4.0 ENVIRONMENTAL IMPACT ANALYSIS
B. AIR QUALITY

INTRODUCTION

This section addresses air emissions associated with construction and operation of trail and trail related improvements included in the proposed TSMP. The analysis provides an overview or applicable regulations, a description of existing conditions, and analysis of potential impacts on air quality and the consistency of the Project with air quality policies within the Great Basin Unified Air Pollution Control District (GBUAPCD)'s Air Quality Management Plan for the Town of Mammoth Lakes. The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or appropriate significance threshold. Air quality technical data utilized in this section is included as Appendix D of this EIR.

1. ENVIRONMENTAL SETTING

a. Regulatory Framework

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The Project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementation of the Federal Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile source and other requirements) are implemented directly by the USEPA. Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies.

(1) Federal Clean Air Act

The CAA was first enacted in 1955 and has been amended numerous times in subsequent years, with the most recent major amendments having been enacted in 1990. The CAA requires national air quality standards, known as National Ambient Air Quality Standards (NAAQS) (see **Table 4.B-1**, *Ambient Air Quality Standards*, below) and specifies dates for achieving compliance.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have lowered substantially and the specification requirements for cleaner burning gasoline are more stringent. Because the Project would generate air emissions during construction and operation of proposed uses, the CAA is applicable to the Project.

Table 4.B-1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a]		Federal Standards [b]		
		Concentration [c]	Method [d]	Primary [c,e]	Secondary [c,f]	Method [g]
Ozone (O^3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.03 ppm (56 µg/m³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m³)		0.10 ppm	None	
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 µg/m³)	Ultraviolet Fluorescence	0.14 ppm (365 µg/m³)	—	Ultraviolet Flouresence; Spectrophotometry (Pararosaniline Method)[9]
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		0.075 ppm (196 µg/m³)	—	
Lead (Pb) [h]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	—		0.15 µg/m³		

Table 4.B-1 (Continued)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a]		Federal Standards [b]		
		Concentration [c]	Method [d]	Primary [c,e]	Secondary [c,f]	Method [g]
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates (SO_4)	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [h]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

[a] *California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter (PM_{10}, and $PM_{2.5}$) and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.*

[b] *National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.*

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

[d] *Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.*

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

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

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

[h] *CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.*

Source: California Air Resources Board (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, updated 09/08/10), and U.S. Environmental Protection Agency (http://www.epa.gov/air/criteria.html and http://www.epa.gov/air/lead/pdfs/20081015_ pb_naaqs_final.pdf [see "FR Notices" at http://www.epa.gov/ttn/naaqs/standards/pb/s_pb_index.html], accessed April 2011]

(2) California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. Table 4.B-1 shows the CAAQS currently in effect for each of the criteria pollutants as well as the other pollutants recognized by the State. As shown in Table 4.B-1, the CAAQS include more stringent standards than the NAAQS for most of the criteria air pollutants. In general, the California standards are more health protective than the corresponding NAAQS. In addition, the California Air Resources Board (CARB) has established standards for other pollutants recognized by the State, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Because the Project would generate air emissions during construction and operation of proposed uses, the CCAA is applicable to the Project.

Table 4.B-2, *Great Basin Valleys Air Basin Attainment Status*, below, provides a summary of the GBUAPCD's attainment status with respect to federal and state standards. The Great Basin Valley Air Basin (GBVAB) is designated as having attained state standards for all pollutants except ozone and particulates PM_{10} (24-hour) and having attained all federal standards except 24-hour PM_{10}. Therefore, discussion of impacts for this Project will focus on those pollutants. However, it should be noted that, according to the most recently published reports, although the Mammoth Lakes nonattainment area has not been officially redesignated, ambient levels have not exceeded the national PM_{10} standards for many years.[1]

Table 4.B-2

Great Basin Valley Air Basin Attainment Status

Pollutant	National Standards	California Standards
Ozone (1-hour standard)	No Standard [a]	Non-attainment [e]
Ozone (8-hour standard)	Unclassified or attainment unknown	Non-attainment
PM_{10} (24-hour standard)	Non-attainment	Non-attainment
PM_{10} (annual standard)	No Standard [c]	Non-attainment
$PM_{2.5}$ (24-hour standard)	Unclassified or attainment unknown	Attainment [d, e]
$PM_{2.5}$ (annual standard)	No Standard [c]	Unclassified or attainment unknown
Carbon Monoxide	Attainment [b]	Attainment [b]
Nitrogen Dioxide	Attainment [b]	Attainment [b, e]
Sulfur Dioxide	Attainment [b]	Attainment [b]
Lead	Attainment [b]	Attainment [b, e]
Visibility Reducing Particles	N/A [d]	Attainment [b]
Sulfates	N/A [d]	Attainment [b]
Hydrogen Sulfide	N/A [d]	N/A [d]
Vinyl Chloride	N/A [d]	N/A [d]

N/A = not applicable

[a] *The NAAQS for 1-hour ozone was revoked on June 15, 2005 for all areas except Early Action Compact areas.*

[b] *An air basin is designated as being in attainment for a pollutant if the standard for that pollutant was not violated at any site in that air basin during a three year period.*

[c] *The NAAQS for annual PM_{10} was revoked on September 21, 2006.*

[d] *EPA or CARB does not monitor or make status designations for this pollutant.*

[e] *Final Regulation Order (2010): Area designations for State Ambient Air Quality Standards, http://www.arb.ca.gov/regact/2010/area10/areafrodc.pdf.*

[1] *Great Basin Valleys Air Basin (Great Basin Unified APCD) Attainment, http://www.arb.ca.gov/pm/pmmeasures/pmch05/gbv05.pdf*

Great Basin Unified APCD, Annual PM10 and Meteorological Report to the Town of Mammoth Lakes, 2009-10 and 2010-11.

Source: USEPA Region 9 and California Air Resources Board, 2010.

(3) California Air Resources Board Air Quality and Land Use Handbook

The California Air Resources Board (CARB) published a draft version of the *Air Quality and Land Use Handbook* on February 17, 2005, to serve as a general guide for considering impacts to sensitive receptors from facilities that emit toxic air contaminant (TAC) emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions. Some examples of CARB's recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater), or within 50 feet of a typical gas dispensing facility; (3) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); and (4) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene, and for operations with two or more machines provide 500 feet. However, as the Project does not involve siting new sensitive land uses, the guidelines are not applicable.

(4) California Air Resources Board Emission Control Measures

In 2004, CARB adopted a control measure to limit commercial heavy duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter (DPM) and other air contaminants.[2] The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. In general, it prohibits idling for more than five minutes at any location.

In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. A CARB regulation that became effective on June 15, 2008, aims to reduce emissions by installation of diesel soot filters and encouraging the replacement of older, dirtier engines with newer emission controlled models.[3] A prohibition against acquiring certain vehicles began on March 1, 2009, and a reporting requirement started on April 1, 2009. Implementation of some provisions is staggered based on fleet size, with the largest operators beginning compliance in 2010.

CARB estimates that by 2020, DPM will be reduced by 74 percent and smog forming NO_X (another important pollutant emitted from diesel engines) will be reduced by 32 percent, compared to emissions levels without the regulation. In January 2010, the Associated General Contractors of America filed a petition requesting CARB to adopt an emergency amendment to delay the fleet average target dates of this regulation for a period of two years. Consequently, the following relief was granted: CARB will "not take any enforcement action for noncompliance with the regulation's March 1, 2010 emission standards or other emission related

[2] *Calif. Code of Regulations, Title 13, Sec. 2485. See http://www.arb.ca.gov/regact/idling/idling.htm (accessed July 2008).*

[3] *Calif. Code of Regulations, Title 13, Secs. 2449, 2449.1, 2449.2 and 2449.3.*

requirements before it receives authorization from U.S. EPA."[4] Because the Project would involve heavy diesel vehicle use during construction, it would be subject to the control measures adopted by CARB.

