

3.4 Air Quality

This section describes the regulatory and environmental setting for air quality. It also describes impacts on air quality that would result from implementation of the Climate Action 2020: Community Climate Action Plan (CAP) and includes mitigation for significant impacts, where feasible and appropriate.

3.4.1 Environmental Setting

This section presents the environmental setting for air quality in Sonoma County. This information has been drawn and modified from the *Sonoma County General Plan 2020 EIR* (Sonoma County 2006).

3.4.1.1 Air Pollution Climatology

While the primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources, meteorological conditions and topography are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Unique geographic features throughout the state define fifteen air basins with distinctive regional climates.

Sonoma County has complex geography and climates. The coastal mountain ranges form several valleys with varying climate regimes. Sonoma County is part of two distinct air basins: the northern portions of the County are part of the North Coast Air Basin (NCAB) and the southern portions of the County are part of the San Francisco Bay Area Air Basin (SFBAAB). This section discusses the climatology of the sub-regional air basins within the County: the Cotati/Petaluma Valleys, Sonoma Valley, and Alexander Valley. The Cotati/Petaluma Valleys and Sonoma Valley are generally part of the SFBAAB, and Alexander Valley is generally part of the NCAB.

Cotati/Petaluma Valleys

The Cotati Valley to the north and Petaluma Valley to the south create a wide basin stretching from Santa Rosa to San Pablo Bay. These valleys are bordered on the east by the Sonoma Mountains. To the west is a series of low hills and the Estero Lowlands, a relatively flat area surrounding Estero Americano, which is the southern boundary of the County at that point. The region from the Estero Lowlands to San Pablo Bay is known as the Petaluma Gap. This low-level gap in the coastal hills is a major source of marine air flow into the County and the northern Bay Area.

Wind patterns in the Petaluma and Cotati Valleys are strongly influenced by the Petaluma Gap, with winds predominantly from the west. As marine air travels through the Petaluma Gap, it creates northward and southward air currents moving into the Cotati and Petaluma Valleys. The southward path continues into San Pablo Bay and through the Carquinez Strait. Because of this pattern, the prevailing wind direction in Santa Rosa is from the southwest while the prevailing wind direction in Petaluma is from the northwest.

The air pollution potential (i.e., the limitation of the atmosphere's ability to transport and dilute pollutants) is low in the Petaluma Valley because of the influence of the Petaluma Gap. Pollution

potential is higher in the Cotati Valley, which is less well-ventilated and has natural barriers to air flow to the north and east.

Sonoma Valley

The Sonoma Valley is a long, narrow valley running north-south between the Sonoma Mountains on the west and the taller Mayacamas Mountains to the east. Sheltered from winds flowing through the Petaluma Gap, the Sonoma Valley winds are lighter than in the western portions of the County and tend to be from the south during the day and from the north during the night.

The air pollution potential of the Sonoma Valley is high. Prevailing winds can transport locally and regionally generated pollutants northward into the narrow valley, which often traps and concentrates the pollutants under stable conditions. The local upslope (southerly) and downslope (northerly) flows set up by the surrounding mountains may also recirculate pollutants.

Alexander Valley

Alexander Valley is a relatively narrow valley aligned northwest to southeast, bound on the west by the coastal mountains and on the east by the Mayacamas Mountains. There is little terrain separating the Alexander Valley from the Cotati Valley to the south. While the Alexander Valley is ventilated by marine air moving up the Russian River valley, it is also influenced by wind flows traveling northward from the heavily-populated Cotati Valley.

The air pollution potential of the Alexander Valley is high. As an interior valley surrounded by high mountains it has frequent light winds and, like all of California, is subject to periods of high atmospheric stability. Although lightly developed with few industries, it is downwind of the Cotati Valley under certain wind conditions and is affected by pollutants transported into the local air basin.

3.4.1.2 Criteria Air Pollutants of Concern

The state and federal ambient air quality standards cover a wide variety of pollutants. The federal and state governments have established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), respectively, for six criteria pollutants: ozone, CO, lead (Pb), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and PM, which consists of PM of 10 microns in diameter or less (PM₁₀) and PM of 2.5 microns in diameter or less (PM_{2.5}).

Ozone and NO₂ are considered regional pollutants because they (or their precursors) affect air quality on a regional scale; NO₂ reacts photochemically with reactive organic gases (ROGs) to form ozone, and this reaction occurs at some distance downwind of the source of pollutants. Pollutants such as CO, SO₂, and Pb are considered to be local pollutants that tend to accumulate in the air locally. PM is considered to be a local pollutant as well as a regional pollutant.

