

4.2 AIR QUALITY

This section of the Environmental Impact Report (EIR) provides a discussion of existing air quality, evaluates potential air quality impacts associated with the proposed Sphere of Influence (SOI) Plan update (SOI Plan update) for the City of Nevada City (proposed project). This section describes the affected environment and regulatory setting for air quality in the City, Nevada County (County), and the region. It also describes the impacts on air quality that would result from implementation of the proposed project, and mitigation to reduce identified impacts where feasible. Information in this section is based on methodologies and assumptions recommended by the Northern Sierra Air Quality Management District (NSAQMD) and other air quality guidance documents and environmental documents for projects in the area.

- Northern Sierra Air Quality Management District.
- California Air Resources Board.

4.2.1 ENVIRONMENTAL SETTING

Topography and Meteorology

Nevada City and SOI Plan update area are located in western foothills of Nevada County which is located in the Mountain Counties Air Basin (Basin). The Basin is in the northeastern region of the State of California. The Basin is bounded to the east by the Sierra Nevada Mountain Range, to the west by the Coastal Mountain Range and to the south by the Tehachapi Mountains. The SOI Plan update area consists of areas surrounding Nevada City in generally hilly mountainous terrain with thick forest covering most of the project area.

Overall, Nevada County exhibits a large variation in terrain and consequently experiences variations in climate, both of which affect air quality. The eastern portions of the County include steeper slopes of the Sierra Nevada Range and river canyons. The warmest areas within the County are found at the lower elevations along the west side of the County, while the coldest average temperatures are found at the highest elevations in the Sierra Nevada Mountains. The SOI Plan update area falls in the middle of these two zones. The climate of the SOI Plan update area generally consists of dry and mild to hot summers and relatively wet winters. In the upper elevation of the City and Grass Valley, snow levels are usually above 5,000 ft. The averages minimum and monthly maximum temperatures of from the Nevada City area in the foothills to the valley area near the Town of Lincoln from approximately 26 to 93 degrees Fahrenheit (°F).

The prevailing wind direction over the County and SOI Plan update area is westerly. However, the terrain of the area has a great influence on local winds, which results in a wide variability in wind direction. Afternoon winds are generally channeled up-canyons, while nighttime winds generally flow down-canyons. Winds are, in general, stronger in spring and summer and lower in fall and winter. Periods of calm winds and clear skies in fall and winter often result in strong, ground-based inversions forming in

mountain valleys. These layers of very stable air restrict the dispersal of pollutants, trapping these pollutants near the ground, representing the worst conditions for local air pollution.

Air Pollutants of Concern

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state laws. These regulated air pollutants are known as “criteria air pollutants” and are categorized into primary and secondary pollutants.

Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NOX), sulfur dioxide (SO₂), coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), fugitive dust and lead are primary air pollutants. Of these, CO, NOX, SO₂, PM₁₀, and PM_{2.5} are criteria pollutants. ROG and NOX are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O₃) is formed by a chemical reaction between ROG and NO_x in the presence of sunlight. O₃ and nitrogen dioxide (NO₂) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in *Table 4.2-1, Air Contaminants and Associated Public Health Concerns*.

Table 4.2-1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Particulate Matter (PM ₁₀ and PM _{2.5})	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O ₃)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC) ¹ and nitrous oxides (NO _x) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO ₂)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.

Table 4.2-1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Man-Made Sources	Human Health Effects
Nitrogen Dioxide (NO ₂)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase-out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.
<p>Notes:</p> <p>1. Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROG and VOCs. Both ROG and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).</p> <p>Source: California Air Pollution Control Officers Association, Health Effects, http://www.capcoa.org/health-effects/, Accessed June 17, 2019.</p>		

Ozone, or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NO_x in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NO_x and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the Basin. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 miles per hour (mph), then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds.

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics.

Existing Air Quality

Table 4.2-2, *Nevada County Attainment Status*, presents the air quality attainment status for Nevada County. Attainment status is determined from air monitoring in the adjacent city of Grass Valley. Grass Valley and Nevada County as a whole is in nonattainment for applicable state and federal ozone standards, in nonattainment for state PM₁₀ standards and unclassified for federal PM₁₀ standards, and unclassified/attainment for state and federal PM_{2.5} standards.

Table 4.2-2: Nevada County Attainment Status

Pollutant	Designation/Classification	
	National Standards ^a	State Standards ^b
O ₃ : 1 hour	No Federal Standard ^c	Nonattainment
O ₃ : 8 hour	Nonattainment	Nonattainment
PM ₁₀	Unclassified	Non-attainment
PM _{2.5}	Unclassifiable/Attainment	Unclassified
CO	Unclassifiable/Attainment	Unclassified
Source: NSAQMD, 2016. ^a See 40 CFR Part 81. ^b See CCR Title 17 Sections 60200–60210. In addition, the entire district is either Attainment or Unclassified for all State and federal NO ₂ , SO ₂ , Pb, H ₂ S, visibility reducing particles, sulfates, and vinyl chloride standards.		