(5) Great Basin Unified Air Pollution Control District

The GBUAPCD, which covers the whole GBVAB, has jurisdiction over an area of approximately 13,975 square miles. This area includes all of Inyo, Mono and Alpine counties. The GBUAPCD was formed in 1974 when Inyo, Mono and Alpine Counties formed a joint powers agreement with the purpose of meeting and enforcing applicable Federal, State and local air quality regulations. While air quality in this area has improved, the GBUAPCD requires continued diligence to meet air quality standards.

Effective January 23, 2005, the Mono County portion of the GBVAB has a nonattainment designation for O_3 (State standard only), and a nonattainment designation for the federal and State PM_{10} standards. Although Mono County is categorized as nonattainment of the State O_3 standard, there is no ozone implementation plan for attaining the ozone standard in Mono County, nor is one required as outlined in the 2001 CARB Ozone transport review. Instead, the document states "Transport from the central portion of the (San Joaquin) Valley is responsible for ozone violations in Mammoth Lakes."[5] A Draft Air Quality Management Plan (AQMP) for the Town was released on January 19, 1990, identifying PM_{10} sources and mitigation strategies intended to attain the NAAQS. The AQMP identifies emissions from wood-burning stoves and fireplaces and traffic-related road dust and cinders as the primary causes leading to exceedances of the PM_{10} standard in the winter, exacerbated by the substantial influx of visitors to the Mammoth Lakes area during the ski season. The combination of periods of meteorological stagnation and increased visitation to the ski resorts result in violations of PM_{10} standards. The AQMP includes a number of control strategies, including a ban on new wood-burning devices, requirements to retrofit existing wood-burning devices, and a Town-wide limit on vehicle miles traveled (VMT).

The GBUAPCD utilizes a permitting process to regulate emissions. The following list includes some of the rules and regulations that may apply to the Project:

- GBUAPCD Rule 200-A and 200-B. Permits Required: Before any individual builds or operates anything that may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants, such person must obtain a written authority to construct and permit to operate from an Air Pollution Control Officer.
- GBUAPCD Rules 401 and 402. Fugitive Dust and Nuisance: Rule 401 requires that airborne particles remain at their place of origin under normal wind conditions. Proper mitigation techniques approved by the GBUAPCD must be implemented to ensure that fugitive dust is contained. This does not apply to dust emissions discharged through a stack or other point source. Rule 402 states that any air discharge that may cause injury or detriment, nuisance or annoyance, or damage to any public property or considerable number of people is regulated. This rule discusses the health and safety issues that may interfere with public and private areas surrounding the site.

[4] *California Regulatory Notice Register, February 2010. http://www.oal.ca.gov/res/docs/pdf/notice/9z-2010.pdf (accessed April 2010).*

[5] *Town of Mammoth Lakes, General Plan Update EIR, October 2005, p. 4-23.*

- GBUAPCD Rules 404-A and Rule 404-B. Particulate Matter and Oxides of Nitrogen: Rule 404-A states that a person shall not discharge from any source whatsoever, particulate matter in excess of 0.3 grains per standard dry cubic foot of exhaust gas. Rule 404-B states that a person shall not discharge from fuel burning equipment having a maximum heat input rate of more than 1.5 billion BTU per hour (gross), flue gas having a concentration of nitrogen oxides calculated as Nitrogen Dioxide (NO_2) in parts per million of flue gas by volume at 3 percent oxygen: 125 ppm with natural gas fuel, or 225 ppm with liquid or solid fuel. Additionally, a person shall not discharge from sources other than combustion sources, nitrogen oxides, calculated as nitrogen dioxide, 250 parts per million (ppm) by volume.
    - GBUAPCD Rule 431. PM Reduction Control Measures: Requirements include vacuum street sweeping of wood stove cinders, requires vehicle miles traveled (VMT) reduction measures for new developments, and limits peak VMT in the Town to 106,600 VMT.

(6) Regional Comprehensive Plan

The GBVAB lies outside of a metropolitan planning organization (MPO). It is identified as an Isolated Rural area, meaning that its emissions are not part of an emissions analysis of any MPO's transportation plan or Transportation Improvement Program. Therefore, there is no regional plan to guide growth and transportation issues in the area.

The Project site is located within the Town of Mammoth Lakes. Since this area is located in an Isolated Rural Area, it is not subject to regional planning issues. Therefore, there is no impact to a Regional Comprehensive Plan with implementation of the Project.

(7) Mammoth Lakes Plans and Policies

The Mammoth Lakes General Plan, last updated in 2007, is designed to promote the public health, safety and general welfare of the community. The Plan is a comprehensive, long term and an internally consistent document that sets forth goals and policies to govern decisions of the Town with respect to the community's future. The goals and policies applicable to the Project include:

Community Design and Streetscape

C.3. GOAL: Ensure safe and attractive public spaces, including sidewalks, trails, parks and streets.

- C.3.D. Policy: Development shall provide pedestrian-oriented facilities, outdoor seating, plazas, weather protection, transit waiting areas and other streetscape improvements.
    - C.3.D.1. Action: Prepare a streetscape design plan and manual that includes:
        - comprehensive design standards for all road, trail, sidewalk and transit facilities
        - lighting
        - signage (way-finding and interpretive)

- related infrastructure
- landscaping and street trees

- C.3.D.2. Action: Prepare a townwide directional signage and way-finding plan.

Mobility

M.3. GOAL: Emphasize feet first, public transportation second, and car last in planning the community transportation system while still meeting Level of Service standards.

- M.3.B. Policy: Reduce automobile trips by promoting and facilitating:
  - Walking, Bicycling, Local and regional transit, Innovative parking management, Gondolas and trams, Employer-based trip reduction programs, Alternate work schedules, Telecommuting, Ride-share programs, Cross-country skiing and snowshoeing

Walking and Bicycling

M.4. GOAL: Encourage feet first by providing a linked year-round recreational and commuter trail system that is safe and comprehensive.

- M.4.A. Policy: Improve safety of sidewalks, trails and streets.
- M.4.B. Policy: Provide a high quality pedestrian system linked throughout the community with year round access.
  - M.4.B.1. Action: Develop and implement a pedestrian improvement plan.
- M.4.C. Policy: Design streets, sidewalks and trails to ensure public safety such as:
  - adequate dimensions and separation
  - glare-free lighting at intersections
  - directional and informational signage
  - trash receptacles
  - benches
  - shuttle shelters

- protected roadway crossings
- landscaping
- groomed community trails
- snow removed from sidewalks

- M.4.D. Policy: Provide safe travel for pedestrians to schools and parks.
  - M.4.D.1. Action: Update trail, streetscape and roadway design standards as well as the Circulation, Trail System and General Bikeway Plans to:
    - Establish a system of bicycle routes and pedestrian trails for recreation, commuting and shopping that is comprehensive and safe
    - Develop a townwide maintenance, grooming and/or snow removal program for sidewalks and trails to provide year-round pedestrian access
    - Design and construct streetscapes and roadways to reduce long-term maintenance costs in a harsh climate
- M.4.E. Policy: Development shall improve existing conditions to meet Town standards.

Streets

M.7. GOAL: Maintain and improve safe and efficient movement of people, traffic, and goods in a manner consistent with the feet first initiative.

Parks, Open Space, and Recreation

P.3. GOAL: Create a Master Plan for an integrated trail system that will maintain and enhance convenient public access to public lands from town.

P.4. GOAL: Provide and encourage a wide variety of outdoor and indoor recreation readily accessible to residents and visitors of all ages.

P.5. GOAL: Link parks and open space with a well-designed year round network of public corridors and trails within and surrounding Mammoth Lakes.

Air Quality

R.10. GOAL: Protect health of community residents by assuring that the town of Mammoth Lakes remains in compliance with or improves compliance with air quality standards.

- R.10.A. Policy: Support regional air quality improvement efforts.

- R.10.D. Policy: Mitigate impacts on air quality resulting from development through design, participation in Town air pollution reduction programs, and/or other measures that address compliance with adopted air quality standards.

