
IV. ENVIRONMENTAL IMPACT ANALYSIS

C. AIR QUALITY

INTRODUCTION

This section describes the expected emissions of air pollutants generated during the construction and operational phases of the proposed project and has been prepared in accordance with the most recent version of the Butte County Air Quality Management District (BCAQMD) CEQA Guidelines.¹ In addition, the potential construction health risk impacts to nearby sensitive receptors were evaluated.

ENVIRONMENTAL SETTING

The project is located in Butte County, which is in the Northern Sacramento Valley Air Basin. Ambient air quality standards have been established at both the State and federal level. Butte County meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}).

Criteria Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of Butte County's attempts to reduce ozone levels. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter

¹ BCAQMD, 2014. CEQA Air Quality Handbook. October 23.

[DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in Butte County. According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site include residences adjacent to the west and across E. 20th Street to the north. There are additional residences further to the south of the project site.

REGULATORY SETTING

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the Federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of nitrogen oxides, or NO_x, and particulate matter (PM₁₀ and PM_{2.5}) and because the EPA has identified diesel particulate matter as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce PM and NO_x emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.²

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD) is currently required for use by all vehicles in the U.S.

All of the above Federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.³ In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road diesel engine

² USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December 2000.

³ California Air Resources Board. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000.

emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and PM_{2.5} emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road, or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO_x emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO_x exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent Federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_x.

Regional Regulations

BCAQMD is the lead agency in developing plans to address attainment and maintenance of the National Ambient Air Quality Standards and California Ambient Air Quality Standards. The District also has permit authority over most types of stationary equipment. The BCAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

The BCAQMD *CEQA Air Quality Handbook*⁴ was prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the County. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions.

⁴ *Butte County Air Quality Management District, 2014. CEQA Air Quality Handbook. October.*

Local Regulations

The City of Chico General Plan⁵ contains the following goals, policies and actions applicable to the proposed project:

Goal OS-4: Improve air quality for a healthy City and region.

Policy OS-4.1 (Air Quality Standards) – Work to comply with state and federal ambient air quality standards and to meet mandated annual air quality reduction targets.

Action OS-4.1.2 (Air Quality Impact Mitigation) – During project and environmental review, evaluate air quality impacts and incorporate applicable mitigations, including payment of air quality impact fees, to reduce impacts consistent with the Butte County Air Quality Management District's CEQA Air Quality Handbook.

Action OS-4.1.3 (Wood Burning) – Implement measures to reduce air pollution from wood burning.

Action OS-4.1.6 (Reduce Traffic Pollution) – Reduce pollution from traffic by providing a well-connected circulation system with complete streets, enhancing bicycle facilities, supporting transit, and implementing traffic calming techniques such as roundabouts, narrowed streets, and chicanes.

Goal SUS-1: Balance the environment, economy and social equity, as defined in the General Plan, to create a sustainable Chico.

Policy SUS-1.1 (General Plan Consistency) – Ensure proposed development projects, policies, and programs are consistent with the General Plan.

Goal SUS-5: Increase energy efficiency and reduce non-renewable energy resource consumption citywide.

Goal SUS-6: Reduce the level of greenhouse gas emissions Citywide.

Policy SUS-6.3 (Greenhouse Gas Emissions and CEQA) – Analyze and mitigate potentially significant increases in greenhouse gas emissions during project review, pursuant to the California Environmental Quality Act.

Policy SUS-6.4 (Community Trees) – Continue to support the planting and maintenance of trees in the community to increase carbon sequestration.

Goal CIRC-2: Enhance and maintain mobility with a complete streets network for all modes of travel.

Policy CIRC-2.1 (Complete Streets) – Develop an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles; provides opportunities to reduce air pollution and greenhouse gas emissions; and reinforces the role of the street as a public space that unites the City.

⁵ City of Chico. Chico 2030 General Plan. Amended March 2017.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

In accordance with Appendix G of Title 14, Chapter 3 of the California Code of Regulations (CCR's): The 2012 CEQA Guidelines, the proposed project would have a significant environmental impact if it would:

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

In 2014, BCAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BCAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The significance thresholds identified by BCAQMD and used in this analysis are summarized in Table IV.C-1.

The Bay Area Air Quality Management District's (BAAQMD) adoption of significance thresholds contained in their 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as “CEQA-in-reverse” – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling. Therefore, the effect of existing TAC sources on future project receptors (residents) is not considered a CEQA issue and is not analyzed further.