Ambient Air Monitoring

The CARB and NSAQMD monitor the local ambient air quality around the SOI Plan update area and other locations within the County. CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations typically measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

The CARB and NSAPCD operate a network of air monitoring stations in Nevada County. The monitoring station network provides air quality monitoring data, including real-time meteorological data and ambient pollutant levels, as well as historical data. Data was collected from monitoring stations at Grass Valley's Litton Building, White Cloud Mountain and Truckee Fire Station. Due to the distance from the SOI Plan update area, only data from the Grass Valley station is used.

Table 4.2-3, *Existing Air Quality Monitoring Data in Proposed Project Area* presents the measured ambient pollutant concentrations and the exceedances of state and federal standards that have occurred at the Grass Valley Litton Building located within Nevada County from 2015 through 2017, the most recent years for which data are available.

Table 4.2-3: Existing Air Quality Monitoring Data in SOI Plan Update Area

Pollutant and Monitoring Station Location	Maximum Concentration			Days Exceeding Standard		
	2016	2017	2018	2016	2017	2018
O3 – 1-hour CAAQS (0.09 ppm)						
Grass Valley – Litton Building	0.101	0.108	0.112	6	13	5
O3 – 8-hour CAAQS (0.07 ppm)						
Grass Valley – Litton Building	0.097	0.099	0.102	46	85	28
O3 – 8-hour NAAQS (0.07 ppm)						
Grass Valley – Litton Building	0.097	0.099	0.114	39	78	22
PM10 – 24-hour CAAQS (50 µg/m3) – no data						
PM10 – 24-hour NAAQS (150 µg/m3) – no data						
PM2.5 - 24-hour NAAQS (35 µg/m3)						
Grass Valley – Litton Building.	11.7	68.1	142.8	0	3	12.1
Source: CARB, 2018a, b, and c, Notes: ppm= parts per million * There was insufficient (or no) data available to determine the value.						

Sensitive Receptors

The NSAQMD identifies a sensitive receptor as human populations or individuals (especially children, senior citizens and sick persons). The locations where these sensitive receptors congregate are considered sensitive receptor locations and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, such as 24 hours, eight hours or one hour. Sensitive Receptor locations may include hospitals, schools, and daycare centers, and such other locations as the air district board or California Air Resources Board may determine (California Health and Safety Code § 42705.5(a)(5)) (CARB, 2019). Known Sensitive Receptors within 0.25 miles of the SOI Plan update area are shown in *Table 4.2-4, Sensitive Receptors Within 0.25 Miles*.

Table 4.2-4: Known Sensitive Receptors Within 0.25 Miles of the SOI Plan Update Area

Receptor	Address	Distance (miles)
County of Nevada Superintendent of School – District Office	380 Crown Point Circle.	Adjacent
Deer Creek Elementary School	805 Lindley Avenue	Within City Boundaries
Seven Hills Middle School	700 Hoover Lane	Within City Boundaries
Home Study Charter School	750 Hoover Lane	Within City Boundaries
Nevada County Juvenile Hall	15434 CA-49	Within the SOI
Nevada City School	Main Street and Cottage	Within City Boundaries
Nevada City Senior Apartments	841 Old Tunnel Road	0.20 miles
Sutton Way Hospitality House	1262 Sutton Way	0.20 miles

*based on available information, this table presents the known sensitive receptors in proximity to the proposed project.

4.2.2 REGULATORY SETTING

Federal

Federal Clean Air Act

Air quality is federally protected by the Clean Air Act and its amendments. Under the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (U.S. EPA) developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants including ozone, NO₂, CO, SO₂, PM₁₀, PM_{2.5}, and lead. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires each state to prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The U.S. EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the FCAA. If a state fails to correct these planning deficiencies within two years of federal notification, the U.S. EPA is required to develop a federal implementation plan for the identified nonattainment area or areas. The U.S. EPA has designated enforcement of air pollution control regulations to the individual states.

The EPA and the CARB have established health-based ambient air quality standards for criteria air pollutants listed in Table 4.2-1 above. The EPA sets National Ambient Air Quality Standards (NAAQS) for criteria pollutants. Primary standards provide public health protection, including protecting the health of “sensitive” populations, such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. In addition, CARB has established California Ambient Air Quality Standards (CAAQS) standards for these pollutants, as well as for sulfate (SO₄), visibility reducing particles, hydrogen sulfide (H₂S), and vinyl chloride. California standards are generally stricter than national standards. The NAAQS and the CAAQS are shown in *Table 4.2-5, National and California Ambient Air Quality Standards*.

