

3.01. Air Quality

The Tahoe National Forest (TNF) Travel Management project is intended to designate routes for public motor vehicle use for the TNF, as required by the Travel Management Regulations (36 CFR Part 212, Subpart B). The regulations require that each National Forest or Ranger District designate the roads, trails and establish “Open Areas” on National Forest System lands that are open to motor vehicles.

This chapter contains an evaluation of how air resources would be affected by implementation of each of the alternatives. The chapter contains policy and direction as well as a discussion of the affected environment and existing air quality conditions. This chapter describes potential impacts of implementation of the different alternatives. Further details are available in the project record.

Regulatory Framework

Direction relevant and specific to the proposed action as it applies to air quality resources includes:

Federal Clean Air Act

The Federal Clean Air Act (CAA) is a federal law passed in 1970, and last amended in 1990, (42 U.S.C. §7401 et seq.) which is the basis for national control of air pollution. The CAA was designed to “protect and enhance” the quality of the nation’s air resources. Basic elements of the CAA include national ambient air quality standards (NAAQS) for criteria air pollutants, technology based emission control standards for hazardous air pollutants (HAPs), state attainment plans (SIPs), a comprehensive approach to reducing motor vehicle emissions, control standards and permit requirements for stationary air pollution sources, acid rain control measures, stratospheric ozone protection and enforcement provisions (California Air Resources Board [CARB], 2007).

Regional Haze Rule (1990 Clean Air Act Amendments), 40 CFR Part 51

The Regional Haze Rule requires states to demonstrate “reasonable progress” toward improving visibility in each Class I area over a sixty-year period (to 2064), during which visibility should be returned to natural conditions. Class I areas include Wilderness Areas or National Parks greater than 5,000 acres which existed on August 7, 1977.

General Conformity Rule (1990 Clean Air Act Amendments) (Section 176 (c) of the Clean Air Act (part 51, subpart W, and part 93, subpart B.)

The U.S. Environmental Protection Agency (EPA) passed the final General Conformity rule in 1993. Under the rule, federal agencies must work with state and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the initiatives established in the applicable state implementation plan (U.S. EPA, 2008). A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. The rule divides the conformity process into two phases: applicability and determination.

California Clean Air Act (H&S §§ 39660 et seq.)

California adopted the California Clean Air Act (CCAA) in 1988. The Act provides the basis for air quality planning and regulation in California independent of federal regulations, and establishes ambient

air quality standards for the same criteria pollutants as the federal clean air legislation (CARB, 2007). Under the Federal CAA, States can adopt air quality standards that are more stringent than the Federal NAAQS. California has chosen to adopt standards for criteria pollutants that are generally more restrictive than Federal standards. The California Air Resources Board (CARB) is the agency responsible for establishing California ambient air quality standards (CAAQs), setting vehicle emission standards and fuel specifications and regulating emissions from certain types of mobile equipment and consumer products.

CARB Off-Road Recreational Vehicle Emissions Standards Rulemaking

In 1994, the CARB approved new off-highway recreational vehicle regulations (since amended in 1998). This rulemaking established emission standards for off-highway vehicles (OHVs) including off-road motorcycles (dirt bikes) and all-terrain vehicles (ATVs) (CARBc, 2006). OHV registration became contingent on vehicle compliance to California emission standards. Dirt bikes and ATVs that meet emission standards are eligible for OHV Green Sticker registration and have a year-round operating period, while noncompliant vehicles fall under the OHV Red Sticker program which may have a limited operational season, depending upon the location.

Affected Environment

Introduction

The two primary potential impacts to air quality resulting from the Travel Management Project are: 1) Air Pollution and 2) Naturally Occurring Asbestos.

Air Pollution

The climate, geography and population growth within and/or adjacent to the Tahoe National Forest (TNF) are the major reasons that air pollution is an issue on the TNF. The mountains on the TNF encircle cities and create conditions where air and pollution are trapped. Therefore, the pollution created by population growth and its supporting infrastructure in those cities is often trapped near the TNF. Sunlight triggers chemical reactions that lead to secondary pollutants and haze commonly known as “smog.”