According to the California Air Resources Board CAAQS, the SFBAB is designated nonattainment for O₃, PM_{2.5}, and PM₁₀. By federal standards, the SFBAB is designated nonattainment for O₃ and PM_{2.5}. The NCAB is designated attainment or unclassified for all criteria pollutants by state standards and unclassified for all criteria pollutants by federal standards. Thus, the primary pollutants of concern in Sonoma County are: ozone (including NO_x) and PM. Principal characteristics surrounding these pollutants are discussed below.

Ozone

Ground level ozone, often referred to as smog, is not emitted directly, but is formed in the atmosphere through complex chemical reactions between nitrogen oxides (NO_x) and reactive organic gases (ROG) in the presence of sunlight. The principal sources of NO_x and ROG, often termed “ozone precursors,” are combustion processes (e.g., by automobiles and aircraft) and evaporation of solvents, paints, and fuels. Motor vehicles are the single largest source of ozone precursor’s emissions in Sonoma County. Exposure to ozone can cause eye irritation, aggravate respiratory diseases, and damage lung tissue, as well as harm vegetation and reduce visibility.

Ozone concentrations in the SFBAAB and southern NCAB have shown no strong trends over the last ten years. There is considerable year-to-year variation in levels due to the influence of weather.

Particulate Matter

Particulates are solid or liquid particles, including smoke, dust, aerosols, and metallic oxides that are small enough to remain suspended in the air for a long period of time. PM₁₀ is particulate matter less than ten microns in diameter. PM_{2.5} is particulate matter less than 2.5 microns in diameter. There are many sources of particulate matter emissions, including combustion, industrial processes, grading and construction, farming operations, wind-blown dust, and motor vehicles. Of the particulate matter emissions associated with motor vehicle use, some are tailpipe and tire wear emissions, but greater quantities are generated by re-suspended road dust. Consequently, improvements in motor vehicle engines and fuels have not reduced particulate matter emissions as significantly as they have reduced emissions of other pollutants.

Wood burning is a significant source of particulate matter, particularly during episodes when levels of particulate concentrations are highest, as on a still and cold night. Wood smoke carries other pollutants, including carbon monoxide, nitrogen dioxide, and volatile organic compounds that include dioxin, benzene, and formaldehyde.

Health effects of particulate matter vary depending on a number of factors, including the type and size of the particle. Research has shown a correlation between highly inhalable particulate matter (PM₁₀) concentrations and increased mortality rates. Elevated levels can also aggravate chronic respiratory illness such as bronchitis and asthma. Fine particulate matter (PM_{2.5}) is a concern because it can bypass the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs. The largest emission sources for PM₁₀ consist of construction and farming operations, entrained road dust, and wind-blown dust. The major sources of PM_{2.5} are combustion of fuels and smoke. Both PM₁₀ and PM_{2.5} are also created as secondary pollutants in the atmosphere through chemical and photochemical processes.

Particulate matter concentrations in the SFBAAB and southern NCAB have shown no strong overall trends over the last ten years. While many stationary sources of particulate matter such as factories and mills have either closed or been controlled, area sources such as vehicle traffic and residential wood-burning have been increasing, off-setting the reductions in the stationary emissions.

Toxic Air Contaminants

Toxic air contaminants (TACs) are another group of pollutants of concern. Unlike criteria pollutants, no safe levels of exposure to TACs can be established. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes (e.g., petroleum refining

and chrome plating operations), commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. Public exposure to TACs can result from emissions resulting from normal operations, as well as accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Diesel Exhaust

In 1998, after a 10-year scientific assessment process, the California Air Resources Board identified particulate matter from diesel-fueled engines as a TAC. The State has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. The program consists of new regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles; new retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles; and new diesel fuel regulations to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems.

The need to separate residential uses from sources of diesel can be in conflict with the need to locate housing near bus service. The design, layout, and orientation of high-density housing needs to minimize exposure of residents to diesel exhaust. This apparent conflict is likely to be reduced in the future as bus systems switch to cleaner diesels or alternatively fueled vehicles.