Table 4.2-5: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards ^a	California Standards ^b
Ozone (O ₃)	8 Hours	0.070 ppm (137 µg/m ³) ^c	0.070 ppm (137 µg/m ³)
	1 Hour	-- ^d	0.09 ppm (180 µg/m ³)
Carbon Monoxide (CO)	8 Hours	9 ppm (10 mg/m ³)	9.0 ppm (10 mg/m ³)
	1 Hour	35 ppm (40 mg/m ³)	20 ppm (23 mg/m ³)
Nitrogen Dioxide (NO ₂)	Annual Average	0.053 ppm (100 µg/m ³)	0.030 ppm (56 µg/m ³)
	1 Hour	100 ppb (188.68 µg/m ³)	0.18 ppm (338 µg/m ³)
Sulfur Dioxide (SO ₂)	3 Hour	0.5 ppm (1,300 µg/m ³)	--

Table 4.2-5: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards ^a	California Standards ^b
	24 Hours	0.14 ppm (365 µg/m ³)	0.04 ppm (105 µg/m ³)
	1 Hour	75 ppb (196 µg/m ³)	0.25 ppm (655 µg/m ³)
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	-- ^e	20 µg/m ³
	24 Hours	150 µg/m ³	50 µg/m ³
Particulate Matter—Fine (PM _{2.5})	Annual Arithmetic Mean	12.0 µg/m ³	12 µg/m ³
	24 Hours	35 µg/m ³	--
Sulfates (SO ₄)	24 Hours	--	25 µg/m ³
Lead ^f (Pb)	Rolling Three Month Average	0.15 µg/m ³	--
	30-day Average	--	1.5 µg/m ³
Hydrogen Sulfide (H ₂ S)	1 Hour	--	0.03 ppm (42 µg/m ³)
Vinyl Chloride (chloroethene)	24 Hours	--	0.01 ppm (26 µg/m ³)
Visibility-Reducing Particles (VRPs)	8 Hours	--	-- ^g

Source EPA, 2016a; CARB, 2016,

ppm = parts per million; ppb = parts per billion; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter.

^a The NAAQS, other than O₃ and those based on annual averages, are not to be exceeded more than once a year. The O₃ 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 1. The National Primary Standards, which reflect the levels of air quality necessary, with an adequate margin of safety to protect the public health, are presented.

^b The CAAQS for O₃, CO, SO₂ (1-hour and 24-hour standards), NO₂, PM₁₀, and PM_{2.5} are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

^c On October 1, 2015, the U.S. EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O₃. The U.S. EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm, and retaining their indicators (O₃), forms (fourth-highest daily maximum, averaged across three consecutive years) and averaging times (eight hours). The U.S. EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.

^d One-hour O₃ standard revoked effective June 15, 2005.

^e Annual PM₁₀ standard revoked effective December 18, 2006.

^f On October 15, 2008, U.S. EPA strengthened the lead standard.

^g Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amounts to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

State

California Air Resources Board

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS (Table 4.2-5), are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.

California Clean Air Act

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the SIP for meeting federal clean air standards for the State of California. Like the U.S. EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The Basin attainment status with respect to State standards is summarized in Table 4.2-3, above.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

CARB identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Regional

Northern Sierra Air Quality Management District

Air districts have the primary responsibility to control air pollution from all sources other than those directly emitted from motor vehicles, which are the responsibility of CARB and the EPA. Air districts adopt and enforce rules and regulations to achieve state and federal ambient air quality standards and enforce applicable state and federal law.

The local air quality agency is the NSAQMD. The NSAQMD is comprised of three contiguous, mountainous, rural counties in northeastern California (Nevada, Sierra, and Plumas counties). The NSAQMD is part of the Mountain Counties Air Basin. The NSAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs and regulates open burning. Through its permitting powers, the NSAQMD enforces limitations for emission of criteria and toxic air contaminants. Other NSAQMD responsibilities include monitoring air quality, preparation of clean air plans and responding to citizen air quality complaints.

According to NSAQMD, significant impacts are projects that would generate 136 tons per day of ROG, NOX or PM10. Among the criteria used by the NSAQMD to evaluate a project's air quality impact is the project's potential to emit pollutants exceeding the established threshold amounts for individual pollutants. Level A thresholds require only standard mitigation applicable to all projects, which the NSAQMD typically recommends. Level B thresholds represent a "cumulatively considerable" emission that requires additional mitigation. Level C thresholds require the use of all feasible and reasonable mitigation strategies. Unmitigated emissions above 136 pounds per day are considered to represent a significant impact. In cases when predicted emissions are projected to be below the Level C thresholds but exceeding the Level A thresholds (thereby placing project-related air quality impacts at Level B), the project would be considered potentially significant, subject to the recommended measures of NSAQMD's Mitigation for Use During Design and Construction Phases for Classifications as Level B Threshold (2009). Implementation of the appropriate NSAQMD mitigation from this collection of measures would reduce Level B air quality impacts to a less than significant level. Refer to *Table 4.2-6, NSAQMD Thresholds for Significant Contribution to Regional Air Pollution*.

