore, the proposed project fulfills the first criteria from the CARB guidelines described in Chapter 5.0, Thresholds of Significance.

2. Is the project consistent with the growth assumptions in the regional air quality plan?

As described above, the California Clean Air Act requires areas that are designated non-attainment of state ambient air quality standards to prepare and implement plans to attain the standards by the earliest practicable date. The 2007 AQMP includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. Despite improvements in southern California's air quality, the region is a federal non-attainment area for $PM_{10}$, $PM_{2.5}$, and 8-hour surface-level $O_3$. The AQMP proposes attainment demonstration of the federal $PM_{10}$, $PM_{2.5}$, and $O_3$ standards.

Normally, if a project is consistent with land use designated in the City's General Plan, it can be considered consistent with the growth assumptions in the AQMP (State of California 1989). The basis for this plan is the distribution of population in the region as projected by SCAG. Growth forecasting is based in part on the land uses which are established by the General Plan 2025 (SCAG 2012 [Growth Forecast Appendix page 29]).

The circulation network set forth in the 1994 General Plan and the current General Plan 2025 has not yet been completed. Key features of the 1994 General Plan not constructed when preparation of the General Plan 2025 update began included the linkage of Overlook Parkway (connecting the Alessandro Heights and Canyon Crest neighborhoods); therefore, this segment was addressed in the General Plan 2025. The Circulation and Community Mobility Element of the General Plan 2025 included a Master

Plan of Roadways. A feature of the Master Plan of Roadways included the provision of a roadway extension west of Washington Street.

Four scenarios related to traffic control and circulation patterns associated with Overlook Parkway are evaluated. Although these scenarios are intended to resolve the General Plan 2025 goals and policies relative to Overlook Parkway, none of the four scenarios would alter land use designations or result in an increase in growth in the region beyond what has already been projected, planned for, and approved by SCAG and the City. The following is a more detailed discussion for each scenario and its consistency with the General Plan 2025 and growth projections therein.

## Scenario 1

Under Scenario 1, both Crystal View Terrace and Green Orchard Place gates would remain in place and be closed until Overlook Parkway is connected over the Alessandro Arroyo eastward to Alessandro Boulevard. Scenario 1 addresses traffic control devices and would not alter land use designations or affect SCAG growth assumptions. Therefore, Scenario 1 would not interfere with the 2007 AQMP, and no impact would result.

## Scenario 2

Under Scenario 2, the gates at both Crystal View Terrace and Green Orchard Place would be permanently removed, and there would be no connection of Overlook Parkway across the Alessandro Arroyo. The City would be required to approve an amendment to a policy in the General Plan 2025 regarding the use of barrier gates until such time that Overlook Parkway is connected. Like Scenario 1, Scenario 2 would not alter land use designations or affect SCAG growth assumptions. Therefore, Scenario 2 would not interfere with the 2007 AQMP, and no impact would result.

## Scenario 3

Under Scenario 3, the gates at Crystal View Terrace and Green Orchard Place would be removed and Overlook Parkway would be connected between Via Vista Drive and approximately 500 feet west of Sandtrack Road and over the Alessandro Arroyo. Scenario 3 would be consistent with the General Plan 2025 circulation network. Also, the scenario would not alter land use designations or affect SCAG growth assumptions. Therefore, Scenario 3 would not interfere with the 2007 AQMP, and no impact would result.

### Scenario 4

Under Scenario 4, both Crystal View Terrace and Green Orchard Place gates would be removed and Overlook Parkway would be connected over the Alessandro Arroyo and east to Alessandro Boulevard, consistent with the General Plan 2025 circulation network. In addition, the Proposed C Street would be constructed west of Washington Street. The scenario would not alter land use designations or affect SCAG growth assumptions. Therefore, Scenario 4 would not interfere with the 2007 AQMP, and no impact would result.

### Off-site

The TIA prepared for the proposed project identifies measures to mitigate potentially significant traffic impacts within the project vicinity. Measures consist of improvements such as signalization, restriping, and minor repaving for additional turn lanes at key intersections. These improvements would not conflict with or obstruct implementation of the applicable air quality plan. No impacts are identified.

3. Does the project incorporate all feasible and available air quality control measures?

Construction under each of the scenarios evaluated for the proposed project would be required to use best management practices to decrease emissions from vehicles and equipment. The level of impacts would be less than significant.

## 6.3.2 City of Riverside

1. Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

As discussed above, none of the proposed scenarios would alter land uses established in the General Plan 2025 or result in regional growth. The proposed project would be consistent with the growth assumptions accounted for in the AQMP. Impacts would be less than significant.

2. Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Under all four scenarios, the proposed project would not entail any new stationary sources that would violate air quality standards.

The SCAB does not comply with the criteria pollutant standards for ozone, $PM_{10}$, and $PM_{2.5}$. Therefore, emissions from increased traffic on area roadways and project construction may lead to air quality violations. Emissions due to construction and

operation of the proposed project are discussed below. As detailed below, impacts would be less than significant.

3. Would the proposed project 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 release emissions which exceed quantitative thresholds for ozone precursors)?

As demonstrated in Section 6.1, Construction-related Air Quality Effects, above, construction emissions under all four scenarios are projected to be less than the applicable SCAQMD significance thresholds for all pollutants. Impacts would be less than significant.

As demonstrated in Section 6.2.1, Mobile Emissions, above, all scenarios would result in either a decrease in emissions or a less than significant increase in emissions when compared to both the Gates Closed baseline and the Gates Open baseline. Mobile emissions due to the proposed project would be less than significant.

4. Would the proposed project expose sensitive receptors to substantial pollutant concentration?

As discussed previously, construction and operation of the proposed Project would not result in the exposure of sensitive receptors to diesel particulate matter. Impacts would be less than significant.

As shown in Tables 11a through 11d above, one-hour CO concentrations are projected to be below the 20 ppm state standard and the 35 ppm national standard, and eight-hour CO concentrations are projected to be below the state's 9 ppm standard. Thus, CO hot spot impacts under buildout of the project would be less than significant.

5. Would the proposed project create objectionable odors affecting a substantial number of people?

No objectionable odors would be generated during operation of all four scenarios. Construction activity could generate airborne odors from exhaust emissions. However, odors generated from vehicles and/or equipment exhaust during construction would be temporary, localized at the construction site, and would not create a significant level of objectionable odors. Therefore, impacts from construction would be less than significant. Additionally, given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. As such, potential impacts during short-term construction would be less than significant.

# 7.0 Conclusions and Recommendations

As demonstrated above, construction emissions under all four scenarios are projected to be less than the applicable SCAQMD significance thresholds for all pollutants. Construction impacts would be less than significant.

The total vehicle miles traveled in Riverside County were calculated for each scenario. As detailed above, all scenarios would result in either a decrease in emissions or a less than significant increase in emissions when compared to both the Gates Closed baseline and the Gates Open baseline. Mobile emissions due to the proposed project would be less than significant.

CO concentrations were modeled at all intersections projected to operated LOS E or F. One-hour CO concentrations were calculated to be below the 20 ppm state standard and the 35 ppm national standard, and eight-hour CO concentrations were calculated to be below the state's 9 ppm standard. Thus, CO hot spot impacts under buildout of the project would be less than significant.

No objectionable odors would be generated during operation of all four scenarios. Given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. As such, potential impacts during short-term construction would be less than significant.

Additionally, none of the proposed scenarios would alter land uses established in the General Plan 2025 or result in regional growth. The proposed project would not affect the growth assumptions in the AQMP. Impacts would be less than significant.

# 8.0 References Cited

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# ATTACHMENTS

# (included in attached CD)