Diesel particulate is a relatively inert pollutant (i.e., is not modified in the atmosphere). It is a localized pollutant in that the highest concentrations are found near the source and concentration decreases with distance from the source. The regulation of diesel exhaust from trucks and buses is achieved at the State and federal levels. At the local level, appropriate policies that would site residences, schools, day care centers, and other sensitive receptors away from major sources of diesel exhaust (e.g., truck haul routes, warehouses, and distribution centers) can greatly reduce exposures and health risks. In California, local transit and school districts are now mandated to purchase buses with lower emissions.

Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and carbon monoxide concentrations, reduces visibility, and contains numerous TACs. The particles are composed of organic vapors, carbon, and minerals that are not properly burned in the early phases of a fire. Present State controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. Within the San Francisco Bay Air Basin some jurisdictions have adopted local wood smoke ordinances, based on the Bay Area Air Quality Management District (BAAQMD) model wood burning ordinance. The Northern Sonoma County Air Pollution Control District's Regulation IV prohibits the installation of conventional fireplaces in new construction and remodels, and requires that any wood-burning devices be certified. Wood smoke regulation is likely to increase with the recent adoption of PM2.5 State and federal standards.

Other Air Quality Issues

Other air quality issues of concern in Sonoma County include nuisance impacts of odors and dust. Objectionable odors may be associated with a variety of pollutants and operations. Common sources of odors include concentrated animal operations, wastewater treatment plants, landfills, composting facilities, and industrial plants. Similarly, nuisance dust may be generated by a variety of sources including mining, agriculture, grading, and construction. Odors rarely have direct health impacts,

but they can be very unpleasant and can lead to anger and concern over possible health effects among the public. Northeastern Sonoma County contains geothermal resources that are a potential source of an odorous substance, hydrogen sulfide. Rule 455 of the rules and regulations of the Northern Sonoma County Air Pollution Control District contain specific limitations on emissions of hydrogen sulfide from geothermal power plants. The adoption of this regulation and the general decline in geothermal production at the Geyser geothermal field has greatly reduced the potential for odor problems from this source.

3.4.1.3 Ambient Air Quality Standards

The federal and California ambient air quality standards for important pollutants are summarized in Table 3.4-1. These standards were developed independently with differing purposes and methods, although both processes attempt to avoid health-related effects. As a result, the federal and State standards differ in some cases. In general, the State standards are more stringent. This is particularly true for ozone and PM10.

Table 3.4-1. National and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards ^a	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None	None
	8-hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate Matter (PM10)	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual mean	20 µg/m ³	None	None
Fine Particulate Matter (PM2.5)	24-hour	None	35 µg/m ³	35 µg/m ³
	Annual mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen Dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur Dioxide	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.14 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 µg/m ³	None	None
	Calendar quarter	None	1.5 µg/m ³	1.5 µg/m ³
	3-month average	None	0.15 µg/m ³	0.15 µg/m ³
Sulfates	24-hour	25 µg/m ³	None	None
Hydrogen Sulfide	1-hour	0.03 ppm	None	None
Vinyl Chloride	24-hour	0.01 ppm	None	None

Source: California Air Resources Board 2013.

Notes:

µg/m³ = micrograms per cubic meter

ppm = parts per million

^a National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

3.4.1.4 Sonoma County Existing Air Quality

The two air quality monitoring sites in Sonoma County are located in Healdsburg and Santa Rosa. Table 3.4-2 below summarizes violations of air quality standards in Sonoma County from 2012 to 2014.

Table 3.4-2. Air Quality Data Summary for Sonoma County, 2012–2014

Pollutant	Standard	Location	Days Standard Exceeded In		
			2012	2013	2014
Ozone	State 1-Hour	Healdsburg	0	0	0
		Santa Rosa	0	0	*
Ozone	Federal 8-Hour	Healdsburg	0	0	0
		Santa Rosa	0	0	*
Ozone	State 8-Hour	Healdsburg	0	0	0
		Santa Rosa	0	0	*
PM2.5	Federal 24-Hour	Santa Rosa	0	0	*
PM10	Federal 24-Hour	Healdsburg	*	0	0
PM10	State 24-Hour	Healdsburg	*	*	0
Carbon Monoxide	State/Federal 8-Hour	Santa Rosa	0	0	0
Nitrogen Dioxide	State 1-Hour	Santa Rosa	0	0	0

Source: California Air Resources Board 2015.

* means there was insufficient data available to determine the value.