Table 4.2-6: NSAQMD Thresholds for Significant Contribution to Regional Air Pollution

Criteria Pollutant	Threshold (pounds per day)		
	Level A	Level B	Level C
Oxides of Nitrogen (NO _x)	24	24-136	136
Reactive Organic Gases (ROG)	24	24-136	136
Particulate Matter (PM ₁₀)	79	79-136	136

Source: NSAQMD, Draft Guidelines for Assessing Air Quality Impacts of Land Use Projects, 2009, Accessed June 17, 2019.

The NSAQMD has not yet established significance thresholds for greenhouse gas emissions from project operations.

NSAQMD sets for rules related to air quality emissions that are known as the Rules and Regulations of NSAQMD. The rules related to prohibitions, burning, authorizations, and other procedural requirements. The rules most pertinent to the SOI Plan update area and uses that may occur in the future are listed below.

Rule 205, Nuisance. This rule prohibits the discharge of air contaminants or other material from any source which cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or which endangers the comfort, repose, health, or safety of any such persons, or the public or which cause to have a natural tendency to cause injury or damage to business or property.

Rule 207, Particulate Matter. This rule prohibits the release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas at standard conditions.

Rule 226, Dust Control. This rule requires the submittal of a Dust Control Plan to the NSAQMD for approval prior to any surface disturbance, including clearing of vegetation.

Rule 308, Land Development Clearing. The NSAQMD finds it more economically desirable to dispose of wood waste from trees, vines, and bushes on property being developed for commercial or residential purposes by burning instead of burial at a sanitary landfill. In such instances, disposal by burning shall comply with NSAQMD rules, including, but not limited to, Rule 312, Burning Permit Requirements; Rule 313, Burn Days; Rule 314, Minimum Drying Times; Rule 315, Burning Management; and Rule 316, Burn Plan Preparation.

Rule 501, Permit Required. Before any source may be operated, a Permit to Operate shall be obtained from the Air Pollution Control Officer. No Permit to Operate shall be granted either by the Air Pollution Control Officer or the Hearing Board for any source constructed or modified without authorization or not in compliance with other NSAQMD rules and regulations, including those specified in NSAQMD

Regulation IV.

The NSAQMD contains a Primary Screening Process which requires any project located near sensitive receptors such as a school, daycare facility, hospital or senior center, be reviewed for initial and recurring potential air emissions of criteria pollutants. Under the Primary Screening Process, both short term and long-term emission sources must be considered. In addition, any project with potential to emit odors which may impact a considerable number of persons, leading to a public nuisance, requires in-depth review. Lead agencies are encouraged to address potential land use conflicts or exposure of sensitive receptors to odors as early as possible in the development review process (NSAQMD 2016).

Western Nevada County Ozone Attainment

In 2018, a staff report from CARB prepared the CARB Review of the Ozone Attainment Plan for Western Nevada County. The (OAP) includes the areas east of Nevada City and the SOI Plan update area to the western county boundary. Elevated ozone concentrations occur in Western Nevada County during the late spring through early fall, when high temperatures and stable atmospheric conditions favor ozone formation. The nearest ozone monitoring station to the proposed project area is the Grass Valley monitoring station. Between 2007 and 2012, the Grass Valley design value declined by 19 percent from 95 ppb to 77 ppb, but between 2013 and 2017, the design value increased by 13 percent from 77 ppb to 87 ppb. Also, between 2013 and 2017, the number of days per year when the 8-hour ozone concentration exceeded the 75-ppb standard increased from 4 to 58.

To reduce future emissions, CARB has implemented a stringent mobile source emissions control program. The program consists of emissions standards for new vehicles, in-use programs to reduce emissions from existing vehicle and equipment fleets, cleaner fuels, and incentive programs to accelerate the penetration

of the cleanest vehicles beyond that achieved by regulations alone. The control strategy CARB Control Program, District Control Program, Conformance with Applicable Clean Air Act Requirements (emission inventory, reasonable available control measures demonstration, reasonable further progress demonstration, contingency measures, and transportation conformity budgets).

Among other staff recommendations to the board that they approve the Ozone Plan, including the emission inventories, attainment demonstration, RACM demonstration, RFP demonstration, contingency measures, and transportation conformity budgets, and the CARB Staff Report WOE and supplemental information on contingency measures as a revision to the California SIP (CARB, 2018).

