

CHAPTER 7 AIR QUALITY

7.1 INTRODUCTION

The proposed Fiddymment Ranch Specific Plan Amendment 3 project would amend the existing West Roseville Specific Plan (WRSP) by changing the land use and zoning designations for some parcels and by changing development densities within the project area. The project would result in the development of 1,905 additional residential units and 7.27 additional acres of commercial land uses compared with the development evaluated in the WRSP EIR. Other changes proposed to the land uses within the Fiddymment Ranch project area include minor adjustments in acreage for parks, open space, public/quasi-public, and roadway rights-of-way. While the air quality impacts of the overall WRSP were evaluated in the WRSP EIR, the additional development proposed as part of the Fiddymment Ranch Specific Plan Amendment 3 project would generate additional air quality impacts. This Draft Subsequent EIR chapter evaluates the air quality impacts from all development within the Fiddymment Ranch parcels that would be affected by the proposed Specific Plan amendment- a total of 4,716 residential units and 7.27 acres of community commercial land uses.

This chapter includes a description of existing air quality conditions, a summary of applicable regulations, and analyses of potential air quality impacts from construction and operation of the proposed project. Referenced materials include:

- ❖ *Air Quality Analysis*, Shaw Environmental, 2011
- ❖ *City of Roseville General Plan*, 2010 as amended
- ❖ *Sacramento Area Regional Ozone Attainment Plan*
- ❖ *West Roseville Specific Plan*, 2004, as amended 2010
- ❖ *West Roseville Specific Plan FEIR*, 2004

The Air Quality Impact Analysis for the proposed project is provided in Appendix D. The other documents listed above are available for review during normal business hours at:

City of Roseville Permit Center

311 Vernon Center
Roseville, California

The Notice of Preparation (NOP) for this EIR, the Initial Study, and comments received in response to the NOP are provided in Appendix A. One comment on the NOP requested that the EIR include analysis of the air quality impacts associated with the higher trip generation of the proposed project compared to the WRSP. One comment raised at the Public Scoping Meeting requested clarification on how air quality would be addressed in the EIR - noting that the NOP stated that the topics of odors and toxic air contaminants would not be addressed in the EIR.

7.2 ENVIRONMENTAL SETTING

Ambient air quality is generally affected by climatological conditions, the topography of the air basin, the type and amounts of pollutants emitted, and, for some pollutants, sunlight. The

Fiddymment Ranch project is proposed in a region that is subject to a combination of topographical and climatic factors that create the potential for high concentrations of regional and local air pollutants. This section describes relevant characteristics of the air basin, types of air pollutants, health effects, and existing air quality levels.

Climate and Topography

The project site is located within the Sacramento Valley Air Basin, within western Placer County. Weather patterns throughout the basin, including in the City of Roseville, are affected by geography. The Sacramento Valley Air Basin, which extends from south of Sacramento to north of Redding, is bounded by the Sierra Nevada on the east, the Coast Range on the west, and the Cascade Range on the north. The only westerly breach in this barrier is the Carquinez Strait, which exposes the midsection of the Valley to the Pacific Coast marine weather regime. Mountain ranges tend to buffer the basin from the marine weather systems that originate over the Pacific and are then drawn inland by the jet stream.

In particular, western Placer County is noticeably affected by this topographic-marine influence, which moderates climatic extremes and transports air pollutants into the area from distant sources, such as the San Francisco Bay Area as well as from the Sacramento metropolitan region. Temperature moderation is especially evident on summer evenings when cooling occurs as a result of the penetration of sea breezes.

Weather in Roseville is characterized by summers that are typically hot and dry, and winters that are mild and wet. The nearest meteorological monitoring station to the project site is the Rocklin station, located east of Roseville. Summer temperatures at this station range from an average low of 55.4 degrees Fahrenheit (°F) to an average high of 96°F. This high average summer temperature, combined with very low relative humidity, produces hot, dry summers that contribute to ozone buildup. The winter season is characterized by overcast days and lengthy periods of rain and drizzle. Winter temperatures measured at this station range from an average low of 33.3°F to an average high of 59.1°F, with occasional overnight freezing temperatures. During winter months, carbon monoxide accumulation is of concern. Annual precipitation averages 21.35 inches with less than 0.37 inches of rain between May and September and approximately 1.56 inches to 3.84 inches from October to December and January to April. Prevailing winds are from the southwest, with a secondary concentration from the northwest.

Surface or elevated temperature inversions are common in late summer and fall. Surface inversions are formed when the air close to the surface cools more rapidly than the warm layer of air above it. Elevated inversions occur when a layer of cool air is suspended between warm air layers above and below it. Both situations result in air stagnation. Air pollutants accumulate under and within inversions, subjecting people in the region to elevated pollution levels and associated health concerns.

Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) has developed National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants. At the state level, the California Air Resources Board (CARB) has developed California Ambient Air Quality Standards (CAAQS). The specific AAQS are identified and discussed further in Section 7.3 Regulatory Framework.

Areas that experience pollutant concentrations that exceed the NAAQS and/or CAAQS are classified as non-attainment areas. A summary of the attainment status for Placer County is provided in *Table 7.1*.

Table 7.1
Placer County Attainment Status

Criteria Pollutant	2010 State Designation ^{1,2}	Federal Designation ²
CO	Attainment	Unclassified / Attainment
NO ₂	Attainment	Unclassified / Attainment
SO ₂	Attainment	Unclassified / Attainment
PM ₁₀	Nonattainment	Attainment
PM _{2.5}	Attainment	Nonattainment / Attainment
O ₃ (1-hour)	Nonattainment	-
O ₃ (8-hour)	Nonattainment	Nonattainment
Lead	Attainment	-
Sulfates	Attainment	-
H ₂ S	Unclassified	-
Visibility Reducing PM	Unclassified	-

Notes:

- (1) Source: Placer County Air Pollution Control District Personal Communication, 3/14/2011
- (2) Source: California Air Resources Board website, accessed 3/3/2011

As shown in *Table 7.1* above, the Sacramento Valley Air Basin is non-attainment of the federal and state ozone standards and the Placer County portion of the Sacramento Valley Air Basin is in non-attainment of federal PM₁₀ standards. If attainment is not demonstrated by 2013, substantial financial penalties and/or stricter air quality standards could be imposed on all jurisdictions within the Sacramento Valley Air Basin, including Placer County.