3.4.1.5 Sensitive Receptors and Pollution Sources

Sensitive receptors are facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include residences, schools, retirement homes, convalescent homes, hospitals, and medical clinics. Such sensitive receptors are located in all areas of the County.

The emissions inventory for Sonoma County shows that the single largest source of ozone precursors is motor vehicle travel. Other major sources are solvent evaporation, industrial sources, and combustion of fuels. Major sources of particulate matter are road dust, residential wood burning, unpaved road travel, construction activities, and mineral extraction and processing.

The air districts maintain inventories of sources of TACs. The current inventory identifies numerous dry cleaners and gasoline stations as the most common sources of TACs in the County. Almost all of these sources are located within the jurisdiction of the cities of Santa Rosa, Petaluma, Rohnert Park, Sebastopol, Sonoma, and Windsor. Other sources of TACs include mineral processing plants, sewage treatment facilities, and geothermal power plants.

Since identification, quantification, and control of TAC emissions began in the late 1980s, emissions of these pollutants have been steadily declining.

3.4.1.6 Odors

Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries, and chemical plants. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to annoyance and concern over possible health effects among the public. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person (e.g., fast food restaurant) may be perfectly acceptable to another.

3.4.2 Regulatory Setting

3.4.2.1 Federal

Clean Air Act and National Ambient Air Quality Standards

The federal Clean Air Act (CAA), promulgated in 1963 and amended several times thereafter, including the 1990 Clean Air Act amendments (CAAA), establishes the framework for modern air pollution control. The act directs the Environmental Protection Agency (EPA) to establish NAAQS for the six criteria pollutants (discussed above). The NAAQS are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety, and the latter to protect environmental values, such as plant and animal life.

The CAA requires states to submit a State Implementation Plan (SIP) for areas in nonattainment for federal standards. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards would be achieved. Failing to submit a plan or secure approval can lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, the EPA is directed to prepare a federal implementation plan.

3.4.2.2 State

California Clean Air Act

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for SO₄ (sulfate), H₂S (hydrogen sulfide), C₂H₃Cl (vinyl chloride), and visibility-reducing particles.

Areas that have met the State standards are considered to be attainment areas. Similarly, areas that have not met the standards are determined to be nonattainment areas. An area that is close to attaining the standard would be given a nonattainment/transitional designation.

The SFBAAB was initially determined to be a state nonattainment area for carbon monoxide, ozone, and PM₁₀. The SFBAAB was reclassified as an attainment area for carbon monoxide, but remains an ozone and PM₁₀ nonattainment area.

The NCAB portion of the County is nonattainment for the state ozone and PM10 standard. The ozone designation is nonattainment/transitional, denoting that the area is close to attaining the standard.

3.4.2.3 Regional and County

The County is part of two distinct air basins and air districts. The boundary between the air basins/districts runs roughly from the southwest corner of the County at Estero Americano, northeasterly to the northeast corner of Sonoma County at its boundary with Lake and Napa County. The boundary between the two basins/districts crosses US 101 between Windsor and Healdsburg.

The northwestern portions of the County are part of the NCAB, consisting of Del Norte, Humboldt, Trinity, Mendocino, and northern Sonoma County. This portion of the County is within the Northern Sonoma County Air Pollution Control District (NSCAPCD). The NSCAPCD is primarily rural and mountainous, containing only two urbanized areas—Healdsburg and Cloverdale. Southern Sonoma County is part of the nine-county SFBAAB and the Bay Area Air Quality Management District (BAAQMD).

The BAAQMD and NSCAPCD are local air quality agencies responsible for preparing regional air quality plans under the state and federal Clean Air Acts. In addition to planning responsibilities, the local air district has permitting authority over stationary sources of pollutants. Authority over mobile sources of pollutants resides with the California Air Resources Board.

Spare the Air Days

A Spare the Air Day is a day forecast to have ozone levels high enough to exceed federal health-based standards. An advisory is issued the day before this is expected to occur. Area residents are asked to modify their behavior to help minimize pollution, and people who are sensitive to unhealthy air are advised to limit their time outdoors, particularly in the afternoon hours. Spare the Air Days are usually declared in fall and winter for the County, from approximately November through February, when the highest wintertime pollution occurs on cold windless nights.

Wood-Burning Devices

In regard to wood fireplaces, the NSCAPCD has adopted regulations prohibiting installation of conventional fireplaces in new construction and remodels and requiring that wood-burning devices meet certain standards. In October 2015, the BAAQMD strengthened its wood-burning rule by disallowing wood-burning devices to be installed in new building construction. New building construction must install cleaner and more efficient heating options, such as gas-fueled or electric heaters (Bay Area Air Quality Management District 2015).