Nevada City General Plan

The Nevada City General Plan (NCGP) does not contain an element related to Air Quality. In May 2015, an Energy Action Element (EAE) was added to the NCGP to address greenhouse as emission and does relate to air quality. For example, retrofitting homes can reduce fossil fuel dependency resulting in fewer emissions-reducing air quality. The elements of the EAE are discussed in detail in Chapter 4.5 – Greenhouse Gas Emissions.

Nevada City Municipal Code

The Zoning Ordinance of Nevada City Municipal Code (NCMC) is contained in Title 17 – Zoning. The purpose of the zoning is for the establishment of various zone districts and define where locations it would be lawful to erect, construct, alter or maintain certain buildings, or to carry out certain trades or occupations, or to conduct certain uses of land or of buildings; within which certain open spaces shall be required about future buildings; and consisting of appropriate regulations to be enforced in such zones, all as set forth in this title. Although not specifically listed as a requirement for all development projects, Section 17.30.090 Other Required Conditions, lists provisions required for the R3 district and under sub J, states, “Meet the site construction air quality best management practices of the NASQMD.”

4.2.3 STANDARDS OF SIGNIFICANCE

Significance Criteria and Thresholds

Based upon the criteria derived from Appendix G of the State CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

4.2.4 PROJECT IMPACTS AND MITIGATION

The proposed project consists of an update to the SOI Plan for the City (proposed project). This EIR evaluates four project alternatives. The following impact evaluation focuses on the LAFCo/City Preferred Consensus Alternative (Consensus Alternative) which has been identified as the Preferred Alternative in accordance with CEQA requirements. Impacts for the other alternatives are discussed in *Chapter 6.0 Alternatives*. In some instances; however, impacts related to the overall SOI Plan update may be presented when applicable and to help illustrate the environmental effects in the framework of the overall SOI Plan update. The impacts are discussed in terms of direct and indirect impacts. Direct impacts are those that occur immediately upon initiation of a project such as ground disturbance or demolition of existing structure(s). Indirect impacts occur when a project would induce growth into areas such as through the extension of infrastructure and that extension could facilitate new development or result in an annexation that could enable future development.

The Impacts Discussion Overview describes the characteristics of the Consensus Alternative, development potential, assumptions for provision of services, and City and environmental review requirements related to air quality. This discussion is applicable to each impact, Impact AIR-1 through Impact AIR-4, below, but is provided here to avoid repetitive discussion.

Impacts Discussion Overview

The Consensus Alternative would update the SOI Plan area, and future development projects under City jurisdiction would occur only after being annexed to the City. The majority of these undeveloped areas within the Consensus Alternative area are designated for estate residential, rural residential, or open space with minor areas designated for planned development, employment centers, public uses, or service commercial. Development in these areas is anticipated to be consistent with the existing City designations.

Within the Consensus Alternative boundaries there are four priority annexation areas (Annexation Areas #1, #2, #3, and #4). These areas in general are already developed, are in close proximity to, or are already being served by existing water or wastewater lines. These areas are in logical locations for extension of City municipal services and represent a logical progression of City boundaries. Given that most of these areas would not require the extension of services such as public sewer or water, disturbance would be low, and given the sites have existing uses, the pressure to increase development density is low. Associated improvements are not anticipated to induce substantial growth resulting in indirect impacts.

The six potential development areas identified by the City are discussed throughout this document. These sites do not yet have any development approval and the specific project footprints are unknown. Annexation and the anticipated timeline for built out would occur over a period of time and is anticipated to be at similar densities as to what is shown in the project description and in accordance with existing City planning documents.

The majority of the remaining undeveloped areas within the Consensus Alternative area are designated for estate residential, rural residential, or open space with some areas designated for planned development, employment centers, public uses, or service commercial.

All future City development after annexation within the Consensus Alternative area would be subject to City design and review as part of City's project review process. All projects would be evaluated for consistency with the NCGP, Nevada City Municipal Code, and Nevada City Design Guidelines. The City also has authority to prezone all future annexations to Nevada City, and for annexations that include new development, the City would be able to specify conditions to ensure that future projects would incorporate all required elements of the listed development guidance documents related to protection of air quality. The project by project review also would include a City led CEQA analysis and as applicable, would require project-specific mitigation measures or binding conditions of approval to reduce impacts related to air quality.

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

A potentially significant impact on air quality would occur if the Consensus Alternative would conflict with or obstruct implementation of the applicable Air Quality Plan. The Consensus Alternative does not include any proposal for new development and would not entitle any projects that would directly result in any construction activities. In addition, the SOI Update plan would leave the County General Plan and zoning code and other land use regulations in effect for all land areas until they are annexed. No land use designation, amendments or rezoning are authorized or included in this project. Therefore, the proposed project would not directly result in any impacts to the violation of an air quality plan.