- R.10.E. Policy: The Town of Mammoth Lakes will strive to attain and maintain the National Ambient Air Quality Standard (NAAQS) for PM_{10}.

    - R.10.E.2. Action: The Town will continue to require project level environmental reviews (EIR's and Negative Declarations) to address the incremental increase in PM_{10} levels from the project(s).

    - R.10.E.3. Action: In the event that the project level reviews show that the Town is likely to exceed the NAAQS, permits will not be issued until mitigation is developed that demonstrate compliance with the NAAQS.

- R.10.G. Policy: Reduce air pollutants during construction through implementation of Best Management Practices (BMPs).

Chapter 8.30 of the Municipal Code (Town Particulate Matter Ordinance) requires the Town to include a limit of 106,600 vehicle miles traveled (VMT) in its review of proposed development projects, incorporate street sweeping measures, and implement restrictions on wood-burning stoves and fireplaces, and other measures consistent with applicable GBUAPCD Rule 431 listed above.

b. Existing Conditions

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the prevalent air quality.

The following pollutants are regulated by the EPA and, therefore, are subject to emission reduction measures adopted by federal, state and other regulatory agencies.

Ozone (O_3): Ozone is a secondary pollutant formed by the chemical reaction of volatile organic compounds and nitrogen oxides (NO_X) under favorable meteorological conditions such as high temperature and stagnation episodes. An elevated level of ozone irritates the lungs and breathing passages, causing coughing, and pain in the chest and throat thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and may lower the lung efficiency.

Carbon Monoxide (CO): Carbon monoxide is primarily emitted from combustion processes and motor vehicles because of incomplete combustion of fuel. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. It is especially dangerous for people with

chronic heart disease. Inhalation of moderate levels of carbon monoxide can cause nausea, dizziness, and headaches, and can be fatal at high concentrations.

Nitrogen Oxides (NO_X): Major sources of NO_X include power plants, large industrial facilities, and motor vehicles. Nitrogen oxides are emitted from combustion processes and irritate the nose and throat. It increases susceptibility to respiratory infections, especially in people with asthma. The principal concern of NO_X is as a precursor to the formation of ozone.

Sulfur Dioxide (SO_2): Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of sulfur dioxide aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. Sulfur dioxide potentially causes wheezing, shortness of breath, and coughing. High levels of particulate appear to worsen the effect of sulfur dioxide, and long-term exposures to both pollutants leads to higher rates of respiratory illness.

Lead (Pb): Lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing the metal is the primary source of lead emissions, which is primarily a regional pollutant. Lead affects the brain and other parts of the body's nervous system. Exposure to lead in very young children impairs the development of the nervous system, kidneys, and blood forming processes in the body.

Particulate Matter (PM_{10} and $PM_{2.5}$): The human body naturally prevents the entry of larger particles into the body. However, small particles, with an aerodynamic diameter equal to or less than ten microns (PM_{10}) and even smaller particles with a aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), are trapped in the nose, throat, and upper respiratory tract. These small particulates enter the body and could potentially aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM_{10} and $PM_{2.5}$. Lung impairment can persist for two to three weeks after exposure to high levels of particulate matter. Some types of particulate could become toxic after inhalation due to the presence of certain chemicals and their reaction with internal body fluids.

"Fugitive dust" is atmospheric dust resulting from both natural and anthropogenic disturbance of soil and other granular material. Fugitive dust particles are comprised mainly of soil minerals (i.e. oxides of silicon, aluminum, calcium, and iron), but can also consist of sea salt, pollen, spores, etc. The most common regulated forms of particulate matter are known as PM_{10} (particulate matter with a diameter of 10 microns or less in size) and $PM_{2.5}$ (particulate matter with a diameter of 2.5 microns or less in size).

PM_{10} is predominately comprised of windblown dust or other operations involving solid particulate materials. $PM_{2.5}$ is more likely the result of fuel combustion and photochemical reactions. $PM_{2.5}$ is both directly emitted and formed via chemical reactions in the atmosphere from precursor pollutants such as NO_X, SO_X, and ammonia. However, most fugitive dust particles are larger than PM_{10} particulates and thus would not comprise either PM_{10} or $PM_{2.5}$.

PM_{10} may accumulate in the lungs and irritate the respiratory tract, and may also lead to eye irritation, but fine particles ($PM_{2.5}$) are more likely than larger PM_{10} particles to contribute to health effects. The CARB and the USEPA have recognized adverse health effects that may be associated with exposure to PM, including:

- Increased respiratory symptoms, such as the irritation of the airways, coughing, or difficulty breathing;
- Decreased lung function, particularly in children;
- Aggravated asthma;
- Development of chronic bronchitis;
- Irregular heartbeat;
- Increased respiratory and cardiovascular hospitalizations;
- Premature death in people with heart or lung disease.

Based on reviews of the latest scientific literature, CARB staff has concluded that exposure to $PM_{2.5}$ has potential health impacts. In recognition, the USEPA and CARB have established NAAQS and CAAQS for PM emissions. The NAAQS and CAAQS have been set at levels considered safe to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly with a margin of safety.

Short-term exposure to fugitive dust during construction typically will not result in any considerable health effects. Health risk methodologies for operational impacts typically assume a conservative continuous exposure of 24-hours per day, for a 70-year lifetime, outdoors at the same location. In contrast, exposure during construction is substantially reduced because of the temporary nature of construction and because construction activities primarily occur during normal working hours. As a result of the limited exposure, health effects from fugitive dust during construction are minimized. Air quality standards and GBUAPCD thresholds are developed for the purpose of protecting the health of sensitive populations.

(2) Local Area Conditions

(a) Meteorology and Pollutant Levels

The Project site is located in the Town of Mammoth Lakes in Mono County. Located on the eastern slope of the Sierra Nevada Mountains, the Town has a dry climate with clear skies, excellent visibility, hot summers, and wide fluctuations in daily temperatures. The average minimum temperature is in the upper 20s (degrees Fahrenheit), while the average maximum temperature is in the mid- to high 50s. Most of the precipitation in this area (approximately 70 percent) occurs between November and February. Spring is the windiest season, with fast-moving northerly weather fronts. During the day, southerly winds result from the strong solar heating of the mountain slopes, causing upslope circulation. Summer winds are northerly at night as a result of cool air draining from higher to lower elevations. The mean annual wind speed in Mammoth Lakes is less than 11 miles per hour (mph).

The extent and severity of the air pollution problem in the GBVAB is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). The Mono County portion of the GBVAB has a non-attainment status for ozone (State standards only); non-attainment of ozone is associated with the effect of transported pollution from outside of Mono

County, rather than local generation of ozone or ozone precursors. All of the GBVAB is designated non-attainment for the PM_{10} State standard.

Although Mono County is categorized as non-attainment for the State ozone standard, there is no ozone implementation plan for attainment in Mono County, nor is one required under State law. As outlined in the 2001 CARB Ozone Transport Review, the CARB classifies the contribution of transported pollution from one air basin to another to be either overwhelming, significant, inconsequential, or some combination of the three. The CARB Ozone Transport Review is a statewide assessment of ozone transport between air basins. According to the CARB, ozone levels would improve in the air basin only when substantial mitigation measures are more fully implemented in upwind air basins. Local sources are not considered to have a considerable impact on ambient levels due to the climactic patterns of the eastern slopes of the Sierra Nevada Mountains.