Odors

Complaints regarding nuisance odors are also monitored by the BAAQMD and NSCAPCD. BAAQMD Regulation 7 for Odorous Substances reflects the most stringent standards derived for nuisance orders. Similarly, NSCAPCD has established a nuisance rule to address odor issues. Rule 400 states that air contaminants will not be discharged in quantities sufficient to constitute a public nuisance to any considerable number of persons or the public or that would endanger the comfort or repose of any person or the public. Odors would be considered a nuisance by BAAQMD and NSCAPCD if a complaint is received from a significant number of people and the odor issue is verified upon inspection.

In addition, CalRecycle also requires that all compostable material handling operations and facilities prepare a site-specific odor impact minimization plan (14 CCR, Division 7, Chapter 3.1, Section 17863.4).

3.4.2.4 Local

Appendix C, *Local General Plan Goals, Objectives, and Policies*, provides a list of the goals, objectives, and policies in the local general plans of the participating jurisdictions, including those related to air quality. These goals, objectives, and policies were reviewed to assess whether the Project is consistent with the general plans of participating jurisdictions. Disclosure of this consistency analysis is for informational purposes. An additional purpose of providing a list of relative local policies is, where appropriate, to provide the context within which the CAP will be locally implemented. As described in the CAP, most of the CAP measures represent implementation of many of the priorities outlined in existing local policies.

Inconsistencies with general plan policies are not necessarily considered a significance impact under CEQA unless it is related to a physical impact on the environment that is significant in its own right.

Implementation of the CAP is consistent with the applicable general plan goals, objectives, and policies of the participating jurisdictions in relation to air quality.

3.4.3 Impacts Analysis

3.4.3.1 Methodology

The impact analysis below uses the local jurisdictions' policies and development standard provisions of the County to determine whether implementation of the CAP measures would result in a significant environmental impact.

Site-specific subsequent activities or projects, their associated locations, and physical effects on the environment from the implementation of the CAP measures to reduce greenhouse gas (GHG) emissions are not known at this time. Therefore, this analysis uses a programmatic approach in evaluating possible air quality impacts of implementation of the CAP.

3.4.3.2 Significance Criteria

The State CEQA Guidelines Appendix G (14 CCR 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on existing air quality and energy resources.

An impact would be considered significant if construction or operation of the project would have any of the following consequences.

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).

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

3.4.3.3 Impacts and Mitigation Measures

Impact AQ-1: Implementation of the CAP would not conflict with or obstruct implementation of the applicable air quality plan (beneficial impact).

Projects that result in an increase in population or employment growth beyond that identified in regional plans (e.g., Plan Bay Area) could result in increases in vehicle miles traveled (VMT) and subsequently increase mobile source emissions, which could conflict with the applicable air districts' planning efforts. For example, if a plan or project's projected VMT increase is greater than its projected population increase, a plan would be in conflict with the applicable air quality plan.

The CAP is intended to reduce GHG emissions generated within the County to contribute to global efforts to reduce the effects of climate change by, among other things, using alternatively fueled vehicles, reducing VMT, using renewable energy, reducing waste generation, and increasing water conservation. While these reduction strategies were formulated to reduce GHGs, they also act to improve overall air quality by reducing emissions of criteria pollutants.

With implementation of the CAP measures to reduce VMT, it is anticipated that annual VMT within the County would be reduced by approximately 132 million miles by 2020 compared with anticipated annual VMT without implementation of the CAP.

The CAP promotes mixed-use and transit-oriented development and additional transit facilities aimed to reduce fuel use and travel demand through smart land use and development. The County and incorporated cities have already adopted policies to promote city-centered development patterns in order to direct future growth and to protect the surrounding agricultural and resource lands as well as for GHG reduction benefits. As many local plans already promote such development, the mixed-use and transit-oriented development within city centers supported by the CAP would not result in increased population growth or increased VMT beyond that already anticipated in local general plans.