Table IV.C-1: Air Quality Significance Thresholds

Criteria Air Pollutant	Construction Thresholds		Operational Thresholds
	Maximum Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)	Maximum Daily Emissions (lbs./day)
ROG	137	4.5	25
NO _x	137	4.5	25
PM ₁₀	80	--	80

Notes: ROG = reactive organic gases, NO_x = nitrogen oxides, and PM₁₀ = coarse particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less.

While BCAQMD has no adopted threshold for community risk impacts, the following thresholds are recommended by BCAQMD:

- An excess cancer risk level of more than 10.0 in 1 million, or a non-cancer (chronic or acute) hazard index greater than 1.0.
- An incremental increase of more than 0.3 micrograms per cubic meter (µg/m³) annual average PM_{2.5}.

Air Quality Issues not Further Analyzed

The following issues were addressed in the Initial Study (see Appendix A) and Section IV.A of the Draft EIR, and were determined to result in a less-than-significant impact and not warrant further analysis:

- Create objectionable odors affecting a substantial number of people.

Project Impacts and Mitigation Measures

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?

On September 26, 2017, BCAQMD submitted the Chico, CA/Butte County PM_{2.5} Nonattainment Area Redesignation Request and Maintenance Plan. The document demonstrates how the Planning Area meets requirements to request redesignation to attainment for the 2006 24-hour PM_{2.5} NAAQS and how the Planning Area will maintain the NAAQS through the next 10 years. The current applicable air quality plan for the BCAQMD is the Northern Sacramento Valley Planning Area 2015 Triennial Air Quality Plan (Sacramento Valley Air Quality Engineering and Enforcement Professionals, 2015). A project would be judged to conflict with or obstruct implementation of the regional air quality plan if it would result in or induce unplanned growth in population, employment, land use, or regional vehicle miles traveled (VMT) that is inconsistent with the growth (and therefore the emissions projections) assumptions in the applicable attainment plan. As detailed in this EIR under Population and Housing (chapter IV.L), Utilities

and Service Systems (chapter IV.P) and Cumulative Effects (Chapter V), the proposed zoning changes and anticipated future development from this project is within the scope of planned growth for Chico that leading up to the 2030 planning horizon. Therefore, the proposed project would not exceed the growth forecasts utilized in the 2015 Air Quality Plan and this impact is considered **less than significant**.

Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or federal ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to estimate emissions from construction and operation of the site assuming full build out of the project. The project land use types and size, and anticipated construction schedule were input to CalEEMod.

Construction Period Emissions

CalEEMod provided annual emissions for construction. CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. A construction build-out scenario, including equipment list and schedule, was based on CalEEMod defaults for a project of this type and size. The proposed project land uses were input into CalEEMod, which included: 469 dwelling units entered as “Single Family Housing,” 233 dwelling units entered as “Apartments Low Rise,” 205,000 square feet (sf) entered as “Medical Office Building”/commercial, and 240,000 sf entered as “Strip Mall”/retail. The CalEEMod input and output values are contained in Appendix C.

Table IV.C-2 shows maximum annual and daily construction emissions of ROG, NO_x, PM₁₀ during construction of the project. As indicated in Table IV.C-2, predicted construction period emissions would exceed the BCAQMD significance threshold for ROG and NO_x emissions and would be considered **significant**. *Mitigation Measures AIR-2A and AIR-2B* would reduce this impact to a level of **less than significant**.

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. *Mitigation Measure AIR-2A* would implement BCAQMD-recommended best management practices.

Table IV.C-2: Construction Period Emissions

Scenario	ROG	NOx	PM₁₀
Unmitigated - Annual			
Maximum Year Total (tons)	10.5 tons	6.5 tons	1.9 tons
<i>BCAQMD Thresholds (tons per year)</i>	<i>4.5 tons</i>	<i>4.5 tons</i>	<i>--</i>
Exceed Threshold?	Yes	Yes	No
Mitigated - Annual			
Mitigated Maximum Year Total (tons)	3.5 tons	4.2 tons	0.8 tons
<i>BCAQMD Thresholds (tons per year)</i>	<i>4.5 tons</i>	<i>4.5 tons</i>	<i>--</i>
Exceed Threshold?	No	No	No
Unmitigated – Daily			
Maximum Daily (pounds)	80.3 lbs.	50.3 lbs.	20.6 lbs.
<i>BCAQMD Thresholds (pounds per day)</i>	<i>137 lbs.</i>	<i>137 lbs.</i>	<i>80 lbs.</i>
Exceed Threshold?	No	No	No

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future residents and employees. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to predict emissions from operation of the proposed project assuming full build-out.