(b) Existing Pollutant Levels at Nearby Monitoring Stations

Air quality is monitored by the GBUAPCD at a number of locations throughout the Basin. Currently, there are 19 monitoring sites in the GBVAB. The monitoring station most representative of the Project Area is the Mammoth Lakes- Gateway Home Center (Rite Aide Center) Monitoring Station, located within the TSMP area. This monitoring station is located on Highway 203 and Old Mammoth Road, approximately 1.17 miles northwest of the SHARP #1 Priority Project analyzed in the Impacts Section. Only PM_{10} is monitored at this station. The site is equipped with a state of the art continuous-reading TEOM PM_{10} monitor. The APCD continued to use a co-located Partisol PM_{10} monitored in the past, but these monitoring programs have been discontinued as well. Although there has been no ozone monitoring in Mono County since 2002, the County continues to be designated a non-attainment area for the state ozone standard. However the air basin is designated as "attainment" for the federal 8-hour O_3 standard. The most recent data available from this monitoring station which has been reviewed and summarized by the GBUAPCD encompasses the years 2007 to 2011. The data shown in **Table 4.B-3**, *Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations*, indicate the following pollutant trends:

Table 4.B-3

Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations

Pollutant Standard and Data	2007	2008	2009	2009-2010	2010-2011
Particulate Matter (PM_{10})					
24-Hour: C=50 μg/m³; N=150 μg/m³	67	138	118	104	102
Max. Concentration (μg/m³)	1	6	5	20	25
% of Samples[e] > Calif. Standard	0	0	0	0	0
% of Samples[e] > National Standard					

C = California ambient air quality standard; N = national ambient air quality standard; ppm = parts per million; μg/m3 = micrograms per cubic meter; N/A = not applicable; -- = not available or not reported.

[a] *The standard was attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm was ≥ 1. As of June 15, 2005, the USEPA revoked the 1-hour ozone standard in all areas except certain areas outside of California.*

[b] *May be exceeded once per year on average over 3 years.*

[c] *At this monitoring station, PM_{10} samples were collected every six days; each reflects a six-day period. The monitoring schedule for this station begins and ends during the month of March.*

Table 4.B-3

Pollutant Standards and Ambient Air Quality Data from Representative Monitoring Stations

Pollutant Standard and Data	2007	2008	2009	2009-2010	2010-2011

Source: Data obtained from GBUAPCD and ARB's ADAM Database, accessed March 2011. http://www.arb.ca.gov/adam/topfour/topfourdisplay.php

Particulate Matter, PM_{10}. The area is in non-attainment for PM_{10}. The highest average 24-hour PM_{10} concentration was 138 $\mu g/m^3$, recorded in 2008. During the years 2007-2011, between 1 and 6 percent of the air samples taken at the monitoring station (representing samples collected every six days) showed concentrations above the California 24-hour average standard for PM_{10}. No sample showed an exceedance of the national standard.

(c) Existing Emissions

The TSMP addresses the trail system envisioned throughout the Town's Municipal Boundary. This includes trail components within the Town's UGB, which is comprised of a mix of urbanized uses, as well as system components that extend beyond the Town's UGB into mostly undeveloped Inyo National Forest lands. Operation of the various trails results in indirect emissions of air pollutants from the following sources: electricity to power restrooms and lighting, emissions from on-road vehicles (tailpipe exhaust, tire wear, and re-entrained dust) transporting employees, volunteers, and visitors to and from trailheads, non-road vehicle usage (snow mobiles), and fuel combustion and chemical usage (paint, asphalt paving, etc.) related to periodic maintenance, repair, and improvement of the trail system.

Emissions from such uses include criteria and precursor pollutants and greenhouse gases (see Section 4.F, Global Climate Change). An inventory of existing criteria pollutant emissions within the TSMP area is presented below in Subsection 2, Environmental Impacts.

(d) Sensitive Receptors and Locations

The California Environmental Protection Agency and CARB consider some population groups as more sensitive to air pollution than others.[6] These include children, the elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases) who are collectively referred to as sensitive receptors. Sensitive land uses are those most frequently used by sensitive receptors, including homes, schools, hospitals and care facilities. The Project consists of several construction sites spread throughout the TSMP area. On a programmatic level, there exist sensitive land uses in the general vicinity of most of the trails and system amenities.

Implementation of the proposed TSMP is expected to result in potential short-term or long-term increases in emissions at a number of specific locations. The nearest sensitive populations to the Priority Projects are listed below:

[6] *California Environmental Protection Agency and California Air Resources Board, "Air Quality and Land Use Handbook: A Community Health Perspective," April 2005.*

- The nearest sensitive receptors to the SHARP Priority Project #1, Borrow Pit/Staging Area, are existing residential uses located approximately 2,345 feet (just under half a mile) to the northwest, along Meadow Lane. Additional existing residential sensitive receptors are also located 2,485 feet to the west of the Project site, along Fairway Court. Future single family residences within the Snow Creek VIII Tract are expected to be occupied by 2017, located along Fairway Drive and Old Mammoth Road, 1,050 feet west of the proposed staging area improvement.
- The nearest sensitive receptor to the Future Multi-Use Path 2-1, Town Loop (4a), which starts from Mammoth Creek Park to Minaret Road are the multi-family residential units located on Meadow Lane, 135 feet north of the proposed path improvement.
- The nearest sensitive receptor to the Future Multi-Use Path 3-1, College Connector, which starts from Sierra Park Road to the Town Loop are the Cerro Coso Community College Dorms located on College Parkway, 55 feet south of the proposed path improvement.

The Project is expected to result in potential short-term or long-term increases in emissions at a number of specific locations, and the nearest sensitive populations to a Trail Improvement project under the TSMP is listed below:

- The nearest sensitive receptors to the proposed Recreation Node, GIC 64 (Trailhead), Sierra Boulevard at Forest Trail are the single-family residential units located on Sierra Boulevard, and Forest Trail approximately 80 feet south of the proposed trailhead improvement.

2. ENVIRONMENTAL IMPACTS

a. Significance Thresholds

Appendix G of the *CEQA Guidelines* contains the Initial Study Environmental Checklist form used during preparation of the Project Initial Study, which is contained in Appendix A of this EIR. The Initial Study Environmental Checklist includes questions relating to air quality. The Initial Study Environmental Checklist questions relating to air quality have been utilized as the thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

Threshold 1: Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact Statement 4.B-1).

Threshold 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation (refer to Impact Statement 4.B-2).

Threshold 3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) (refer to Impact Statement 4.B-3).

Threshold 4: Expose sensitive receptors to substantial pollutant concentrations (refer to Impact Statement 4.B-4).

Threshold 5: Create objectionable odors affecting a substantial number of people (refer to Impact Statement 4.B-5).

b. Numerical Significance Thresholds

Neither the Town of Mammoth Lakes nor the GBUAPCD have established numerical air quality significance thresholds for quantitatively determining air quality impacts in accordance with the criteria listed above. CEQA allows Lead Agencies to rely on standards or thresholds promulgated by other agencies. Thus, projects in the GBVAB have recently used the numerical standards of the Mojave Desert AQMD in prior CEQA reviews (such as the Rock Creek Canyon Specific Plan EIR, Mono County, July 2010). Because the air quality and pollutant attainment status in portions of the Mojave Desert Air Basin (MDAB) are similar to those of the GBVAB, the numerical thresholds set for MDAB by the Mojave Desert Air Quality Management District (MDAQMD) are considered adequate to serve as significance thresholds for the Project. The significance criteria discussed below are currently recommended to translate the State *CEQA Guidelines* thresholds into numerical values or performance standards.

(1) Construction Emissions Thresholds

Based on criteria set forth in the *MDAQMD- CEQA and Federal Conformity Guidelines*, the Project would have a significant impact with regard to construction emissions if the following would occur:

- Regional emissions from both direct and indirect sources would exceed any of the following threshold levels: (1) 137 pounds per day for NO_X, (2) 137 pounds a day for VOC, (3) 82 pounds per day for PM_{10}, (4) 82 pounds per day $PM_{2.5}$, (5) 550 pounds per day for CO, and (6) 137 pounds per day for SO_X.[7]

TAC emissions from construction activities will be evaluated qualitatively.

(2) Operational Emissions Thresholds

The Project would have a significant impact on air quality from Project operations if any of the following would occur:

- Operational emissions from both direct and indirect sources would exceed any of the following prescribed threshold levels: (1) 137 pounds per day for NO_X, (2) 137 pounds a day for VOC, (3) 82 pounds per day for PM_{10}, (4) 82 pounds per day $PM_{2.5}$, (5) 550 pounds per day for CO, and (6) 137 pounds per day for SO_X.[8]
- Operational peak daily traffic loads (Project plus Cumulative) to exceed 106,660 VMT, as established in the Town of Mammoth Lakes Municipal Code (Section 8.30.110).