Radiative transfer, atmospheric transport and dispersion, and chemical reactions play major roles in creating high concentrations of ozone in the Sierra Nevada. Nitrogen Oxides (NO₂) and Volatile Organic Compounds (VOCs), precursors to ozone, are emitted by mobile sources and carried by wind from the Bay Area, Sacramento and the Central Valley to the western slopes of the TNF. During the transport process the precursors react to form ozone in the presence of sunlight. Other aerosols (e.g., ammonia, nitrates, sulfates, pesticides, herbicides and fine particulates) are also carried by wind. These are deposited on vegetation (dry deposition) or brought down in rain, clouds, fog or mist (wet deposition generally called acid rain) affecting vegetation. This polluted air coming from outside the forest can impact the forest’s flora, fauna, watersheds, and surrounding communities. Forest management activities also generate pollutants that can affect forest resources, as well as surrounding communities, for example smoke from prescribed burning.

Visibility is also impacted by pollutants. Visibility impairment results from both the scattering and absorption of light by particles and gases in the air. Fine particles less than 2.5 microns in diameter (PM_{2.5}) are especially efficient at scattering light. Fine elemental carbon particles (soot) and nitrogen dioxide gas are the typical absorbers of light. Scattering by “air” molecules (primarily oxygen and nitrogen with a diameter less than 0.0001 microns) causes the sky to appear blue and, in the absence of natural particulates, sets the upper limit visibility in a specific geographic region.

Affected Air Basins and Air Pollution Control Districts: California is divided into 14 geographic air basins. An air basin is an area surrounded by topographic features that provide for common air quality and transport. The California Air Resources Board (CARB) maintains air quality data by air basin. The TNF is located within the Mountain Counties air basin.

The State is directly responsible for regulating emissions from mobile sources. However, authority to regulate stationary sources has been delegated to Air Pollution Control and Air Quality Management Districts (APCDs and AQMDs) within the provisions of the CCAA and oversight by the California Environmental Protection Agency. Figure 3.01-1 shows air basins and Air Pollution Control Districts.



Figure 3.01-1. California Air Basins/Counties and Air Pollution Control Districts

Pollutants of Concern: The primary air pollutants, that can cause detrimental effects to public health and/or native ecosystems, are produced in part by motorized vehicle use and include particulates, sulfur compounds, nitrogen compounds, ozone, and carbon oxides.