Land Uses

The project land uses were input to CalEEMod, as described above.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year estimated for full project build-out and operation is 2035.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the daily trip generation rate provided in the project traffic report. This included the trip reductions for mixed-use internal trips, shift to alternate modes of transportation (i.e., walk,

bike and transit), and retail pass-by. The CalEEMod default trip lengths were modified based on ACS Census data and information provided by the Butte County Association of Governments (BCAG).⁶ The CalEEMod defaults for fleet mix were adjusted based on data from multiple traffic counts collected by the Chico Public Works Department.

Energy

CalEEMod defaults for energy use were used, which are assumed to include 2016 Title 24 Building Standards. One adjustment was made to CalEEMod default rate of 641.3 pounds of CO₂ per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. The rate was adjusted to account for PG&E's projected 2020 CO₂ intensity rate. This 2020 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. The derived 2020 rate for PG&E was estimated at 290 pounds of CO₂ per megawatt of electricity delivered.⁷

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. No new wood-burning stoves or fireplaces are allowed in Butte County, but it was assumed that 25 percent of new single-family residences could include gas-powered fireplaces. The consumer products emission factor was updated to reflect the latest emission information from CARB.⁸ The landfill capture rate was updated to 90 percent based on correspondence with Bill Mannel, Solid Waste Manager for Butte County.⁹ Based on correspondence with Jason Mandly, Planner at BCAQMD, the interior and exterior architectural coatings factor was updated to 150 g/L.¹⁰

Total Project Operational Emissions

Table IV.C-3 reports the predicted emissions in terms of maximum daily operational emissions in the model year (2035). As shown in Table IV.C-3, maximum daily emissions of ROG, NO_x and PM₁₀ associated with operation would exceed the BCAQMD significance thresholds under both unmitigated and mitigated modeling estimates. Since the CalEEMod inputs for trip generation rates reflect the net number of predicted trips from the traffic study (i.e. trip rates after reductions were applied based on the project's location, configuration and mix of uses), no additional mobile emissions reductions were applied through CalEEMod.

⁶ Available online: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed: March 12, 2018.

⁷ Pacific Gas & Electric, 2015. *Greenhouse Gas Emission Factors: Guidance for PG&E Customers*. November.

⁸ CARB, 2013. *The California Almanac of Emissions and Air Quality*.

⁹ Personal correspondence with Bill Mannel, Solid Waste Manager, Butte County.

¹⁰ Personal correspondence with Jason Mandly, Associate Planner, BCAQMD.

Table IV.C-3: Operational Emissions

Scenario	ROG	NOx	PM₁₀
Unmitigated - Daily			
Maximum Daily Emissions (pounds)	60.9 lbs.	60.0 lbs.	86.3 lbs.
<i>BCAQMD Thresholds (pounds/day)</i>	25 lbs.	25 lbs.	80 lbs.
Exceed Threshold?	Yes	Yes	Yes
Mitigated - Daily			
Mitigated Maximum Daily Emissions (pounds)	60.9 lbs.	60.0 lbs.	86.3 lbs.
<i>BCAQMD Thresholds (pounds/day)</i>	25 lbs.	25 lbs.	80 lbs.
Exceed Threshold?	Yes	Yes	Yes

There are several limitations on accurately predicting future air emissions from the proposed project for the model year (2035). These limitations mainly include, but are not limited to the following:

- The assumptions made for the future development of the multi-family and commercial lots within the project. As explained in the Project Description (Chapter III), conservative assumptions were made for the purposes of this analysis, however actual emissions rates for uses on these lots cannot be accurately predicted until the uses and specific site design proposals become known.
- Regulatory changes that will likely be enacted over the next decade to meet state-mandated 2030 goals for greenhouse gas emissions reductions.
- The unknown degree to which emergent technologies (such as automation of vehicles and service jobs, electric vehicles, etc.), lead to reductions in air emissions from petroleum combustion. The air emissions modeling conducted for this analysis is limited to the features incorporated into the 2016 version of CalEEMod.

These uncertainties result in the need to both interpret the modeling results as the worst-case scenario for future project emissions and build flexibility into the mitigation applied at this time.