Placer County has been designated as a non-attainment area for state standards for ozone and PM₁₀, and is unclassified for PM_{2.5} and CO (meaning there is not enough data to classify the region attainment or non-attainment for these pollutants). Placer County has been designated as an attainment area for all other criteria air pollutants.

Until 1998, the Sacramento Valley Air Basin was classified as “non-attainment” with respect to the federal CO standards. Currently, the Sacramento Valley Air Basin is considered a federal planning area for CO standards. A federal planning area is a basin that was in non-attainment and needs to demonstrate compliance with the federal standards for two consecutive years and to develop a maintenance plan demonstrating that emission levels will remain in compliance for at least ten years to achieve attainment again.

Lead, sulfates, and hydrogen sulfide (H₂S) are of lesser concern in this project area, because levels are well below standards and no major sources of these pollutants exist in the project area.

Air Pollutants

Ambient air quality is affected by pollutants emitted from stationary and mobile sources. Stationary sources are further divided into point sources and area sources. Point sources consist

of one or more emission sources at a facility with an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed and consist of many small emission sources. Area source examples include lawnmowers and other landscape maintenance equipment, natural gas fired water and space heaters, and consumer products such as paints, hairspray, deodorant, and similar products with evaporative emissions. Mobile sources refer to emissions from motor vehicles, including tailpipe, evaporative, and fugitive emissions. Air pollutants emitted by stationary and mobile sources are regulated by federal and state law. Certain of these regulated pollutants are known as “criteria air pollutants,” and are emitted as primary and secondary pollutants. The criteria pollutants are particulate matter (PM), ground-level ozone, carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and lead (Pb). As the project area is in attainment for SO₂ and lead, and has consistently been in attainment for these pollutants for a long time, and the proposed project is not expected to generate substantial amount of these pollutants, SO₂ and lead are not evaluated further in this Draft Subsequent EIR.

Primary criteria air pollutants are those that are emitted directly from sources. CO, NO_x, SO₂, and most forms of particulate matter (PM₁₀ and PM_{2.5}) are primary air pollutants. Secondary criteria air pollutants are those formed by chemical and photochemical reactions in the atmosphere. Ozone and nitrogen dioxide are the principal secondary pollutants.

Data regarding local concentrations of air pollutants is collected at two locations near the City of Roseville. These are the Roseville monitoring station at 151 North Sunrise Avenue and the North Highlands station in Sacramento County. *Table 7.2* summarizes the measured criteria pollutant concentrations at these stations in 2007, 2008, and 2009. Based on pollutant concentrations measured at these stations, the western portion of Placer County is in compliance with state and federal air quality standards for all pollutants except the state and federal 1-hour and 8-hour ozone standard, and the state 24-hour and annual PM₁₀ standard.

Table 7.2
Number of Days Federal Air Quality Standards Were Exceeded 2007 to 2009

Pollutant	Avg. Time	2007		2008		2009	
		Rsvl	N. Highlands	Rsvl	N. Highlands	Rsvl	N. Highlands
Ozone	1-hr	1	1	0	0	0	0
	8-hr	5	4	1	1	9	2
PM ₁₀	24-hr	0	0	0	0	0	0
	Annual	0	0	0	0	0	0
PM _{2.5}	24-hr	0	--	0	--	0	--
	Annual	0	--	0	--	0	--
NO _x	1-hr	--	--	--	--	--	--
	Annual	0	0	0	0	0	0
CO	1-hr	0	0	0	0	0	0
	8-hr	0	0	0	0	0	0

-- = not available.

Source: California Air Resources Board (website accessed 10/15/09)

Particulate Matter

Particulate matter is generally composed of particles in the air such as dust, soot, aerosols, fumes, and mists. Of particular concern are inhalable particulates that have aerodynamic diameters of 10 micrometers (μm) or less (PM10). A subgroup of these particulates is fine particulates (particles with aerodynamic diameters less than 2.5 μm (PM2.5), which have very different characteristics, sources, and potential health effects than coarse particulates (particles with aerodynamic diameter between 2.5 to 10 μm). Coarse particulates are generated by sources such as windblown dust, agricultural fields, and dust from vehicular traffic on unpaved roads. PM2.5 is generally emitted from activities such as industrial combustion, vehicle exhaust, and residential wood-burning stoves and fireplaces. PM2.5 is also formed in the atmosphere when gases such as SO₂, NO_x, and volatile organic compounds emitted by combustion activities are transformed by chemical reactions in the air. PM10 affects breathing and the respiratory system, and, in particular, can damage lung tissue and contribute to cancer and premature death. Separate standards for PM2.5 were established in 1997 because these smaller particles can penetrate deep into the respiratory tract and cause their own unique adverse health effects.

Measured concentrations at local monitoring stations have not exceeded federal PM10 standards over the past three years. However, exceedances of the state PM10 standards have occurred over recent years. These measured concentrations have contributed to the region being classified as non-attainment for the state PM10 standard.

Carbon Monoxide

CO is an odorless, colorless gas that can impair the transport of oxygen in the bloodstream, aggravate cardiovascular disease and cause fatigue, headache, confusion, and dizziness. CO forms through incomplete combustion of fuels in vehicles, wood stoves, industrial operations, and fireplaces. In Placer County, vehicular exhaust is a major source of CO. CO tends to dissipate rapidly into the atmosphere and consequently is generally a concern at the local level, particularly at major road intersections.