- **Particulates:** The term “particulate” is used to describe dispersed solid and liquid airborne particles that are suspended in the atmosphere for a period of time. Particulate matter includes dust, dirt, soot, smoke and liquid droplets directly emitted into the air by sources such as factories, power plants, vehicles, construction activity, fires and natural windblown dust. Particles formed in the atmosphere, such as sulfur dioxide (SO₂) and VOCs are also considered particulate matter. They can contribute to visibility impairment and human health problems. Particulate matter less than 10 microns in diameter (PM₁₀) are those which can enter the human respiratory system. Motorized vehicles produce particulates that are primarily referred to as fugitive dust. Fugitive dust is particulate matter suspended in the air. Fugitive dust can cover vegetation reducing the amount of photosynthesis (refer to Chapter 3.06, Plant Communities).
- **Sulfur Compounds:** Sulfur compounds (oxides, sulfuric acid, and sulfates) are present in the air naturally as a result of seasalt, biogenic gases, and volcanic emissions. Globally, human industrial emissions have almost doubled the amount of sulfur inputs to air compared to pre-industrial levels. Deposition of sulfur compounds can cause acidification of water and soils, decrease visibility, and affect such life forms as cryptogams (such as fungi, algae, mosses, and ferns). Some of the sulfur in diesel fuel is converted to sulfate particles in motorized vehicle exhaust.
- **Nitrogen Compounds:** The primary releases of nitrogen compounds (oxides, ammonium, and nitrates) naturally to the air are from microbial activity, lightning and wildfires. The historical levels of nitrogen compounds in the air have almost doubled on a global basis as a result of fossil fuel combustion, animal husbandry practices, and fertilization. Nitrogen compounds can negatively affect aquatic systems, can affect visibility, and are a precursor compound to ozone, which is toxic to plants. Motorized vehicles emit nitrogen oxides in their exhaust. A 1991 EPA report showed that non-road engines (lawn and garden equipment, farm and construction equipment, recreational vehicles, marine vessels, and airport service equipment) had total emissions almost as high as highway motor vehicles. Non-road emissions from diesel engines were significantly higher than highway emissions in this 1991 study.
- **Ozone:** Ozone is formed when emissions of VOCs combine with nitrogen compounds in the presence of sunlight and warm temperatures. It is naturally present in small quantities; however, amounts have increased substantially due to increased levels of nitrogen compounds and VOCs. Ozone is a major component of smog and affects human health. It has been suggested as a factor contributing to the decline of sensitive forest tree species in the Sierra Nevada, and has been shown to cause injurious effects to both Jeffrey and ponderosa pine.
- **Carbon Oxides:** Carbon monoxide (CO) and carbon dioxide (CO₂) are produced by natural and human sources. CO is a poisonous gas produced by incomplete burning of carbon in fuels. CO₂ is natural constituent of the troposphere (lowest level of the atmosphere). It has a role in global

climate change, making it a significant pollutant. Motorized vehicles emit carbon monoxide in their exhaust.

Sources of Pollutants: Air pollutants affecting the health of TNF resources can result from natural or human processes. Natural air pollution may occur from forest fires, decomposition of plants and animals, soil erosion, pollen and mold spores, VOCs emitted by vegetation, electrical storms and photochemical reactions. Human caused air pollution sources include: industrial sources, prescribed wildland burning, animal production, agricultural burning, residential and business development, and vehicle emissions.

Emissions from National Forest Activities: Forest activities that generate air pollutants include prescribed burns, recreation use, vehicle traffic, site preparation, mining, livestock and pack animals, and vegetation management. This analysis focuses on those air pollutants generated from motorized vehicle use.

The growing popularity of motorized vehicles has led to concerns about impacts to air quality. Motorized vehicle engines can be either two-stroke or four-stroke. It is estimated that 60-65 percent of the motorcycles used off highways (in the United States) have two-stroke engines (EPA 2001 in Kassar 2005). Between 10-15 percent of ATVs in the United States use two-stroke engines (ibid). Two stroke engines are less fuel efficient and emit more unburned hydrocarbons (HC) and particulate matter (PM) than four-stroke engines. The EPA estimates that 25-30 percent of the fuel in a two-stroke engine remains unburned and is released into the air and water. Emissions from engines include carbon monoxide, hydrocarbons, particulate matter, and a variety of gases classified as “air toxins” such as formaldehyde, other related aldehydes, and VOCs such as benzene. Motorcycles with two-stroke engines have been found to release ten times the amount of HC emissions as four-stroke motorcycles (CARB 2001 in Kassar 2005). The emissions released by two-stroke engine motorcycles are considered responsible for 90 percent of the emissions from OHVs that contribute to the formation of smog in California (ibid).

As mentioned above, ozone is formed when emissions of VOCs combine with nitrogen compounds in the presence of sunlight and warm temperatures. Many of the off-road vehicles registered in California emit 50 times more pollution than a current model passenger car reflecting their lack of regulation in the past and designs that emphasize performance over fuel economy (CARB 1997 in Kassar 2005). Some estimates state that off-road vehicles produce as much as 4000 times more carbon monoxide emissions and 118 times as many smog-forming pollutants as modern automobiles on a per-mile basis (CARB 1998 in Kassar 2005).