For projects where the BCAQMD's standard mitigation is not adequate to reduce criteria pollutant emissions to less than significant levels, the BAQMD CEQA Handbook recommends that the project applicant either establish an off-site mitigation program within Butte County, coordinated through BCAQMD, or participate in an Off-site Mitigation Program by paying the equivalent amount of money equal to the project contribution of pollutants (ROG and NO_x)

which exceed the BCAQMD's thresholds of significance. Calculation of the payment is based on the Carl Moyer Program's most recent cost effectiveness level per ton, which as of 2017 was \$18,260 per ton and can be found at <http://www.arb.ca.gov/msprog/moyer/moyer.htm>.

The BCAQMD CEQA Handbook states that the payment amount shall be calculated at the time of recordation of the final map for residential projects or occupancy of commercial projects, and shall be calculated using CalEEMod or an equivalent tool approved by BCAQMD that includes emission reductions from all project design features and mitigation. Project emissions above the pound per day threshold are converted to tons per year and then divided by the daily-to-annual equity ratio of 5.5 to obtain an equivalent tons per year value. The excess tons per year emissions are then multiplied by 25 years (to represent the project life span) and the most current cost-effectiveness level per ton from the Carl Moyer Program. BCAQMD staff has clarified that although it is not reflected in the 2014 CEQA Handbook, it is the BCAQMD's practice to use a 180 day ozone season when calculating the emissions that are required to be reduced for ozone precursors. In the calculations, this would replace 365 days with 180 days.

Based on the current calculations (35.9 pounds ROG + 35 pounds NO_x + 6.3 pounds PM10= 77.2 pounds/day x 180/2,000 = 6.95 tons/year/5.5 = 1.16 x 25 x \$18,260 = \$576,684), this would result in a payment of \$576,684.00 to the Off-site Mitigation Program, which would be utilized by the BCAQMD for a variety of emission reduction programs located throughout the Air District. *Mitigation Measure AIR-2C/GHG-1* requires the project applicant to participate in an Off-site Mitigation Program in order to reduce ROG and NO_x operational emissions to less than significant levels, consistent with the BCAQMD's CEQA Handbook and current practices. Therefore, with implementation of *Mitigation Measure AIR-2C/GHG-1*, the operational criteria pollutant emissions would be reduced to a level of less than significant.

Mitigation Measure AIR-2A: Include basic measures to control dust and exhaust during construction.

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. The contractor shall implement the following best management practices:

1. Reduce the amount of the disturbed area where possible;
2. Use of water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. An adequate water supply source must be identified. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible;
3. All dirt stockpile areas should be sprayed daily as needed, covered, or a District approved alternative method will be used;
4. Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil disturbing activities;
5. Exposed ground areas that will be reworked at dates greater than one month after initial grading should be sown with a fast-germinating non-invasive grass seed and watered until vegetation is established;
6. All disturbed soil areas non-subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the District;
7. All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;
8. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site;
9. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of fretboard (minimum vertical distances between top of load and top of trailer) in accordance with local regulations;
10. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site;
11. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible; and
12. Post a sign in a prominent location visible to the public with the telephone numbers of the contractor and District for any questions or concerns about dust from the project.

Mitigation Measure AIR-2B:

1. All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days or 20 hours shall meet, at a minimum, U.S. EPA NO_x emissions standards for Tier 4 engines or equivalent.
2. The project sponsor shall require all architectural coatings during construction containing 50 g/L or less.

Mitigation Measure AIR-2C/GHG-1: The project applicant shall implement the following BCAQMD-recommended operational mitigation measures:

1. Incorporate outdoor electrical outlets to encourage the use of electric appliances and tools;
2. Provide shade tree planting in parking lots to reduce evaporative emissions from parked vehicles;
3. Utilize green building materials (materials which are resource efficient, recycled, and sustainable) available locally if possible;
4. Final designs shall consider buildings that include roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows (passive solar design);
5. Utilize high efficiency gas or solar water heaters;
6. Utilize built-in energy efficient appliances (i.e., Energy Star);
7. Utilize double-paned windows;
8. Utilize low energy street lights (i.e. light-emitting diode);
9. Utilize energy-efficient interior lighting;
10. Utilize low-energy traffic signals (i.e., light-emitting diode);
11. The project shall meet all title 24 requirements, including but not limited to;
 - a. Install door sweeps and weather stripping (if more efficient doors and windows are not available);
 - b. Install energy-reducing programmable thermostats;
 - c.