CO concentrations at the monitoring stations have been below federal and state 1-hour and 8-hour average standards. The Placer County Air Pollution Control District (APCD) indicated that the Sacramento Valley Air Basin portion of their district was currently designated as attainment in relation to the state CO standards. All of Placer County is currently in attainment of the federal CO standards. However, until 1998 the Sacramento Valley Air Basin was classified as non-attainment for federal CO standards, and as a result the Sacramento Valley Air Basin is considered a federal planning area with respect to CO. A federal planning area is a region that was formerly classified as non-attainment and needs to demonstrate compliance for specific periods to be formally be reclassified and achieve attainment again.

Ozone

Ozone is a colorless gas that has a pungent odor and causes eye and lung irritation, visibility reduction, and crop damage. A primary constituent of smog, ozone is formed in the atmosphere in the presence of sunlight by a series of chemical reactions by ozone precursors, involving NO_x and ROG_s. Industrial fuel combustion and motor vehicles are primary sources of NO_x and ROG. The production of ozone is dependent upon photochemical reaction rates, in

which air temperature and the availability as well as the intensity of ultraviolet light are the main factors. As a result, ozone is primarily associated with summer seasonal conditions. Additionally, because these reactions occur on a regional scale, ozone is considered a regional air pollutant. The Sacramento Valley Air Basin portion of the Placer County APCD is currently designated as nonattainment for both state and federal ozone standards.

Nitrogen Dioxide

NO₂ is a brownish, highly reactive gas that can irritate the lungs, cause pneumonia, and lower the resistance to respiratory infections. NO_x, which includes NO₂, is a key precursor to ozone and acid rain. NO_x forms when fuel is burned at high temperatures, and principally comes from transportation sources and stationary fuel combustion sources such as electric utility and industrial boilers.

Table 7.2 shows that measured concentrations of NO₂ have consistently remained well below both the federal standards from 2007 to 2009. On February 9, 2010 the U.S. EPA adopted a new 1-hour NO₂ standard (Federal Register Vol. 75, No. 26 - 40 CFR Parts 50 and 58) of 100 parts per billion (ppb). With similar trends throughout the region (and state), the data indicates the area will remain below federal and state NO₂ standards, and the Sacramento Valley Air Basin portion of the Placer County APCD is currently designated as attainment for both state and federal NO₂ standards.

Existing Emissions Sources

Sources of emissions associated with human activity are generally divided into three types: stationary, area-wide, and mobile sources. The contributions of these source categories vary from region to region. CARB maintains an emissions inventory to determine the sources and quantities of air pollution generated within the state's counties and air basins.

Table 7.3 presents a summary of the estimated 2008 annual average pollutant emission data based on general source categories located in the Sacramento Valley Air Basin portion of Placer County. Emissions from mobile sources constitute the majority of ROG, CO, NO_x, and SO_x emissions in the area. Area-wide emissions contribute more than 75 percent of the PM₁₀ emissions in the county.

Table 7.3
Summary of 2008 Estimated Annual Average Emissions in Placer County (tons/day)

Source	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Stationary Sources					
Fuel Combustion	0.4	2.0	3.0	0.3	0.3
Waste Disposal	0.1	--	--	--	--
Cleaning And Surface Coatings	1.4	--	--	0	0
Petroleum Marketing	0.6	--	--	--	--
Industrial Processes	1.7	0.3	0.1	1.5	0.8
Total Stationary Sources	4.1	2.3	3.2	1.9	1.1
Area Sources					
Solvent Evaporation	2.8	--	--	--	--
Miscellaneous Processes	1.9	32.7	0.8	13.6	4.9

Source	ROG	CO	NO _x	PM ₁₀	PM _{2.5}
Total Area Sources	4.7	32.7	0.8	13.6	4.9
Mobile Sources					
Other Mobile Sources	4.9	34.2	6.7	0.5	0.4
On-Road Motor Vehicles	4.3	41.4	8.9	0.5	0.3
Total Mobile Sources	9.2	75.7	15.5	0.9	0.7
Total All Sources	18.1	110.7	19.5	16.4	6.7

Source: CARB website (site accessed 9/27/10)

Sensitive Receptors

Some types of receptors or land-uses are considered more sensitive to air pollutants than others. The reasons for greater than average sensitivity are generally related to health issues or proximity to a source. Sensitive receptors are usually defined as locations where human populations are found; where these populations include either a concentration or higher than average ratio of children, seniors or sick persons; and where there is a reasonable expectation of continuous human exposure. Commonly identified sensitive receptors are residences, schools, playgrounds, child care centers, retirement homes or convalescent homes, hospitals, and clinics.

7.3 REGULATORY SETTING

Federal Regulations

Clean Air Act

As required by the Federal Clean Air Act, the U.S. EPA established Ambient Air Quality Standards (AAQS) for the six criteria air pollutants. These standards represent the levels of air quality necessary to protect the public health and welfare with an adequate margin of safety. The Federal Clean Air Act requires states to classify air basins (or portions thereof) as either attainment or non-attainment with respect to whether the AAQS for each pollutant have been achieved. For areas designated as non-attainment, the Federal Clean Air Act requires states to prepare air quality plans containing emission reduction strategies. The federal AAQS are listed in *Table 7.4* along with the air quality standards set by California (discussed in the State Regulations section below).

The U.S. EPA requires states to prepare State Implementation Plans (SIPs), which must demonstrate that attainment of the federal AAQS will be achieved, and that air quality will be maintained. The SIP is periodically updated to reflect the latest emissions inventories, planning documents, and air district rules and regulations. Failure to submit an acceptable SIP or to implement the SIP within the mandated time frame may result in restrictions in transportation funding and sanctions on stationary air pollution sources in the air basin. The SIP is not a single document, but a compilation of new and previously submitted plans, programs, district rules, state regulations, and federal controls. In California, CARB is responsible for developing the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards the SIP revisions to EPA for approval and publication in the *Federal Register*.