Off-road diesel-powered equipment is considered highly polluting. Diesel is one of the largest contributors to environmental pollution problems worldwide (Lloyd and Cackette 2001). Atmospheric deposition of air pollutants released from diesel exhaust is considered a significant source of ecosystem contamination (ibid). In addition, heavy metals and dioxins common to diesel exhaust can be transported long distances as gases or PM. EMFAC2000, California’s emissions inventory model, estimated that even though diesel-powered vehicles contribute only 5 percent of the daily vehicle miles of travel in California, these diesel-powered vehicles produced at least 56 percent of the vehicle exhaust particulate matter in

California in the year 2000. However, there is no new data available on the particulate matter after October 2006, when all diesel fuels were required to switch to low sulfur.

Fugitive Dust, PM₁₀ and PM_{2.5}: Motorized vehicle use of native surface roads/trails/areas also has the potential to create fugitive dust and increase PM₁₀ and PM_{2.5} concentrations. The amount of fugitive dust, PM₁₀ and PM_{2.5} concentrations generated by motorized vehicles using native surface roads/trails/areas is dependent on many factors including the type of vehicle, vehicle speed, and number of vehicles. Exposure to high concentrations of engine emissions and fugitive dust can negatively affect human health, damage vegetation; negatively impact animals, reduce soil health and water quality, have atmospheric effects, and affect visibility. A summary of possible impacts follows:

- **Effects to Human Health:** High concentrations of particles can affect human health by: making it difficult to breath, aggravating existing respiratory and cardiovascular disease, reducing the body's defense systems against foreign materials, damaging lung tissue, and contributing to the development of cancer and premature death. The major subgroups of the population most sensitive to the effects of particulate matter are individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly and children.
- **Effects on Vegetation:** Visible impacts to plants from motorized vehicle emissions include: changes in leaf structure such as chlorophyll destruction (chlorosis), tissue death (necrosis), and pigment formation. Damage may occur even when no visible injury is apparent. Such effects can include reductions in photosynthesis, growth reduction, and predisposition to attack by insects.
- **Effects on Animals:** Animal health is at risk when animals are exposed to high levels of air pollutants via inhalation of gases or small particles, ingestion of particles suspended in food or water, and absorption of gases through the skin. In general, only soft bodied invertebrates (for example, earth worms), or animals with thin, moist skin (for example, amphibians) are affected by dermal absorption of pollutants.
- **Effects on Soil and Water:** Chemicals from motorized vehicle engines (such as SO₂ and NO₂) can be washed into the soil by low-pH rainwater. The soil then neutralizes much of the acidity by dissolving and mobilizing minerals. These minerals such as aluminum, calcium, magnesium, sodium and potassium may then be leached from the soil into surface waters. The ability of soil to tolerate this acidic deposition is very dependent on the alkalinity of the soil. Many of the steep slopes on the TNF are covered by shallow soils with relatively limited neutralizing capacity. Watersheds with steep slopes with shallow soils and acid rain have lakes and streams that are susceptible to low pH and high levels of aluminum. This combination has been found to be toxic to some fish species. Our ability to predict the effects of air pollution on aquatic systems is limited by the lack of deposition monitoring sites across the range of ecological conditions in the TNF.
- **Atmospheric Effects:** The atmosphere serves as a sink for pollutants and has a considerable capacity for self-renewal. However, the atmosphere is susceptible to short and/or long-term pollution-induced changes. Atmospheric changes can include reduced visibility, changes to urban climate/frequency of rainfall/precipitation chemistry, changes in stratosphere ozone levels, and global climate changes.

Current Conditions

Area Designations (Attainment vs. Non-Attainment Area): State and federal agencies have established ambient air quality standards for criteria pollutants. If the permissible levels of a particular pollutant are not exceeded in an area, the area is said to be in attainment for that pollutant; if the standards are violated, the area is designated as non-attainment. Table 3.01-1 shows the designation for the affected counties in the TNF. None of the counties are in non-attainment for federal PM₁₀ standards and only Placer County is in non-attainment for federal ozone standards. All counties are in non-attainment for state PM₁₀ standards.