Use roofing material with a solar reflectance values meeting the EPA/DOE Energy Star rating to reduce summer cooling needs;
; and

12. Prior to the recordation of each Final Map, to the extent that cumulative project operational emissions exceed applicable thresholds the project applicant shall participate in an Off-site Mitigation Program coordinated through the Butte County Air Quality Management District (BCAQMD). The project applicant shall utilize a methodology based on the BCAQMD CEQA Handbook with final details to be approved by the BCAQMD and City for calculating the payment to the Off-site Mitigation Program.

Impact AIR-3: Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

As discussed above, the project would have operational emissions above the ROG and NO_x significance thresholds adopted by BCAQMD. *Mitigation Measures AIR-2A and AIR-2B* would reduce ROG and NO_x construction impacts and *Mitigation Measure AIR-2C/GHG-1* would reduce ROG and NO_x operational impacts to below BCAQMD significance thresholds and, therefore, to a level of **less than significant**. Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards). As a result, the region has been designated as attainment for the carbon monoxide standard.

Impact AIR-4: Expose sensitive receptors to substantial pollutant concentrations?

Construction activities, particularly during site preparation and grading would temporarily generate fugitive dust in the form of respirable particulate matter. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. *Mitigation Measure AIR-2a* would implement BCAQMD-required best management practices.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. Construction exhaust emissions may still pose community risks for sensitive receptors such as nearby residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM_{2.5}. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. The closest sensitive receptors to the project site include residences adjacent to the west and across E. 20th Street to the north. There are additional residences further to the south of the project site. The size and magnitude of future construction activities in close proximity to nearby sensitive receptors would result in a potentially **significant** impact with respect to community risk. Implementation of *Mitigation Measure AIR-4* would require the use of Best Available Control Technology, as recommended by BCAQMD, and would reduce this impact to a level of **less than significant**.

Mitigation Measure AIR-4: Selection of equipment during construction to minimize emissions. Such equipment selection would include the following.

1. All mobile diesel-powered off-road equipment larger than 25 horsepower and operating on the site for more than two days or 20 hours shall meet, at a minimum, U.S. EPA particulate matter emissions standards for Tier 4 engines or equivalent. The construction contractor could use other measures to minimize construction period DPM emission to reduce the predicted cancer risk below the thresholds. The use of equipment that includes CARB-certified Level 3 Diesel Particulate Filters¹¹ or

¹¹ See <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

- alternatively-fueled equipment (i.e., non-diesel) could meet this requirement. Other measures may be the use of added exhaust devices, or a combination of measures, provided that these measures are approved by the City and demonstrated to reduce community risk impacts to less than significant;
2. Implementing a design measure to minimize emissions from on- and off-road equipment associated with the construction phase. This measure should include but not be limited to the following elements:
 - a. Tabulation of on- and off-road construction equipment (type, age, horsepower, engine model year and miles and/or hours of operation);
 - b. Schedule equipment to minimize the amount of large construction equipment operating simultaneously during any given time period;
 - c. Locate staging areas at least 1,000 feet away from sensitive receptors;
 - d. Where feasible, limit the amount of cut and fill to 2,000 cubic yards per day;
 - e. Where feasible, limit the length of the construction work-day period; and
 - f. Where feasible, phase construction activities;
 3. Schedule construction truck trips during non-peak hours to reduce peak hour emissions;
 4. Proposed truck routes should be evaluated to define routing patterns with the least impact to residential communities and sensitive receptors and identify these receptors in a truck route map; and
 5. Trucks and vehicles should be kept with the engine off when not in use, to reduce vehicle emissions. Signs shall be placed in queuing areas to remind drivers to limit idling to no longer than 5 minutes.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measure AIR-2A would implement BCAQMD-recommended best management practices. *Mitigation Measures AIR-2A* and *AIR-2B* would reduce ROG and NO_x construction impacts to below BCAQMD significance thresholds and, therefore, to a level of **less than significant**.

Implementation of *Mitigation Measure AIR-2C* would reduce the ROG and NO_x (ozone precursor) operational impacts to a level a level of **less than significant**.

Implementation of *Mitigation Measure AIR-4* would require the use of Best Available Control Technology, as recommended by BCAQMD, and would reduce exposure of sensitive receptors to substantial pollutant concentrations to a level of **less than significant**.