The Sacramento Metro Area, which includes Sacramento and Yolo counties and parts of Placer (including the City of Roseville), El Dorado, Sutter, and Solano counties, is in severe non-attainment for federal ozone standards. The region was initially designated as "serious" non-

attainment in 2004 based on the 8-hour ozone standard. The region was given a target attainment date of 2013. However, because the region must rely on longer-term emissions reduction strategies from state and federal programs, the 2013 date cannot be met. In 2008, CARB submitted a letter to U.S. EPA requesting a voluntary reclassification of the area from “serious” to “severe” non-attainment and an extension of the target attainment date to 2019. In 2009, the air districts in the Sacramento Metro Area adopted the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan to help meet this deadline.

**Table 7.4
Ambient Air Quality Standards**

Pollutant (measurement)	Averaging Time	Standard	
		State ¹	Federal ²
Carbon monoxide (ppm) ³	8 hours	9	9
	1 hour	20	35
Nitrogen dioxide (ppm)	Annual mean	0.03	0.053
	1 hour	0.18	-- ⁴
Ozone (ppm)	1 hour	0.09	--
	8 hours	0.07	0.075
Lead (µg/m3) ⁵	Quarterly	--	1.5
	30 days	1.5	--
Particulate matter less than 10 microns in diameter (µg/m3)	Annual mean	20	--
	24 hours	50	150
Particulate matter less than 2.5 microns in diameter (µg/m3)	Annual mean	12	15
	24 hours	--	35
Sulfur dioxide (ppm)	Annual mean	--	0.03
	24 hour	0.04	0.14
	3 hour	--	0.50 ⁶
	1 hour	0.25	--

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour), nitrogen dioxide, suspended particulate matter (PM10), and visibility reducing particles are values that are not to be exceeded. The sulfur dioxide (24-hour), sulfates, Lake Tahoe carbon monoxide, lead hydrogen sulfide and vinyl chloride standards are not to be equaled or exceeded.
2. National standards, other than ozone and those based on annual averages or arithmetic means are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
3. ppm parts per million
4. -- no standard
5. µg/m3 micrograms per cubic meter
6. This is a secondary standard.

Source: California Air Resources Board

Hazardous Air Pollutant Program

Under Title III of the Clean Air Act, U.S. EPA is required to promulgate national emissions standards for Hazardous Air Pollutants (HAP). These are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. There are two categories of emissions standards - the first is technology-based standards which require implementation of Maximum Available Control Technologies to achieve the maximum feasible emission reductions. The second category is health-based standards which supplement the technology-based standards to avoid unacceptable health risks.

State Regulations

California Clean Air Act

The State of California has established its own ambient standards for the criteria pollutants, which are presented with the federal AAQS in *Table 7.4*. The state AAQS are equal to or more stringent than their federal counterparts. State AAQS have also been established for certain pollutants not covered by the federal AAQS, such as hydrogen sulfide and vinyl chloride. As shown in *Table 7.1*, Placer County has been designated as a non-attainment area for state AAQS for ozone and PM10, and is unclassified for CO and PM2.5 (meaning there is not enough data to classify the region attainment or non-attainment for these pollutants). Placer County has been designated as an attainment area for all other criteria air pollutants.

The California Clean Air Act requires that each area exceeding the state AAQS for ozone, CO, SO₂, and NO₂ must develop a plan aimed at achieving those standards (California Health and Safety Code 40911). California Health and Safety Code Section 40914 requires air districts to design a plan that achieves an annual reduction in district-wide emissions of five percent or more, averaged every consecutive three-year period. To satisfy this requirement, the Placer County APCD has developed an Air Quality Attainment Plan (AQAP) outlining strategies for achieving the state ambient air quality standard for ozone. The AQAP outlines both stationary and mobile emission source control measures and emphasizes Transportation Control Measures and Indirect Source Control Measures to reduce mobile source emissions. These measures are also incorporated into the SIP to satisfy federal requirements.

California Air Resources Board

The state legislature created CARB as a state regulatory agency directed towards ensuring high air quality across the state. To achieve this goal, CARB uses a variety of regulatory tools including motor vehicle and fuel standards, emission standards, air quality standards, control measures for toxic materials, and oversight of local air quality districts. CARB also conducts research and air quality monitoring, and assists individual businesses with meeting clean air standards.

Local Regulations

Local air quality management agencies were established by the 1976 Lewis Air Quality Management Act. Significant authority for air quality control has been given to local APCDs or Air Quality Management Districts (AQMDs), which regulate stationary source emissions and develop local attainment plans. Placer County APCD has the authority to manage transportation activities at indirect sources and regulate stationary source emissions. Indirect

sources of pollution are generated when minor sources collectively emit a substantial amount of pollution (e.g., the motor vehicle traffic and household product usage at a residential subdivision, motor vehicle traffic at a shopping mall, and motor vehicle traffic on highways).

At the local level, the Placer County APCD regulates air quality by establishing local air quality rules and regulations, permitting stationary sources, and planning activities related to air quality. The Placer County APCD is also responsible for enforcing and implementing federal and state standards. Through its enhanced California Environmental Quality Act (CEQA) review process and its New Source Review Rule, Placer County APCD has developed significance thresholds for land use projects that generate air pollutants. These thresholds apply to both short- and long-term air pollutant emissions. Projects with the potential to generate emissions exceeding the thresholds would have a significant impact on air quality. If the project’s impact exceeds any of the significance criteria, various mitigation measures are available depending on the nature of the air quality impact. *Table 7.5* presents the significance thresholds for criteria pollutants.