The CAP also includes transportation measures to improve air quality. These include measures to reduce vehicle fuel use by encouraging a shift in the mode used for transportation and reducing travel demand through smart land use and development. In addition, energy efficiency measures to reduce electricity use and renewable energy generation would reduce both GHG emissions and air pollutants at power plants generating electricity in the region. Energy efficiency measures in the CAP would also reduce natural gas combustion at residential and commercial land uses within the County, which would reduce local criteria air pollution. The proposed CAP would be consistent with applicable air quality plans. The effects associated with the reduction of air pollutant emissions in the County would be beneficial.

Impact AQ-2a: Implementation of the CAP could violate any air quality standard or contribute to an existing long-standing air quality violation during construction activities (less than significant with mitigation).

The CAP is a policy-level document that does not include any site-specific designs or proposals, or grant any entitlements for development that would have the potential to violate air quality standards or contribute to a long-standing air quality violation. As a policy document, the CAP would have no direct impact on air quality, but certain facilities associated with future implementation

activities may violate air quality standards or contribute to a long-standing air quality violation during construction activities.

Implementation of several of the CAP measures entails new or remodeled construction which could result in short-term construction emissions. Some proposed CAP measures involve minor construction activities such as energy or water efficiency upgrades to existing buildings that are not expected to result in substantial construction emissions. The CAP measures that are likely to result in construction emissions include those that promote the construction of solid waste facilities to increase waste diversion, reuse of materials, and recycling; mixed-use and transit-oriented development in city centers; wastewater plant upgrades; extension of recycled water lines; and construction of limited transportation facilities such as bicycle and pedestrian trails, traffic calming, transit support facilities, and electric vehicle charging stations.

Construction emissions result in increased emissions of ozone-precursor pollutants (i.e., ROG and NO_x) and emissions of PM. Emissions of ozone precursors would result from the operation of construction equipment, construction worker vehicle trips, and truck hauling trips. Emissions of airborne PM are largely associated with ground-disturbing activities, such as site preparation. The quantity of daily emissions, particularly ROG and NO_x emissions, generated during construction would depend on the number of vehicles used and the hours of operation for specific construction activities. The significance of fugitive dust (PM) emissions would vary widely and would depend on a number of factors including the area of disturbed soil, the timing of disturbance, if structures would be demolished, if excavation is required, and if transportation of excavated material is required.

Although construction details are unknown, construction of these facilities may include land-disturbing activities and truck hauling trips that may result in air quality impacts from temporary construction activities. However, construction promoted by the CAP would involve mostly minor upgrades to existing uses and/or County and local programs. New facilities promoted by the CAP would not likely involve significant grading, which is the major land-disturbing activity that contributes construction-period air quality impacts. The CAP does not change existing policies related to mixed use and transit-oriented development which is already called for in local general plans and policies. However, construction activities could still result in temporary construction emissions exceeding BAAQMD or NSCAPCD air quality standards or contribute to an existing long-standing air quality violation. This could result in a significant impact.

Construction impacts are outside of the scope of the plan and are outside of RCPA's jurisdiction to address. Nonetheless, there is no reason to anticipate future significant impacts on air quality, as these impacts can normally be mitigated to less than significant. As required by CEQA, this EIR identifies potential mitigation measures that lead agencies could and should impose in their consideration of particular projects. Recommended Mitigation Measure AQ-1 would require responsible agencies or the construction contractor to implement basic measures to reduce construction emissions to minimize air quality impacts from construction activities promoted by the CAP. Further, the CAP includes measures aimed to help reduce emissions related to construction activities by reducing idling times of heavy-duty construction equipment and encouraging the use of electric construction tools. In addition, any structures that could be constructed consistent with the CAP would be subject to further CEQA analysis of project-specific impacts. Thus, with implementation of recommended Mitigation Measure AQ-1, potential air quality impacts from construction activities would be less than significant.

Mitigation Measure AQ-1: Implement basic construction mitigation measures to reduce construction emissions.

The responsible agency will require construction contractors to implement the basic construction mitigation measures to reduce fugitive dust and equipment exhaust emissions. Alternative measures may be identified by the project sponsor or its contractor, as appropriate, provided that they are as effective as the measures below. Alternative measures shall be submitted to the responsible agency for approval.