The Project does not involve the introduction of permanent, continuous, or stationary sources of TAC emissions. Mobile source operational emissions of TACs will be discussed qualitatively.

[7] *http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=1456*

[8] *http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=1456*

c. Methodology

(1) Construction Impacts

Construction generates pollutant emissions both on- and off-site. On-site emissions, or emissions within the TSMP area, include exhaust emissions from diesel-powered equipment, volatile emissions from paint, construction materials, and asphalt, and fugitive dust generated by demolition, moving earth and driving on unpaved surfaces. Off-site emissions include diesel exhaust, tire wear and brake wear particulates from construction vehicles making their way to and from the TSMP area, and vehicle exhaust, tire and brake wear particulates from vehicles used for worker commuting.

Daily emissions during construction were forecast using a conservative[9] construction scenario (for example, assuming construction activities would occur within a short period of time, producing higher daily emissions than a prolonged schedule, and at an early date, when fewer construction fleet emission control requirements may have become effective, and fewer emission control technology innovations may have become available). URBEMIS 2007 provided the required mobile-source and fugitive dust emission factors.[10] Project features that would be implemented during construction that have been incorporated into the construction emissions analysis include applying water to exposed surfaces at least twice daily and frequent application of water to unpaved roads, in compliance with applicable GBUAPCD Rules. The forecast regional emission rates for construction were compared to mass daily thresholds of significance published by the MDAQMD.[11]

(2) Operational Impacts

The analysis of a project's impact on regional air quality during long-term project operations typically considers three types of sources: mobile, area and stationary. Mobile sources are off-site vehicle trips. Area sources involve multiple similar emissions on-site, such as the consumption of natural gas or wood (for hot water, heat, or cooking) or other fossil fuel (landscaping equipment, generators, etc.), and use of consumer products that contain volatiles and solvents. Stationary sources include off-site generation of electricity used on-site for the project.[12]

The proposed Project would not result in a material increase in local demand for electricity or natural gas within the TSMP area. Maintenance activities are likely to remain similar to current conditions. Therefore the analysis of operational impacts is focused on the potential for increases in vehicular traffic at the regional and local levels. Mobile sources have the potential to create localized increases in concentrations of CO, referred to as "hot spots", which may impact sensitive receptors (residents, pedestrians, etc.) near road ways and intersections. CO is a byproduct of incomplete combustion, and emissions are worse during engine idling and periods of stop-and-go driving at slow speeds in congested conditions. As noted above, vehicular

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[9] *The term "conservative," as used in this document, means health-conservative. Methods that analysts consider conservative are more likely to produce emission and heath risk estimates that are high, and thus, from a risk management perspective, to err on the side of health protection. Details are provided in Appendix D.*

[10] *URBEMIS 2007 is an emissions estimation/evaluation model developed by CARB, and based, in part, on SCAQMD CEQA Air Quality Handbook guidelines and methodologies.*

[11] *MDAQMD Air Quality Significance Thresholds (February 2009): http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=1456.*

traffic has been identified as a substantial contributor to the Town's PM10 levels, primarily through the re-entrainment of on-road particles from cinders, soil, and brake and tire wear.

Localized impacts to CO levels from mobile sources were evaluated using data from the Traffic Impact Study prepared for the Project by LSC in April 2011. In traffic studies, the term "level of service" (LOS) describes traffic performance at intersections or along roadway segments, and is generally expressed as a letter grade (A through F, with an A grade meaning the freest-flowing traffic). Traffic researchers and planning agencies generally assign LOS ratings to intersections based on the ratio of traffic volume (or demand) to capacity (V/C).[13] Lower V/C ratios correspond to better performance (freer-flowing traffic). Quantitative analyses would be required for those intersections experiencing a substantial decrease in LOS or increase in V/C.

With regard to PM_{10}, the AQMP contain a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. This includes a limit of 106,600 vehicle miles traveled (VMT) Town-wide. Increases in population and vehicle traffic result in an increase in PM_{10} emissions from traffic-related road dust and cinders. Therefore, a quantitative analysis would be required for a Project resulting in an operational increase in VMT, especially during the winter.

(3) Toxic Air Contaminants

Analysis of potential TAC impacts is typically performed from two viewpoints: (1) TAC emissions from the Project impacting off-site receptors and (2) ambient TAC concentrations impacting new on-site (Project) sensitive receptors. The Project does not result in a long-term increase in the use of TAC-containing products (fuels, maintenance products, etc.) or the introduction of sensitive receptors near to existing TAC sources. Therefore quantitative analysis of potential TAC impacts from the Project is not warranted.

d. Project Features

As discussed in Section II, *Project Description*, of this EIR, the Project has the primary goal to create an integrated year-round trail network that provides a seamless transition between the Town's urbanized area, the Mammoth Mountain Ski Area (MMSA), and National Forest lands within and beyond the Municipal Boundary managed by the United States Forest Service (USFS). Relevant to air quality, is the goal of the Project to enhance year-round mobility in a manner that is consistent with the Town's "Feet First" strategy that may reduce vehicle miles. The TSMP includes proposals for trails, paved Multi-Use Paths (MUPs), and Recreational Nodes, as well as goals, objectives, guidelines and various other recommendations that direct implementation and management of the plan. Features of the TSMP that address air quality impacts include the following:

- The Project goal to improve mobility consistent with the Town's "Feet First" strategy by enhancing opportunities for walking/hiking and biking, would serve to reduce vehicle miles traveled, which would result in lower emissions of criteria pollutants, toxic air contaminants, than under current conditions.

[13] *For an example LOS rating system for signalized intersections, see the City of Roseville, CA, Level of Service (LOS) Policy: http://www.roseville.ca.us/pw/engineering/transportation_planning/level_of_service_(los).asp.*

- **Site Enhancements**
  - Provide Pedestrian Network Improvements (i.e., pedestrian network that connects all uses and all existing and planned trail facilities)
  - Create Recreational nodes
  - Improve Bike Lane Design
  - Provide Bike Parking and Facilities
  - Provide Education/Interpretive Areas
  - Provide Signage
- **Parking Policy/Pricing**
  - Provide Parking, but Limit Parking Supply
- **Commute Trip Reduction Programs**
  - Provide Alternative Transportation Options
  - Provide End of Trip Facilities
- Transit System Improvements
  - Implement Transit Access Improvements
  - Provide Bike Parking Near Transit
  - Provide Buses at specific Recreational Nodes
- **Vegetation**
  - Preserve Nature Areas
  - Preserve Open Space
- **Construction**
  - Limit Construction Equipment Idling beyond Regulation Requirements
  - Limit Number of Simultaneous Construction Projects

e. Analysis of Project Impacts

The analysis of the Project's air quality impacts applies to all future trail components associated with the Project, including the Priority Projects. Many of the future trail components associated with the Project (including the Priority Projects) would be subject to similar greenhouse gas impacts throughout the Project Area.

(1) Consistency with Air Quality Plan

4.B-1 Project implementation would result in less than significant air quality impacts and would not conflict with or obstruct implementation of the applicable air quality plan.

Pursuant to the CAA, the GBUAPCD is required to reduce emissions of criteria pollutants for which the Great Basin is in non-attainment. Because the Project is located within a nonattainment area, certain Project-related activities may be subject to emission control strategies contained within the Town of Mammoth

Lake's PM_{10} AQMP.[14] As established above, there is no ozone AQMP applicable to development Projects within the Town.

Construction would involve activities that can result in emissions of particulate matter. Construction and repair of parking lots, trails, and amenities (restrooms) would require earthmoving such as grading and trenching. Compliance with applicable Rules, ordinances, plans, and policies would minimize PM emissions during construction. As shown below, in response to question "b", construction emissions would not exceed emission thresholds.