The proposed project does include four priority annexation areas and six potential development areas and annexation of these areas and future extension of services could result in additional development and the release of construction and operational emissions. The four priority annexation areas are included in the Consensus Alternative and are logical locations for annexation due to the existing development and proximity to existing services. Priority Annexation Area #1 contains an existing Caltrans facility and Priority Annexation Area #2 contains the County Juvenile Hall but there are no plans for expansion on either site. Priority Annexation Areas #3 and #4 are largely developed with existing uses, including a cemetery and rural density residential uses, but a few parcels are vacant that could be developed with similar residential uses.

The six other potential development areas were identified by the City as potential future sites, but development plans and entitlements are not proposed or approved. There are no formal proposals for the sites and no specific site footprints are known. Based on allowable densities, the total development densities for these projects have a broad range from 170-622 total units on a total of 465.42 acres. Due to the lack of plans for these sites it is not possible to quantify specific impacts that may occur. As applications are received and the picture of the potential development becomes clear, these and other projects within the SOI Plan Update area will undergo individual CEQA analysis to determine conformity with the applicable air quality plan(s).

All future projects would be required to follow the NSAQMD implementation plans to reduce pollutants and improve air quality. On November 15, 2018, CARB adopted resolution 18-36 related to the SIP and maintaining the National Ambient Air Quality Standards for the NASQMD basin. As part of the resolution, the District developed the Ozone Attainment Plan for Western Nevada County (Ozone Plan). The purpose of this plan is to meet the serious ozone nonattainment area planning requirement for the 75 ppb 8-hour ozone standard. The resolution states that the Ozone Plan includes an attainment demonstration that shows attainment as expeditiously as practicable by July 20, 2021 (CARB, 2018). Further based on photochemical modeling in the NSAQMD ozone plan, it was demonstrated that attainment of 2008 8-hour ozone NAAQS is likely by 2020 (NSAQMD, 2018), which would qualify as reasonable further progress (RFP). As part of the plan to achieve attainment, additional planning and emission control demonstrations for serious non-attainment areas are needed to comply with the CAA. These conditions include the implementation of the following: Reasonably Available Control Measures (RACM), Reasonable Further Progress (RFP); Attainment demonstration, and contingency measures in the event RFP is not shown (NSAQMD, 2018). This is anticipated to result in future projects being consistent with the applicable air quality plan and subsequently be consistent with the goals, objectives and assumptions in the respective plan to achieve the federal and state air quality standards.

As discussed above, the Consensus Alternative would not result in any direct development but may result in indirect impacts to air quality by facilitating future development. Because these developments are not known, it is not feasible or practical to perform specific air quality analysis on potential indirect impacts. However, future projects would be evaluated for conformance with the applicable air quality plans as they are proposed on a project by project basis. This would include an evaluation of conformance to City development regulations and site-specific CEQA review. In addition, this evaluation would include verification of conformance to NSAQMD standards and requirements and all grading standards, including those to reduce dust emissions, set forth by the City municipal code. Therefore, this impact would be less than significant.

Mitigation Measures:

No Mitigation is Required

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 federal or state ambient air quality standard?

Nevada County is in non-attainment for air quality for the federal and state O₃-8-hour standards; and the O₃-1 hour and PM₁₀ applicable state standard. The Consensus Alternative does not include any specific development plans or entitlements that would authorize any construction that would result in the release of O₃, or PM₁₀ in violation of any applicable federal or state standard.

Indirectly, the Consensus Alternative could result in the annexation and eventual development of properties within the SOI Plan update area. Priority Annexation Area #1 consists of an existing Caltrans facility that is already developed and to which and Priority #2 consists of the Juvenile Hall facility adjacent

to SR-49. Inclusion in the SOI area would enable annexation of these sites and ability to be served by the City. Priority Annexation Areas #3 and #4 contain existing rural residential uses, a few undeveloped parcels, and cemetery. Development potential in these areas is limited. Therefore, the potential for emissions of ROG, NOX, PM10 or PM2.5, and fugitive dust emissions from improvements or new construction in any of the Priority Annexation Areas to result in cumulatively considerable impacts is considered slight.

The Consensus Alternative does include the six potential development areas. The future development of these sites would generate air emissions with the listed air contaminants. Depending on the size of these or other future projects, additional review, evaluate both short term-construction emissions and long-term operational emissions could be needed. If required, the evaluation of construction emissions would include a discussion of the construction activities including demolition, site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces, and the potential for these activities to result in air quality impacts. Construction emissions are relatively short term and of temporary duration, lasting only as long as construction activities occur. However; these emissions can be considered a significant air quality impact if the volume of pollutants generated exceeds the relevant thresholds of significance.

Depending on the components of future projects, operational emissions could require additional evaluations. Operational emissions from potential future projects would typically be generated from mobile sources (burning of fossil fuels in cars); energy sources (cooling, heating, and cooking); and area sources (landscape equipment and household products).