- All exposed surfaces affected by construction (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day, or as needed during the dry season(s) (unless limited by state or local drought response requirements or if there is a rain event).
- All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 miles per hour (mph) for a period of 2 hours or more.
- Windbreaks (e.g., fences) will be installed on the windward side(s) of actively disturbed areas of construction. Windbreaks will have at maximum 50 percent air porosity.
- Exposed ground areas that are to be reworked more than one month after initial grading will be sown with fast-germinating native grass seed and watered appropriately until vegetation is established. If grass seeding is not feasible, then non-toxic soil stabilizers may be used.
- All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
- All vehicle speeds on unpaved roads will be limited to 15 mph.
- All construction trucks and equipment, including tires, involved in ground disturbance or transit through loose soil areas will be washed off prior to leaving the site. Site accesses to a distance of 25 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. Alternatively, a rumble plate may be used in place of chips, mulch, or gravel.
- All haul trucks transporting soil, sand, or other loose material off site will be covered.
- Sandbags or other erosion control measures will be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- Idling time of diesel powered construction equipment will be limited to 2 minutes.
- All construction equipment, diesel trucks, and generators will be equipped with Best Available Control Technology for emission reductions of PM and NOx.
- All contractors will use equipment that meets the California Air Resources Board's most recent certification standard for off-road heavy-duty diesel engines.
- A publicly visible sign will be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. BAAQMD's or NSCAPCD's phone number (depending on the project's jurisdiction) will also be visible to ensure compliance with applicable regulations.

Impact AQ-2b: Implementation of the CAP could violate any air quality standard or contribute to an existing long-standing air quality violation during operation (less than significant).

The CAP contains measures that support energy-conserving programs and renewable energy generators, and encourage development in close proximity to transit. The CAP also includes measures to increase alternative fuel use and infrastructure in the County. These measures would help to reduce adverse air quality effects through the reduction of fossil fuel consumption and use of private motor vehicles. In addition, proposed CAP measures related to transportation would reduce VMT, and thus automobile-generated air pollutants, throughout the County. Implementation of the proposed CAP would reduce VMT in the County by approximately 132 million miles by 2020 compared with anticipated annual VMT without implementation of the CAP. Such a reduction of annual VMT would result in a benefit to regional air quality, because with fewer vehicle miles traveled, fewer criteria air pollutants are generated.

The CAP also promotes the installation of methane to energy facilities at landfills and methane digesters dairies for organic waste reduction and GHG abatement purposes. Methane to energy facilities and methane digesters, while reducing GHG emissions, can emit a variety of other emissions including nitrogen, sulfur oxides, particulate matter, carbon monoxide, and ammonia. However, all such facilities are subject to stationary source permitting requirements from the local air quality district. Those permitting requirements ensure that new sources do not result in non-compliance with regional air quality goal attainment. With implementation of such stationary source permitting requirements, new methane to energy facilities and methane digesters would not result in significant operational air quality impacts.

Therefore, the proposed CAP would result in less than significant impacts associated with contributing substantially to an existing or projected air quality violation, or increasing criteria pollutants during operational activities.

Impact AQ-3: Implementation of the CAP could result in a cumulatively considerable net increase of any criteria pollutant (less than significant).

The CAP is intended to reduce levels of GHG emissions throughout the County. In addition to reducing GHG emissions overall, many of the GHG-reduction measures would also reduce criteria air pollutants through the substantial reduction of VMT, the use of renewable energy, and other measures. As noted above, any new stationary sources supported by CAP measures would be subject to local air district permitting rules and requirements that are designed to ensure that they would not contribute to regional air quality degradation. Therefore, the proposed CAP would not contribute to cumulative increases in criteria pollutant, and this impact would be less than significant.

Impact AQ-4: Implementation of the CAP could expose sensitive receptors to toxic air contaminants (less than significant).

In general, the CAP measures would reduce the emission of TACs by reducing on-road emissions for both passenger and commercial vehicles. For example, the proposed anti-idling measures for on-road trucks and construction equipment would help to reduce diesel particulate matter (DPM) emissions, which is one of the most substantive TACs of concern to public health exposure. Furthermore, due to ongoing implementation of the state's Diesel Risk Reduction Program, the level of DPM emissions in trucks is dramatically declining over time, which is helping to reduce the potential risk levels associated with truck emissions.