The TSMP is intended to enhance recreational opportunities for residents and visitors and proposed Project improvements are not expected to increase population or visitors within the TSMP area. The Project is designed for pedestrian or bicycle use, providing critical links in the Town's trails system as envisioned in the Town's Trail System Master Plan. Thus, the Project would be supportive of the AQMP strategy to limit VMT. The Project would comply with GBAUPCD rules and Town ordinances and is designed to be consistent with applicable Town policies and the AQMP. Therefore the Project would not conflict with implementation of the AQMP.

(2) Violation of an Air Quality Standard

4.B-2 Project implementation would result in less than significant air quality impacts, based on the applicable threshold of significance. Potentially significant construction impacts would be reduced to a less than significant impact with implementation of the prescribed mitigation measure and would not violate applicable air quality standards nor substantially contribute to an existing or projected air quality violation.

(a) Construction Impacts

Construction of individual trail projects as part of the Project has the potential to impact air quality through the use of heavy construction equipment, earth-moving activities, and through vehicle trips of construction workers traveling to and from the Project sites. In addition, fugitive dust emissions would result from construction activities. Mobile source emissions, primarily PM and NO_X, would result from the use of construction equipment such as bulldozers, loaders, and cranes. Construction emissions can vary from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

The TSMP proposes a number of improvements at various locations throughout the Project Area. A detailed schedule of Project component initiation and completion is not known at this time. Due to the weather conditions of the project area, the construction season typically takes place from May to October over a period of six months. The Priority Projects would require at least two years for complete build out. However, since construction is contingent on available funding, construction of all Priority Projects is expected to occur in more than two years. Thus, to quantitatively evaluate potential impacts, the most intensive improvement proposed by the TSMP, the SHARP Area Priority Project #1, was analyzed on a Project-level basis. This Project component was chosen for analysis based on the affected surface area,

[14] *Air Quality Management Plan for the Town of Mammoth Lakes, Prepared for the PM-10 State Implementation Plan by The Great Basin Unified Air Pollution Control District and the Town of Mammoth Lakes; November 30, 1990.*

construction schedule, and construction equipment mix. SHARP Area Priority Project #1, located on Sherwin Creek Road and Old Mammoth Road, would serve as a Borrow Pit/Staging Area, a staging and meeting area for recreationists leading to pedestrian and bike trails. The Borrow Pit/Staging Area would include facilities such as parking, bathrooms, an education/interpretive area, and signage. As a conservative analysis, construction of SHARP Area Priority Project #1 would occur over the course of 6 months, starting in May 2011 and ending in October 2011. This timeframe is of particular importance as construction emissions are directly related to the intensity of construction activities (emissions increase as the overall amount of construction activity increases). Actual construction may proceed at a less intensive pace, which would result in lower daily emissions. Construction of this Project-level component would generate fugitive dust. Dust emissions would vary from day to day depending on the level and type of activity, silt content of the soil, and the prevailing weather. Primary sources of fugitive dust during construction would include excavation, earth movement, grading, and wind erosion from exposed surfaces.

Daily emissions during construction were forecast using a 5-month construction schedule and applying the mobile-source and fugitive dust emissions factors derived from URBEMIS 2007. The URBEMIS 2007 model separates the construction process into multiple stages. The first stage is site grading, which includes general site preparation activities. Emissions from this stage include fugitive dust, equipment exhaust, and worker vehicle exhaust. Emissions from the second stage of construction (building construction) include equipment exhaust from construction equipment and worker vehicle exhaust. The last stage consists of asphalt paving, which includes emissions from paving and worker vehicle exhaust. A complete listing of the construction equipment by phase and construction phase duration assumptions used in this analysis is included within the URBEMIS 2007 printout sheets that are provided in the Appendix D of this EIR.

The analysis assumes that all construction activities would comply with GBUAPCD Rules 401 and 402 regarding the control of fugitive dust. A summary of unmitigated maximum daily regional emissions by construction phase for the most impactful priority project is presented in **Table 4.B-4**, *SHARP Priority Project #1, Borrow Pit/Staging Area; Unmitigated Regional Construction Emissions*, below, along with the MDAQMD regional significance thresholds for each air pollutant. As shown therein, maximum regional construction emissions would not exceed the daily MDAQMD significant thresholds for any pollutants. Thus, based on the worst-case analysis for SHARP Priority Project #1, regional construction air emissions would be less than significant for that project, as well as other individual projects proposed under the TSMP.

Table 4.B-4

SHARP Priority Project #1, Borrow Pit/Staging Area
Unmitigated Regional Construction Emissions[a]
(pounds per day)

	VOC	NO_X	CO	SO_2	PM_{10}[b]	$PM_{2.5}$[b]
Maximum Regional Emissions (On-site + Off-site) By Stage						
Mass Site Grading	3	25	12	<1	46	10
Site Preparation/Excavation	3	26	14	<1	46	11
Asphalt	1	5	3	<1	<1	<1
Building Construction	3	29	33	<1	1	1
Maximum Regional Emissions	**3**	**29**	**33**	**<1**	**46**	**11**
Regional Construction Daily **MDAQMD** Significance Threshold[c]	137	137	548	137	82	82

Over/(Under)	(134)	(108)	(515)	(137)	(36)	(71)
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

[a] *Compiled using the URBEMIS2007 emissions inventory model. The equipment mix and use assumption for each phase is provided in the Air Quality Appendices.*

[b] *PM_{10} and $PM_{2.5}$ emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.*

[c] *Regional Construction Daily Significance thresholds are based on MDAQMD Significance Thresholds.*

Source: PCR Services Corporation, 2011.

These emission forecasts reflect a specific set of assumptions in which the entire project would be built out over 6 months, using equipment subject only to current, less stringent emission standards than those applicable in future years. Because of these conservative assumptions, the emissions levels in Table 4.B-1 represent the highest daily emissions projected to occur on any one day. Actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive build-out schedule (i.e., lower daily emissions occurring over a longer time interval).

On a program-level, construction activities for the combined projects proposed under the TSMP would be completed over the course of 10 years or more with the timing of implementation based on available funding and Town approval. Accordingly, a detailed programmatic construction schedule is not available. Although individual improvement projects would involve far less ground disturbance and/or heavy duty diesel equipment than SHARP Priority Project #1 analyzed above, with less resulting air emissions, a worst-case scenario could occur where multiple construction crews operating at maximum intensity simultaneously within the Town could potentially exceed regional thresholds. Thus, mitigation is recommended to limit the maximum daily construction emission resulting from the TSMP (see Section 3.a below).

(b) Operation Impacts

The 2009 TSMP and SHARP propose to add slightly more than 11 miles of MUP trails, provide new and improved soft-surface trails, improve trail connectivity throughout Town, provide additional sidewalks, and implement approximately 18 miles of new Class II bike lanes. The TSMP projects also include improvements to trailheads, parking facilities, restrooms, education areas, and signage as envisioned in the Town's adopted Trails System Plan and General Bikeway Plan[15]. Overall, the Project is not expected to materially change VMT Town-wide over the course of one summer or winter day. No significant impact on traffic operations during the summer and winter seasons is anticipated. For example, according to the Traffic Study prepared by LSC Transportation Consultants, Inc. (April 2011), operation of the SHARP Area Priority Project #1 post-construction is expected to result in a modest increase in peak hour traffic volumes of about 15 vehicle trips. VMT generated by the increase in vehicle trips is however expected to be roughly offset by the reduction in VMT resulting from the provision of trails near the urbanized area and the increase in non-auto mode travel throughout Town.