Because the nature of air emissions is largely a cumulative impact, both construction and operational emissions from separate projects within the NASQMD basin would be additive and could result in a considerable net increase of criteria pollutants of State and federal standards. Although it is not anticipated that any individual project would result in a violation of standards, future projects could result in cumulatively considerable impacts to the air basin. As a result, future project-level mitigation may be required to reduce impacts associated impacts.

As applications are received and the specific development projects are known, these and other projects within the SOI Plan update area would undergo individual and site-specific CEQA analysis to determine conformity with the applicable air quality plan(s). The subsequent CEQA review would be use determine the necessary mitigation measures that would be needed to reduce impacts to less than significant. It is anticipated that this review and mitigation developed in accordance with MM-AIR-1 below, would reduce the potential for cumulatively considerable contributions to occur.

Mitigation Measures:

MM AIR-1: Prior to LAFCo approval an annexation involving new, non-ministerial development and construction, the City shall determine if an air quality study is required. If required, the project applicant shall demonstrate to the reasonable satisfaction of the City that the project was reviewed for the potential to result in a cumulatively considerable net

increase of any criteria pollutant during construction. Such projects shall be reviewed for conformance to applicable NASQMD Rules and other measures intended to reduce impacts to air quality. Based on the initial evaluation, the City may require applicants to adopt an air quality management plan. The air quality management plan would include measures such as the following but not be limited to:

Level of Impact After Mitigation: Less than Significant Impact with Mitigation Incorporated.

Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors include, but are not limited to, persons in hospitals, schools, daycare facilities, elderly housing, convalescent facilities, and other medically sensitive populations. These are areas where the occupants can be more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care should be taken when dealing with contaminants and pollutants in close proximity to areas recognized as sensitive receptors (EPA, 2017). Based on available information, there are approximately seven locations, as shown in *Table 4.2-4: Known Sensitive Receptors within 0.25 Miles of the SOI Plan Update Area*, within 0.25 miles of the SOI area.

The SOI Plan update does not propose any construction and would not result in the entitlement of any new projects. Direct impacts associated with air quality that could affect the sensitive receptors in any of these locations or any other location within the Consensus Alternative or site within the City; therefore, would not occur.

Indirect impacts to sensitive receptors could occur as areas are annexed and construction occurs. The majority of sensitive receptors within the Consensus Alternative area include existing schools. The existing schools are largely surrounded by existing residential development, but some areas are within 0.25 miles of undeveloped areas. Two other locations with sensitive receptors include a senior apartment complex and a shelter near the western City boundary.

Priority Annexation Areas #1 and #2 include the Caltrans facility and County Juvenile Hall site. Both these sites are already constructed, and no improvements are planned except to extend utility services. Priority Annexation Areas #3 includes an approximate 17-acre site with 19 parcels around the existing HEW site. No development is proposed; however, some development may be induced if utility services are enabled through annexations. Priority Annexation Area #4 is adjacent to Red Dog Road and consists of a cemetery and rural residential lots, most of which are developed. The Juvenile Hall site would contain school-aged children, but none of the other areas are within proximity to known sensitive receptors.

Regarding the six potential development areas, some portion of these sites and areas upon which development could occur, may be located in proximity to sensitive receptors. However, there are no formal development plans for these sites and the exact development footprints and final uses are unknown.

It should be noted that due to the long-term nature of development that could occur within the SOI Plan update area, and the fact that it is not possible to know what or when future annexations may occur. During this time it is possible that new sensitive receptors or the location of existing sensitive receptors

may change as projects are proposed. Therefore, impacts to sensitive receptors may occur in the future and this is considered a potentially significant impact.

To account for this potential, all future annexations and future projects, as applicable and per City Municipal Code, are required to undergo individual CEQA analysis. As part of this analysis sensitive receptors will be noted if they occur within 0.25 miles of future projects. In accordance with Mitigation Measure (MM-AIR-2), potential impacts related to air quality emissions will be evaluated. MM-AIR-2 sets forth these requirements and would reduce impacts to less than significant.

Mitigation Measures:

MM AIR-2: Prior to LAFCo approval of an annexation involving new non-ministerial development and construction, the project applicant shall show to the reasonable satisfaction of the City, that the project site is not located within 0.25 miles of a sensitive receptor and would not locate sensitive receptors in proximity to an emitter. If the project is located within 0.25 miles of a known sensitive receptor or would locate a sensitive receptor less than 0.25 miles from a known emission source, an initial evaluation to determine if a Health Risk Assessment (HRA) would be needed shall be made. If an HRA is needed, the HRA shall include mitigation measures to reduce impacts to less than significant and will be included to the project.

Level of Impact After Mitigation: Less than Significant Impact with Mitigation Incorporated.