**Table 7.5
Placer County APCD Significance Thresholds**

Pollutant	Operational or Construction Threshold (lb/day)	Cumulative Threshold (lb/day)
ROG	82	10
NOx	82	10
Sulfur Oxides	82	n/a
PM10	82	n/a
CO	550	n/a

There are several Placer County APCD Rules that regulate air pollutant emissions associated with construction activities. These include restrictions on visible emissions and nuisance emissions, minimum specifications for paving and architectural coating materials, and measures to control fugitive dust emissions. In addition, Rule 225 establishes requirements related to wood burning devices. These requirements include emission standards, and requirements to provide educational information regarding the appropriate use of such devices and health effects from wood smoke. Section 302.2.4 limits installation of woodburning devices in multi-family developments to public areas, thus no woodburning devices may be installed in individual residential units within a multi-family development.

City of Roseville General Plan

The City of Roseville General Plan Air Quality Element provides city-wide goals and policies aimed at improving air quality. Goals and policies in the Air Quality Element parallel those identified in state and federal plans. The goals and policies applicable to the analysis of the proposed project’s air quality impacts are:

- Goal 3:** Encourage the coordination and integration of all forms of public transport while reducing motor vehicle emissions through a decrease in the average daily trips and

vehicle miles traveled and by increasing the commute vehicle occupancy rate by 50% to 1.5 or more persons per vehicle.

Goal 4: Increase the capacity of the transportation system, including the roadway system and alternate modes of transportation.

Goal 5: Provide adequate pedestrian and bikeway facilities for present and future transportation needs.

Goal 7: While recognizing that the automobile is the primary form of transportation, the City of Roseville should make a commitment to shift from the automobile to other modes of transportation.

Policy 4: As part of the development review process, develop mitigation measures to minimize stationary and area source emissions.

Policy 5: Develop transportation systems that minimize vehicle delay and air pollution.

Policy 7: Encourage alternative modes of transportation including pedestrian, bicycle, and transit.

Policy 10: Conserve energy and reduce air emissions by encouraging energy efficient building designs and transportation systems.

7.4 IMPACTS

Significance Criteria

As evaluated in the Initial Study circulated with the NOP for this project (and provided in Appendix A), the project would have a less than significant impact with respect to the following significance criteria:

- ❖ Expose sensitive receptors to substantial pollutant concentrations
- ❖ Create objectionable odors affecting a substantial number of people

The analysis below evaluates potentially significant project impacts related to air quality based on the following significance criteria, consistent with Appendix G of the CEQA Guidelines. The project would result in a significant impact if it would:

- ❖ Conflict with or obstruct implementation of the applicable air quality plan, or
- ❖ Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Project Impacts

IMPACT 7.1:

Generate Construction Related Emissions That Conflict with the Air Quality Plan or Violate Air Quality Standards

APPLICABLE POLICIES AND REGULATIONS:	City of Roseville General Plan West Roseville Specific Plan City of Roseville Zoning Ordinance
SIGNIFICANCE WITH POLICIES AND REGULATIONS:	Significant
MITIGATION MEASURES:	Mitigation Measures 7.1a through 7.1d
SIGNIFICANCE AFTER MITIGATION:	Significant and Unavoidable

Construction activities produce combustion emissions from various sources such as grubbing, site grading, operating utility engines, onsite heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust and fugitive dust emissions from construction activities onsite would vary daily as construction activity levels change. The use of construction equipment onsite would potentially result in localized air quality impacts and construction activities would contribute to regional air pollutant concentrations.

The CalEEMod model was used to quantify emissions estimates produced through construction and buildout of the proposed Fiddymment Ranch Specific Plan Amendment 3 project over a ten-year period, from 2011 to 2020. The actual buildout schedule will be dependent on market forces and could take longer than 10 years. However, the 10-year construction schedule was used in modeling to provide a conservative estimate of annual construction emissions.

For this analysis, an average annual total amount of emissions was calculated for each criteria pollutant, and utilized as representative of a constant rate of construction over the assumed ten-year construction period. The amount of air pollutants emitted from project construction is also estimated on a pounds per day basis to enable comparison with the Placer County APCD significance thresholds.

The annual averaging approach accounts for typical deviations in the level of construction, balancing periods where minimal or no construction would occur with periods where construction activities are increased. Averaging these annual emissions enabled use of default model settings as input data for activities, component equipment and workers, where no reliable data is otherwise available. This averaging approach does not consider peak construction days or any substantial increase in number of equipment or workforce to meet scheduled deadlines. It assumes no overlapping of construction activities and assumes that construction activities occur in the same sequence on an annual basis for each sub-area, i.e., grubbing, site grading, paving, building construction, and architectural coating. Construction equipment data was not available for each construction activity, therefore default model data were assumed to be representative of the proposed project. A detailed list of the assumptions used to estimate construction emissions is provided in the Air Quality Impact Analysis, which is provided in Appendix D to this Draft Subsequent EIR.

In addition to construction of the land uses included in the proposed project, construction activities also consist of general construction area preparation (site grubbing, grading and excavation), development of new support infrastructure and utilities (e.g., sewer, water, and other underground pipelines), and improving existing intersections and roadways that provide access to the project area.

Construction equipment and vehicles would be used in the project area for site and infrastructure preparation, which would generate exhaust and fugitive dust emissions. Exhaust emissions would consist of a variety of pollutants, such as ROGs, NO_x, CO, and PM. These emissions could contribute to regional air pollution levels.

Daily emissions generated during project construction would vary depending on the type and intensity of construction activity. The highest daily unmitigated construction emissions generated during the 10-year period for criteria pollutants are presented in *Table 7.6*. The daily emissions presented are rounded to the nearest pound, except where the emissions are less than one pound. Detailed emission estimates for each construction phase and each construction years are provided in the Air Quality Impact Analysis.