[15] *See Figure 1, Mammoth Lakes Trails System Plan, in the Mammoth Lakes Trails System Master Plan (May 1991). Also, see Figure 4, General Bikeway Plan Map, in the Town of Mammoth Lakes General Bikeway Plan (2008).*

Trails within the UGB would generally be limited to pedestrian and bike activities and would not be accessible for private vehicles, except for the use of maintenance and emergency services. Within National Forest lands, certain trails may permit use by Off-Highway and Over-Snow Vehicles on designated snow-vehicle routes. Trailheads and recreational nodes would provide for parking and meeting areas which would, then, lead to pedestrian, bike and OHV/OSV trails. The TSMP is intended to enhance existing recreational opportunities for residents and visitors. While the proposed project may result in changed use patterns within the trails system, the proposed Project improvements are not, in and of themselves, expected to increase population or visitors within the TSMP area, or to substantially increase overall usage of the system, nor would the TSMP expand the existing network of roads and trails currently available to motorized vehicle users. Therefore, operational emissions, such as exhaust from OHVs and OSVs and dust from motorized vehicle's trail usage, are not expected to increase as compared to existing conditions. Increases in emissions from trail maintenance and improvement activities, if any, are also expected to be negligible.

Because the Project is not expected to cause intersection and roadway conditions to deteriorate beyond adopted standards, quantitative analyses are not warranted. Provision of the additional pedestrian, bicycle, and transit facilities included in the proposed TSMP and the SHARP may result in a general increase in non-auto travel by providing opportunities to walk or bike, which would offset increases in vehicle trips to some degree. Thus, the Project would not result in new long-term operational sources, nor would it result in a net increase in VMT. As such, the project would not exceed thresholds or result in a violation of air quality standards or contribute substantially to an existing or projected air quality violation.

(3) Cumulatively Considerable Net Increases of a Criteria Pollutant

4.B-3 Project implementation would result in less than significant cumulative considerable net increases of any criteria pollutant for which the project region is non-attainment air quality impacts, based on the applicable federal or state ambient air quality standards (including ozone precursors).

A significant impact would occur if the Project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the GBVAB is currently in nonattainment for ozone and PM_{10}, emissions from this Project could contribute to an existing or projected air quality standard exceedance.

Implementation of the overall TSMP would result in an increase in short-term emissions related to construction, with no material change in long-term emissions compared to future conditions without the proposed Project. Construction is expected to be periodic, and may extend over ten years. However, as discussed above, due to the nature and size of the proposed improvements, simultaneous construction of up to two of the largest project components would not result in emissions of ozone precursors or PM_{10} in excess of daily thresholds. The TSMP is intended to enhance existing recreational opportunities for residents and visitors; the proposed Project improvements are not, in and of themselves, expected to increase population or visitors within the TSMP area, or to increase usage or expand the existing network of roads and trails currently available to motorized vehicle users. Implementation of control strategies to reduce PM_{10} would further minimize construction emissions, and heavy earthmoving activities are not expected to occur during the winter when ambient PM_{10} levels are elevated. The project is supportive of long-term AQMP strategies to reduce VMT. Therefore, the project would not contribute to a cumulatively considerable net increase in nonattainment pollutants.

(4) Expose Sensitive Receptors to Substantial Pollutant Concentrations

4.B-4 Implementation of the Project would not expose sensitive receptors in the vicinity of the Project Area to substantial pollutant concentrations.

(a) Construction Impacts

Sensitive receptors are located as close as 55 feet to some of the improvement sites. PM_{10} and $PM_{2.5}$ concentrations are expected to occur primarily from fugitive dust emissions during site mass grading and excavation activities (parking lots and restrooms) and grading and, to a lesser degree, during fine grading and paving involved in trail improvements. Rule 401 requires that airborne particles remain on the site from which they originate under normal wind conditions. Proper mitigation techniques must be implemented to ensure that fugitive dust is contained. The largest improvement project is the SHARP Priority Project #1 analyzed above. As discussed above, emissions from Priority Project #1 are not expected to expose even the nearest sensitive receptors to substantial pollutant concentrations. The other TSMP Priority Projects involve equal or less intense construction activities and, due to the distance between project sites, simultaneous construction at two sites would not impact the same sensitive receptors.

In addition to criteria and precursor pollutants, TAC emissions are also created by the combustion of fossil fuels. Diesel Particulate Matter (DPM) has been recognized by the State of California as a human carcinogen for over 10 years. Diesel powered equipment would be used during grading and excavation activities and, as such, DPM is of potential concern because of its toxicity and prevalence in emission exhaust. The Office of Environmental Health Hazard Assessment (OEHHA) recognizes the potential for carcinogenic and non-cancer long-term effects in humans from exposure to DPM and has developed a methodology for estimating health risk from TAC pollutants such as diesel exhaust. No non-cancer acute (short-term) effects have been recognized for DPM.

OEHHA cancer risk factors assume a continuous exposure over a 70-year time frame; however, the proposed priority projects would require (at most) one year of construction, and would be spread out sporadically as funding becomes available over the course of ten years or more. Neither OEHHA nor the GBUAPCD have developed guidelines to accurately and scientifically estimate the incremental increase in cancer risk for such short exposure duration. Additionally, the GBUAPCD does not require a health risk assessment for short-term construction emissions. Therefore, it is not meaningful to evaluate long-term cancer impacts from construction activities which occur over a short duration. In addition, there would be no residual emissions after construction and, thus, no corresponding individual cancer risk. As such, Project-related toxic air contaminant emission impacts during construction would be less than significant.

(b) Operational Impacts

Operational emissions have the potential to impact local air pollutant levels at nearby receptors. An increase in vehicular travel may generate localized "hot spots," localized areas in the project vicinity where sensitive receptors (pedestrians) located near to roadways and intersections may be exposed to elevated ambient pollutant levels. Although the Mammoth Lakes Gateway Home Center monitoring station has not recorded any exceedance of the State or Federal CO standards, elevated CO concentrations due to heavy traffic

volumes and congestion at specific intersections or roadway segments can lead to elevated localized levels of CO.

Localized impacts from mobile source CO were evaluated using data from the Traffic Impact Study (LSC Transportation Consultants, Inc., April 2011) contained in Appendix I of this Draft EIR. In the Traffic Study, the term "level of service" (LOS) describes traffic performance at intersections or along roadway segments, and is generally expressed as a letter grade (A through F, with an A grade meaning the freest-flowing traffic). Traffic researchers and planning agencies generally assign LOS ratings to intersections based on the ratio of traffic volume (or demand) to capacity (V/C).[16] Lower V/C ratios correspond to better performance (freer-flowing traffic).

According to the Traffic Study, a maximum of 100 peak hour, one-way summer trips were estimated to be generated by the trail improvement facilities. Although there may be a net increase in trail activity associated with the proposed trail improvements, new trail networks would be provided in the urbanized area. New vehicle trips associated with the trail networks are expected to be relatively short. In addition, some trips that are currently made to trails outside the urbanized area would shift to the new trails in or near the urbanized area. This would result in a reduction in the average trip length associated with the trails. Overall, the Project is not expected to cause an increase in VMT over the course of one summer or winter day. Provision of the additional pedestrian, bicycle, and transit facilities included in the proposed TSMP and the SHARP would result in a general increase in non-auto travel, which would offset the increase in vehicle trips to some degree.

Thus, as discussed above, the Project is not expected to cause new long-term stationary sources or cause a significant net increase in vehicle trips. Based on the Traffic Study, traffic volumes from project improvements are not expected to exacerbate LOS ratings, thus CO impacts from operation would be less than significant and further analysis is not necessary.

3. MITIGATION MEASURES

Through the implementation of the project features and compliance with applicable Rules, project construction and operation would result in less than significant impacts with regard to air quality. The *MDAQMD- CEQA and Federal Conformity Guidelines* suggests that the following mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality impacts to the extent feasible.

a. Construction

Prior to approval of individual projects under the TSMP, the Public Works Director, or his designee, shall confirm that plans and specifications stipulate that, in compliance with GBUAPCD Rule 401, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures, as specified in the GBUAPCD Rules and Regulations. In addition, GBUAPCD Rule 402 requires implementation

[16] *For an example LOS rating system for signalized intersections, see the City of Roseville, CA, Level of Service (LOS) Policy: http://www.roseville.ca.us/pw/engineering/transportation_planning/level_of_service_(los).asp.*

of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Implementation of the following measures would reduce short-term fugitive dust impacts on nearby sensitive receptors:

Mitigation Measure 4.B-1.A All active portions of the construction site shall be watered to prevent excessive amounts of dust.