Impact AIR-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

A potentially significant impact related to emission of odors would occur if the Consensus Alternative would enable new uses that would emit odors and adversely affect a substantial number of people. The Consensus Alternative does not include any proposal for new development and would not entitle any projects that would directly result in emission of any odors and impacts in this regard would be less than significant.

Priority Annexation Areas #1 and #2 include the Caltrans facility and County Juvenile Hall. Both these sites are already constructed, and no improvements are planned except to extend utility services. Priority Annexation area #3 includes an approximate 17-acre site with 19 parcels around the existing HEW site. No development is proposed; however, some limited residential development may be induced if utility services are enabled through annexations. Priority Annexation Area #4 consists of a cemetery and rural residential lots, most of which are developed. The vacant lots also may be developed likely with residential uses.

The six other potential development areas do not yet have any development proposals and no specific site footprints and ultimate uses are not known. Because the exact development footprints and final uses are unknown, future development of these site and others within the future SOI area, could result in the emission of objectionable odors.

To account for this potential, all future annexations and future projects, as applicable and per City Municipal Code, are required to undergo individual CEQA analysis. As part of this analysis the potential to emit objectionable odors would be evaluated. MM-AIR-3 sets forth these requirements and would reduce impacts to less than significant.

Mitigation Measure:

MM-AIR-3: Prior to LAFCo approval of an annexation involving new development or construction, the project applicant shall show to the satisfaction of the City that the project would not locate an odor generating use in proximity to substantial numbers of receptors, and would not locate a new project in proximity to an odor generating use. If the proposed project would result in odor impacts, the City shall require appropriate buffers or means of odor control, such as using air filters to ensure receptors are not substantially affected by the source of the odor.

Level of Impact After Mitigation: Less than Significant Impact with Mitigation Incorporated.

4.2.5 CONCLUSION

The Consensus Alternative would not directly result in impacts to localized or regional the air quality or non-attainment issues. Future development projects that are annexed to the City would be subject to the City's land use authority, as set forth in the NCGP and City zoning ordinances and the City, as lead agency for those projects, would require mitigation of significant air quality emissions and other impacts in accordance with state CEQA Guidelines as necessary.

The Consensus Alternative is in the Mountain Counties Air Basin and is in an area that is in non-attainment for the federal and state O₃-8-hour standards; and the O₃-1 hour and PM₁₀ applicable State standard. Additionally, it is possible that future uses could be located in proximity to sensitive receptors, generate odors, or be located in areas affected by odor generating uses. Future annexations into the City; however, are not anticipated to conflict with any existing air quality management plan or result in any other air quality impacts. All future projects that may be entitled within the Consensus Alternative area would be required to undergo the City development and review process to ensure that they are consistent with the applicable air quality management plan and do not result in exposure to odors, or exposure of sensitive receptors to potentially harmful emissions. All annexation projects would be evaluated for incorporation of measures listed in the MM-AIR-1 through MM-AIR-3, above. Therefore, the indirect impacts that could result if the Consensus Alternative is adopted do not constitute significant impacts to air quality.

4.2.6 CUMULATIVE IMPACTS

Adoption of the Consensus Alternative and future development undertaken in accordance with the City's General Plan upon annexation from to the City would result in additional changes to the local and regional air environment. As development occurs within the City these changes, taken in sum with past, present, and reasonably foreseeable projects could affect existing residents and visitors.

Overall, buildout in conformance with the NCGP could result in increased development throughout the SOI Plan update area as those areas are annexed into the City's jurisdiction. The cumulative nature of projects in the air basin area could contribute to changes to air quality. The lands within the Consensus Alternative area consist of areas currently developed with predominantly rural and estate residential uses, separated by open tracts of undeveloped land. With the exception of a few locations designated for planned development, open space, and employment commercial, the vast majority the Consensus Alternative area is anticipated to be developed with residential units at similar densities as to what currently exists. These types of uses are not anticipated to make cumulatively significant contributions to an air quality management plan. Accordingly, NSAQMD's approach to assessing cumulative impacts dictates that a project's contribution to cumulative impacts to regional air quality would be considered potentially significant if the project's impact would be individually significant (i.e., exceeds the NSAQMD's quantitative thresholds). For a project that would not individually cause a significant impact, the project's contribution to any cumulative impact may be considered less than significant, provided that the project is consistent with all applicable regional air quality plans.

Additional construction in the basin and within Consensus Alternative area could result in development that would result in changes that could result in potential exposure of sensitive receptors to harmful air emissions and expose people to odors. Analysis and mitigation measures required CEQA review, would be needed on a project by project basis and would be required by MM-AIR 1 through MM-AIR-3, above. This would reduce impacts in this regard to less than significant.

Level of Impact After Mitigation: Less than Significant Impact with Mitigation Incorporated.

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