Table 7.6
Unmitigated Construction Emission Comparison

Pollutant	Construction Thresholds (lbs/day)	Daily Maximum Construction Emissions (lbs/day)
ROG	82	5,168.19
NO _x	82	110.88
CO	550	116.07
PM ₁₀	82	31.35
PM _{2.5}	NT	8.76

NT – No Threshold

The Placer County APCD construction thresholds would be exceeded for ROG and NO_x; therefore, control measures are required for these two criteria pollutants during construction activities. While the control measures, identified in *Mitigation Measures 7.1a* through *7.1d*, would reduce NO_x emissions, they have no effect on the maximum ROG emissions, which occur during the architectural coating phases of each construction year. The mitigated emissions are presented in *Table 7.7*. As noted above, the CalEEMod model does not assume any overlap between construction phases. If construction phases were to overlap, there would be an increase in the maximum daily construction emissions, which could result in an exceedance of the Placer County APCD operational thresholds for pollutants other than ROG and NO_x. To ensure that all construction air pollutant emissions are reduced to the extent feasible, *Mitigation Measures 7.1a* requires construction contractors to implement preventative measures during all construction activities. With implementation of mitigation measures, the maximum emissions of both ROG and NO_x would remain above the Placer County APCD construction thresholds, resulting in a Significant and Unavoidable impact with respect to the APCD thresholds and the potential to contribute to violations of air quality standards.

A portion of the construction emissions from the proposed project were previously evaluated under the WRSP EIR and development of the WRSP was included in the City of Roseville General Plan. These emissions were therefore accounted for in the regional Air Quality Attainment Plan and the SIP. However, the emissions associated with the increased level of development reflected in the proposed Fiddymment Ranch Specific Plan Amendment 3 project were not previously accounted for in the Air Quality Attainment Plan and SIP. The project's construction emissions of ROG and NOx (which are ozone precursors) represent a Significant and Unavoidable impact with respect to conflicts with these air quality plans.

Table 7.7
Mitigated Construction Emission Comparison

Pollutant	Construction Thresholds (lbs/day)	Daily Maximum Construction Emissions (lbs/day)
ROG	82	1,292.93
NOx	82	80.57
CO	550	57.79
PM ₁₀	82	10.85
PM _{2.5}	NT	7.14

NT – No Threshold

It is noted that the CalEEMod model default settings appear to over-estimate the duration and volume of surface area of architectural coatings for residential structures. As a result, it is anticipated that ROG quantification may be over-estimated by CalEEMod for the proposed project. A break-down of corrected values and assumptions based on the size and number of proposed residential units is included within the list of assumptions provided in the Air Quality Impact Analysis. However, to account for the highest potential construction emissions, such as might occur on peak days or when construction activities overlap, the results of the modeling were not adjusted for this analysis.

IMPACT 7.2:

Generate Emissions During Project Operation That Conflict with the Air Quality Plan or Violate Air Quality Standards

APPLICABLE POLICIES AND REGULATIONS:	City of Roseville General Plan West Roseville Specific Plan City of Roseville Zoning Ordinance
SIGNIFICANCE WITH POLICIES AND REGULATIONS:	Significant
MITIGATION MEASURES:	Mitigation Measure 7.2a
SIGNIFICANCE AFTER MITIGATION:	Significant and Unavoidable

Implementation of the proposed Fiddymment Ranch Specific Plan Amendment 3 project would increase operational emissions compared to existing conditions and compared to buildout of the WRSP as currently approved. Operational emissions are associated with mobile, area, and stationary sources. Mobile sources would include exhaust emissions from motor vehicles and re-entrained dust emissions from motor vehicle travel on paved roads. Area sources include

items like residential water heaters, natural gas appliances, resurfacing and painting of homes on periodic basis and consumer products (e.g., aerosols products). Stationary sources include items like a diesel-engine generator for emergency power generation; kitchen equipment at restaurants; and dry cleaning equipment.

The primary source of operational emissions would be expected from a net increase in vehicle trips directly associated with buildout of the proposed project. Vehicle emission include ozone precursors (ROG and NOx), CO, PM10, PM2.5 and SOx. Because the region has been in attainment with the SOx criterion for decades and current California fuel standards limit the amount of sulfur in transportation fuel, the project’s SOx emissions is considered to have negligible air quality impacts and is not discussed further in this analysis.

Operational emissions were quantified using the CalEEMod model with project-specific data such as number of residential dwelling units, square footage for commercial type of development, elementary school, parks, and associated number of vehicle trips pertaining to land use. The majority of the data was derived from the project’s Transportation Analysis (DKS Associates 2011). Emissions were quantified to account for project-specific transportation and trip generation data, the project build-out year, project internal and external trip rates, and model default parameters such as average winter and summer temperatures, and vehicle fleet mix specific for the Sacramento Valley Air Basin region.

Operational emissions from stationary sources were not included in the CalEEMod model, as no data is available regarding specific stationary sources that may be constructed within the Fiddymment Ranch project area. However, it is likely that some stationary sources would be constructed in the additional 7.27 acres of community commercial land uses included in the proposed project. Such sources would be required to obtain permits to operate under PCAPCD Rule 501-General Permit Requirements and Rule 507-Federal Operating Permit Program. The permit process would assure that these sources would be equipped with the required emission controls. However, collectively, all of these stationary sources would contribute to the operational impacts discussed below.

Unmitigated operational emissions as estimated by the CalEEMod model are presented in *Table 7.8*. As shown, daily unmitigated operational emissions would exceed the Placer County APCD operational thresholds for all criteria pollutants with the exception of SOx, which as noted above is not evaluated in this analysis. Additionally, there is no adopted threshold for PM2.5. Emissions of PM2.5 are presented for informational purposes. Only the summer emissions are presented as these are what the Placer County APCD uses in determination of impact significance and applicable mitigation measures.