Mitigation Measure 4.B-1.B On-site vehicles' speed shall be limited to 15 miles per hour (mph).

Mitigation Measure 4.B-1.C All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized.

Mitigation Measure 4.B-1.D All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust; watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day.

Mitigation Measure 4.B-1.E If dust is visibly generated that travels beyond the site boundaries, clearing, grading, earth moving or excavation activities that are generating dust shall cease during periods of high winds (i.e., greater than 25 mph averaged over one hour) or during Stage 1 or Stage 2 episodes.

Mitigation Measure 4.B-1.F All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.

Mitigation Measure 4.B-2 The Town shall limit the extent of mass grading for all simultaneous TSMP construction and maintenance activities to no more than 5 acres of active disturbance daily.

Mitigation Measure 4.B-3 The Town shall limit TSMP construction activities in the following manner so as to ensure exhaust emissions shall not exceed the established daily thresholds for gaseous pollutants[17]: No more than 20 pieces of construction equipment operating simultaneously per 8-hour day, or 16 pieces operating 10 hours per day, averaging 200 hp rated engine capacity. Each on-road delivery or haul truck traveling approximately 200 miles per day equals one piece of non-road equipment, and shall be included in the daily limit.

b. Operation

Impacts are less than significant, no mitigation measures are necessary.

[17] *Refer to Appendix for calculations for Mitigation Measure AQ-3, construction limitations.*

4. CUMULATIVE IMPACTS

4.B-5 The Project combined with cumulative projects may result in cumulative air quality impacts. However, project-by-project analysis of air quality impacts, compliance with applicable regulatory requirements and implementation of the prescribed mitigation measures would ensure that potentially significant cumulative impacts regarding air quality impacts are reduced to a less than significant level.

a. Construction

The GBUAPCD does not have numerical thresholds to determine whether the Project would result in a cumulatively considerable net increase of PM_{10} or O_3 precursors. However, as discussed above, O_3 impacts are primarily the result of pollution generated in the San Joaquin Valley. The Town does not have control over the timing or sequencing of the related projects. Therefore, any quantitative analysis to ascertain daily construction emissions that assumes multiple and concurrent construction projects would be highly speculative.

With respect to the project's construction-period air quality emissions and cumulative Basin-wide conditions, the GBUAPCD has developed strategies to reduce criteria pollutant emissions pursuant to CAA mandates. Accordingly, the project and the related projects would comply with GBAUPCD Rule 200-A, 200-B, Rules 401 and 402, and implement all feasible mitigation measures. In addition, the project and related projects would comply with adopted AQMP emissions control measures. As discussed above, the Project's construction-period localized emissions are projected to have less than significant cumulative impacts with mitigation. Thus, cumulative impacts to air quality during Project construction would be less than significant.

b. Operation

The GBUAPCD's approach for assessing cumulative impacts related to operations is based on the attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts.

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the Basin is currently in nonattainment for O_3 and PM_{10}, related projects could exceed an air quality standard or contribute to an existing or projected air quality exceedance. Cumulative impacts to air quality are evaluated under two sets of thresholds for CEQA. In particular, CEQA Guidelines Sections 15064(h)(3) provide guidance in determining the significance of cumulative impacts. Specifically, Section 15064(h)(3) states in part that:

> *A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency…*

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the project's incremental contribution to cumulative air quality impacts is determined based on compliance with the Town of Mammoth Lakes AQMP.

A project is deemed inconsistent with air quality plans if it results in population and/or employment growth that exceeds growth estimates in the applicable air quality plan. The AQMP relies upon growth projections adopted by the General Plan. Consequently, compliance with the Town's General Plan typically results in compliance with the AQMP. As discussed above, the project would not result in excess of peak day traffic loads to reach the 106,660 VMT limit enforced by Town Municipal Code. As discussed in the analysis of the worst-case priority project above, the TSMP project would not substantially change traffic volumes at any one location on a peak day. Although traffic volumes in Mammoth are generally expected to increase in the future, the proposed TSMP project is not expected to result in a significant impact on traffic operations under future cumulative conditions. Because traffic generated by the project would not exceed the Town's growth projections, the Project would not conflict with or obstruct implementation of the applicable air quality plan under the AQMP.

In addition, the project would comply with all rules and regulations as implemented by the GBUAPCD and the CARB, and would conform to the standards and guidelines of the Town of Mammoth Lakes General Plan. Because the project would conform to GBUAPCD and the CARB rules and regulations and conform to General Plan guidelines, the project would be consistent with the AQMP..

The GBUAPCD recommends that project-specific air quality impacts be used to determine the potential cumulative impacts to regional air quality. As the nature of the project to create an integrated, year-round trail network that would enhance non-motorized mobility in a manner that is consistent with the Town's Updated General Plan and "Feet First" strategy, operation of the project would enhance existing recreational opportunities for residents and visitors. Provision of the additional pedestrian, bicycle, and transit facilities included in the proposed TSMP and the SHARP may result in a general increase in non-auto travel by providing opportunities to walk or bike, which would cumulatively offset increases in vehicle trips to some degree. Peak daily operation-related emissions would, therefore, not exceed the MDAQMD regional significance thresholds. Although the Basin is currently in non-attainment for $PM_{10,}$ the Project's incremental contribution to cumulative air quality effects would be less than significant. Therefore, the project would result in a less than significant impact with regard to AQMP consistency.

b. Toxic Air Contaminants

The greatest potential for cumulative TAC emissions would involve diesel particulate emissions associated with heavy equipment operations during construction. Given that the project's contribution to cancer risk from construction activities would be less than significant and localized, it is reasonable to project that related projects would also not result in significant cancer risks from TAC emissions during construction (duration, transient), and that the areas of less-than-significant elevated cancer risks associated with construction of similar projects would not overlap to create a significant risk. Accordingly, the project's construction phase TAC emissions would not contribute to a cumulatively significant impact.

With respect to long-term TAC emissions, neither the Project nor any of the identified related projects would represent a substantial source of long-term TAC emissions (uses typically associated with TAC emissions include large-scale industrial, manufacturing, and transportation hub facilities). Based on recommended

screening for TAC-source siting distances, as set forth in CARB's Land Use Guidelines, the Project and related projects would not result in a cumulative impact requiring further evaluation.

5. LEVEL OF SIGNIFICANCE AFTER MITIGATION

a. Construction

Construction emissions from the Project's largest single component (SHARP Area Priority Project #1) would not exceed the applicable regional emissions threshold. Compliance with GBVAPCD Rules and Mitigation Measure AQ-1 would ensure that localized construction impacts would less than significant on a project level. On a programmatic level, Mitigation Measures AQ-2 and AQ-3 would limit the extent and intensity of multiple simultaneous construction efforts and ensure that emissions would be below the daily regional thresholds. Because the Project's construction sites are spread throughout the area and would occur over a span of several years, multiple construction projects are not likely to simultaneously impact the same local sensitive receptors. Therefore, with mitigation, construction impacts are expected to be less than significant.

Cumulative impacts associated with construction of the project described above would also remain less than significant. Since regional O_3 and PM_{10} emissions and localized PM_{10} concentrations would not exceed applicable thresholds, the Project would not cause a significant impact with regard to AQMP consistency.

b. Operation

The project includes numerous features to reduce vehicle traffic, including the encouragement of "Feet First" alternatives. The use of the Project's proposed trail system by pedestrians, cyclists, and other non-motorized transport would reduce mobile source impacts and serve to off-set increases in trips or VMT.

Operational emissions would not exceed significance thresholds and, as such, would have a less than significant impact on regional air quality. No significant impacts related to TAC emissions during operation of the Project are anticipated to occur (see Subsection 3d(2)(c), above).