Some CAP measures encourage the densification of development in city centers and along transit corridors. Increased density and proximity to transit centers could result in a larger concentration of vehicles (autos and buses) in a smaller area, thereby resulting in substantial TAC emissions near sensitive receptors. This is a concern with transit-oriented development because emission sources, such as diesel-engines for buses and commuter trains, are intrinsically near sensitive receptors such as residential land uses. However, buses in the County are clean fuel diesel buses that would not generate substantial TAC emissions. Further, implementation of the CAP would be consistent with existing land use policies supporting transit-oriented development in city centers and with the previously adopted SMART project. Because the CAP is consistent with the land use policies of the County and incorporated communities, implementation of the CAP would not expose new sensitive receptors to TACs in excess of what is allowed and already analyzed in each jurisdiction's general plan.¹

It should be noted that any future actions that would be implemented per the CAP would be subject to applicable BAAQMD or NSCAPCD regulations and requirements, as well as be subject to further CEQA analysis of project-specific impacts. Furthermore, none of the subsequent actions proposed as part of the CAP would result in a new major source of TACs such as industrial processes (e.g., petroleum refining and chromeplating operations), commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. As noted above, waste-to-energy and methane digester facilities are subject to stationary source permitting requirements from the local air quality district that include evaluation and control of TACs to less than significant levels.

Thus, overall the CAP is expected to result in a reduction of TACs associated with construction equipment, commercial truck idling and general VMT reduction, while potential localized TAC emissions associated with waste-to-energy and methane digesters would be controlled by mandatory rules and regulations from local air districts. Thus, impacts associated with exposing sensitive receptors to TACs would be less than significant.

Impact AQ-5: Implementation of the CAP could create objectionable odors affecting a substantial number of people (less than significant).

In general, the CAP measures would not create new sources of substantial permanent odors. The CAP encourages an increase in installation of methane digesters at dairies to capture methane emissions from the decomposition of manure. This would result in concentrated manure collection that could result in odor concerns. However, the CAP does not create new dairies in Sonoma County and is not expected change manure collection at the existing facilities that would result in substantial odor issues.

The CAP also promotes the construction of solid waste facilities to increase waste diversion, reuse of materials, and recycling. Facilities that could be constructed to increase waste diversion could include transfer or composting facilities that could generate objectionable odors during operation. As discussed in Impact LU-2, the siting of solid waste facilities could result in land use incompatibilities, including potential odor impacts. Depending on the proximity of the facility to the nearest receptors, operation of solid waste facilities promoted by the CAP could result in

¹ Pursuant to the recent California Supreme Court ruling in the California Building Industry Association vs. Bay Area Air Quality Management District (BIA vs. BAAQMD) case, the impacts of a project placing new receptors in an area of existing air pollution is not considered an impact under CEQA unless the project itself exacerbates the existing environmental hazard. As noted above, the CAP is not changing current local land use policy in regards to transit-oriented or infill development and as such is not changing the potential for new receptors to be exposed to existing or future emissions. The SMART project is an already adopted project.

objectionable odors affecting a substantial number of people during operation. However, this impact is not anticipated to be significant in light of BAAQMD, Cal Recycle, and local agency review and regulations.

Individual proposals for solid waste facilities would be required to undergo project-level CEQA review, disclose any potential impacts related to creating objectionable odors, and provide mitigation of any significant impacts, if necessary. Since the CAP does not include any specific proposed facilities or facility locations, no further analysis of this potential impact can be provided at this time.

3.4.3.4 Cumulative Impacts

Impact C-AQ-1: Implementation of the CAP, in combination with other foreseeable development in the surrounding area, could have a significant cumulative impact on air quality (less than considerable contribution with mitigation).

The geographic context for the analysis of cumulative impacts associated with air quality is the air basins within Sonoma County—the NCAB and the SFBAAB. The context of cumulative air quality impacts addresses the effects of the CAP in combination with other development in Sonoma County. Implementation of the CAP, combined with other past and future development within the potentially affected geographic area, could violate any air quality standard or contribute to an existing long-standing air quality violation during construction activities if applicable thresholds are exceeded. However, the CAP's construction activities are not expected to generate substantial air quality pollutants during construction because limited grading would likely be required, given the nature of the CAP promoted facilities. Further, recommended Mitigation Measure AQ-1 would require the construction contractor to implement basic measures to reduce construction emissions to minimize air quality impacts from construction activities promoted by the CAP. Thus, impacts related to implementation of the CAP would have a less than considerable contribution with respect to any potential cumulative construction-period air quality emissions.

In regards to operational air quality impacts, cumulative air quality impacts are described under Impact AQ-3. As described, the CAP is intended to reduce levels of GHG emissions throughout the County and many of the GHG-reduction measures would also reduce criteria air pollutants. Therefore, the proposed CAP would not contribute considerably to cumulative increases in criteria pollutant.

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