Table 7.8
Unmitigated Operational Emissions

Category	ROG	NOx	CO	PM ₁₀	PM _{2.5}
	lbs/day				
Area	2,487.65	43.17	3,602.18	475.18	475.14
Energy	2.51	21.46	9.40	2.89	1.73
Mobile	148.51	248.79	1,157.84	577.97	17.25

Waste	Negligible	Negligible	Negligible	0.00	0.00
Water	Negligible	Negligible	Negligible	0.00	0.00
Total	2,683.67	310.42	4,769.42	856.71	494.12
Construction Threshold	82	82	550	82	No Threshold
Exceed (Yes/No)?	Yes	Yes	Yes	Yes	n/a

Mitigated operational emissions were also calculated using the CalEEMod model. The mitigation measures reflected in this analysis include information provided in the project applicant's BuildItGreen report, which summarizes energy efficiency provisions that are proposed to be integrated into the proposed project, as well as other project design features. The specific design features and energy efficiency provisions included in the project are identified in the Air Quality Impacts Analysis in Appendix D to this Draft Subsequent EIR. In summary, these include:

- ❖ Natural gas heating systems in all residences, and no woodburning heating in any residence;
- ❖ Enhanced Title 24 energy efficient homes;
- ❖ Increased water efficient homes;
- ❖ Improve walkability design, destination accessibility, pedestrian network;
- ❖ Increase transit accessibility/expand transit network;
- ❖ Integrate below market rate housing; and
- ❖ Provide traffic calming measures.

Table 7.9 presents the mitigated operational emissions based on implementation of the above list of mitigation measures. Implementation of these measures would reduce operational emissions, but not to a level considered less than significant. As such, the project's operational emissions of ROG, NO_x, CO, and PM₁₀ represent a Significant and Unavoidable air quality impact with respect to the APCD thresholds and the potential to contribute to violations of air quality standards.

A portion of the operational emissions from the proposed project were previously evaluated under the WRSP EIR and development of the WRSP was included in the City of Roseville General Plan. These operational emissions were therefore accounted for in the regional Air Quality Attainment Plan and the SIP. Additionally, by integrating commercial land uses with residential and public land uses, the project provides some strategic design to minimize increases in overall vehicle-miles travelled associated with the increased population of the area. However, the operational emissions associated with the increased level of development reflected in the proposed Fiddymment Ranch Specific Plan Amendment 3 project were not previously accounted for in the Air Quality Attainment Plan and SIP. The project's operational emissions of ROG and NO_x represent a Significant and Unavoidable impact with respect to conflicts with these air quality plans.

**Table 7.9
Mitigated Operational Emissions**

Category	ROG	NOx	CO	PM ₁₀	PM _{2.5}
	lbs/day				
Area	181.94	3.94	341.05	1.87	1.87
Energy	2.21	18.91	8.27	1.53	1.53
Mobile	125.09	205.12	932.37	296.10	13.57
Waste	Negligible	Negligible	Negligible	0.00	0.00
Water	Negligible	Negligible	Negligible	0.00	0.00
Total	309.24	227.97	1,281.69	299.50	16.97
Construction Threshold	82	82	550	82	No Threshold
Exceed (Yes/No)?	Yes	Yes	Yes	Yes	n/a

It is noted that by increasing residential densities within the existing City of Roseville boundaries, the project would likely reduce development pressures for lands outside the city boundaries, contributing to a more compact development pattern. However, the specific effect the proposed project would have on development pressures outside the city is unknown and this potential benefit is not reflected in the air pollutant emissions modeling.

IMPACT 7.3:

Generate Substantial Carbon Monoxide Concentrations at Local Intersections

APPLICABLE POLICIES AND REGULATIONS:

City of Roseville General Plan
West Roseville Specific Plan
City of Roseville Zoning Ordinance

SIGNIFICANCE WITH POLICIES AND REGULATIONS:

Less than Significant

MITIGATION MEASURES:

None

SIGNIFICANCE AFTER MITIGATION:

Less than Significant

The primary mobile source pollutant of local concern is CO. Concentrations of CO can build up at congested intersections because vehicles travelling at speeds lower than five miles per hour or idling have the highest CO emission rates. Typically, high CO concentrations are found near roadways with excessively high traffic volumes that exceed the roadway capacity and reduces the operating levels of service (LOS) to an unacceptable level (i.e., E or F). LOS E or F can be described as waiting through several signal cycles with long queues forming upstream from the intersection. If the traffic is highly congested, the CO levels can exceed the 20 ppm 1-hour standard or the 9 ppm 8-hour standard.

Under normal meteorological conditions, CO disperses rapidly as distance from the source increases. However, under certain extreme meteorological conditions, such as stagnant air, CO concentrations proximate to a congested roadway or intersection may reach unhealthy levels affecting local sensitive receptors (i.e., residents, school children, the elderly, hospital patients). The intersections with the highest volume and/or worst LOS are modeled to determine the

potential for CO hotspots. However, the project's Transportation Analysis (DKS 2011) only provides LOS for affected intersections and does not provide detailed traffic data such as vehicle volume, geometrics, and vehicle movement at intersections. Without detailed traffic data, a quantitative CO hotspots analysis through the use of an appropriate dispersion model is not achievable. Therefore, only a qualitative CO hotspots analysis was conducted using LOS provided in the traffic report. In addition, data provided in the Creekview Specific Plan EIR, which is available for review at the City's website, was incorporated in this analysis.

As reported in the Transportation Analysis, 152 out of 157 existing signalized intersections in the City of Roseville would operate at LOS C or better during the p.m. peak hour with implementation of the proposed project. The proposed Fiddymment Ranch Specific Plan Amendment 3 project would add two new signalized intersections to the City, both of which would operate at LOS C or better. The proposed project would worsen the volume-to-capacity ratio at 2 of the 5 signalized intersections that would operate below LOS C. However, the project would not substantially worsen the volume-to-capacity ratio, the City of Roseville has previously adopted findings of overriding consideration for each intersection to establish LOS E and F as acceptable LOS in these locations, and the City's CIP includes the improvements necessary to improve LOS at each intersection to LOS A and B. The project is not expected to cause or contribute substantially to intersection congestion and associated CO concentrations. In addition, future roadside CO concentrations are expected to decrease from existing roadside CO concentrations despite anticipated increases in traffic volumes, due to improved fuel combustion efficiency.

In addition, the Creekview Specific Plan EIR analysis found that existing CO concentrations in the Roseville area are substantially less than either the state or federal ambient air quality standards. Table 4.4-10 of the Creekview Specific Plan EIR identifies the maximum 1-hour and 8-hour CO concentrations for the five intersections projected by the Creekview Specific Plan EIR traffic modeling to have the worst congestion. All of these intersections had 1-hour CO concentrations that were 5.9 ppm or less, compared to the federal 1-hour standard of 35 ppm and the state 1-hour standard of 20 ppm. The 8-hour CO concentration at each intersection was 2.5 or less, compared to the federal and state 8-hour standard of 9 ppm.

Based on the CO concentrations reported in the Creekview Specific Plan EIR and the findings of the traffic analysis for the Fiddymment Ranch Specific Plan Amendment 3 project that the project would not contribute substantially to intersection congestion, the project is considered to have a less than significant impact with respect to creating CO hotspots.

7.5 MITIGATION MEASURES

Generate Construction Related Emissions that Conflict with the Air Quality Plan or Violate Air Quality Standards

Mitigation Measure 7.1a: Each prime contractor for future construction projects within the proposed Fiddymment Ranch Specific Plan Amendment 3 project shall prepare a construction dust control plan for approval by the PCAPCD prior to any ground disturbance. This plan should address the minimum Administrative Requirements found in Section 400 of District Rule 228, Fugitive Dust (www.placer.ca.gov/airpollution/airpolut.htm), and address schedule such that

clearing, grading, and earthmoving activities during periods of low wind speeds and restrict those construction activities during high wind conditions with wind speeds greater than 20 miles per hour (mph) average during an hour. Specific required components of the dust control plan include the following:

- A. Control dust and prevent dirt from going offsite. Apply water to control dust as needed to prevent dust impacts off site. Operational water truck(s) shall be on site as required to control fugitive dust. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked offsite. This includes the use of tarpaulins for haul trucks which travel on public streets.
- B. Cover all trucks delivering or exporting soil, sand, or other loose materials to ensure that all trucks hauling such materials maintain at least two feet of freeboard.
- C. Suspend grading operations when wind is sufficient to generate visible dust clouds.
- D. Pave, use gravel cover or spray a dust control agent on all haul roads.
- E. Install sandbags or other erosion control measures to prevent silt runoff onto public roadways.
- F. Provide graveled, paved or grass-covered areas for construction employee vehicle parking.
- G. Institute measures to reduce wind erosion when site preparation is completed.
- H. Control dust from inactive areas. Apply approved chemical soil stabilizers, vegetative mats, or other appropriate best management practices to manufacturer's specifications, to all-inactive construction areas (previously graded areas which remain inactive for 96 hours).
- I. Control dust on unpaved roads and adjacent public thoroughfares. Spread soil binders on unpaved roads and employee/equipment parking areas and wet broom or wash streets if silt is carried over to adjacent public thoroughfares. Reduce speeds on unpaved roads to 15 mph or lower (this speed must be posted).
- J. Immediately following any mass grading phase, the following dust control measures shall be implemented:
 - Apply soil stabilizers or commence reestablishing ground cover to construction areas within 96 hours of completing grading activities;
 - Develop and implement a wind erosion monitoring program for areas which will remain inactive for extended periods; this program should at a minimum provide for weekly monitoring of inactive sites to assess the effectiveness of wind erosion controls.

Mitigation Measure 7.1b: Each prime contractor for future construction projects within the proposed Fiddymment Ranch Specific Plan Amendment 3 project shall provide a list of construction equipment and anticipated construction timeline for approval by

PCAPCD. The prime contractor for each construction project shall submit to the District a comprehensive inventory (i.e., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 or more hours for the construction project.

Mitigation Measure 7.1c: The project shall provide a plan for approval by the District demonstrating that the heavy-duty (greater than 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

Mitigation Measure 7.1d: During smog season (May through October), the construction period shall be lengthened so as to minimize the number of vehicles and equipment operating at the same time.

Generate Emissions During Project Operation That Conflict with the Air Quality Plan or Violate Air Quality Standards

Mitigation Measure 7.2a: Conditions of approval shall be adopted for each tentative map processed within the Fiddymont Ranch Specific Plan Amendment 3 project area requiring the following features in all development within each tentative map:

- A. Install only natural gas hookups in all new fireplaces.
- B. Install a natural gas outlet in the backyard of all new residences for gas-burning barbecues.
- C. Install low-NO_x hot water heaters per PCAPCD Rule 246.
- D. Use air conditioning units with an Ozone Destruction Catalyst.
- E. Provide natural gas lines or electrical outlets to all backyards to encourage use of natural gas or electric barbecues, as well as electric lawn equipment.
- F. Install Class I bicycle lockers along with bike racks in commercial sites.
- G. Include high-efficiency heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units.
- H. Include energy-efficient window glazings, wall insulation, and efficient ventilation methods on all new residential units.

General Substantial Carbon Monoxide Concentrations at Local Intersections

This impact is determined to be less than significant. No mitigation measures are necessary.