Table 3.01-1. Area Designation for State and Federal Standards for PM₁₀ and Ozone

County	PM ₁₀		PM _{2.5}	Ozone	
	Federal	State	Federal	Federal	State
Nevada (eastern)	U	N	A	U/A	N
Nevada (western)	U	N	A	N	N
Placer	A	N	A	U/A	T
Plumas	U	N	A	A	U
Sierra	U	N	A	U/A	U
Yuba	A	N	A	A	N

Note: A – Attainment; N – Non-attainment; T – Transitional; and U – Unclassified

Visibility: Visibility conditions in the Sierra Nevada improve from south to north and also from low elevation to high elevations. In general terms, the visibility conditions on the TNF are considered good. The TNF is located within a class II airshed.

Ozone: The amounts of ozone on the TNF have increased substantially as a result of increased levels of nitrogen compounds and volatile organic compounds. A Pacific Southwest Regional ozone study confirms injurious effects to both the Jeffrey and ponderosa pines. Ozone production varies significantly with changing atmospheric conditions. Models are not available to predict ozone formation resulting from motorized vehicle emissions. Instead, emissions of ozone precursors (NO₂ and VOCs) are usually modeled to help predict the effects. Relative contributions to ozone production can be estimated based on quantity of ozone precursors emitted and climatic conditions at the time of the emissions.

Sulfur and Nitrogen Compounds: The amount of Sulfur compounds that are being released into the air are considered very low (SNFPA 2001). However, the amount of Nitrogen (N) compounds in the air has increased (ibid). Levels of wet and dry N deposition in the Sierra Nevada are still considered well below saturation levels in the northern forests (ibid).

Interaction among Sulfur and Nitrogen compounds and ozone: The three primary pollutants that interact at a broad scale across the TNF and have been demonstrated to impact terrestrial systems include sulfur dioxide, nitrogen oxides, and ozone. Many native plant species, particularly ponderosa pine and a host of lichens and mosses are susceptible to increasing levels of ozone. In addition, high-elevation plant communities are at substantial risk to ozone effects while low-elevation native plant communities may be affected by elevated nitrogen levels. Most plant communities adjacent to urban areas are or would be

affected by nitrogen compounds, ozone and sulfur compounds. The TNF has a higher risk of ozone damage due to its proximity to major pollution centers and the prevailing air currents.

Naturally Occurring Asbestos (NOA)

Introduction: Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, are abundant in the TNF. Serpentine rock is typically grayish-green to bluish-black in color and may have a shiny appearance.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when motor vehicles drive over native surface roads that contain these rocks. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Background on Naturally Occurring Asbestos: “Asbestos” is a commercial term used to identify a group of six silicate minerals (chrysotile, crocidolite, amosite, tremolite, actinolite, anthophyllite) of fibrous or asbestiform habit, which have the properties of high tensile strength, flexibility, chemical resistance, and heat resistance. These properties have made these minerals useful in many manufactured products and industrial processes during the Twentieth Century. A few examples of the many uses of asbestos include brake and clutch linings, insulation, fireproof textiles, and filtration products. The use of asbestos in manufactured goods and processes in the United States has significantly decreased over the last 30 years because of health concerns related to asbestos exposure.

“Naturally Occurring Asbestos” (NOA) is the term applied to the natural geologic occurrence of any of the six types of asbestos. The presence of asbestos in nature is related to the chemistry of rocks in an area and the different geologic processes that have acted on those rocks through time. Formation of asbestos requires certain chemical conditions (available silica, magnesium, calcium, iron, sodium and water) and physical conditions (appropriate temperature, pressure, and possibly stress). These conditions may be present in a variety of geologic settings, but are more common in some settings than in others. In addition to the six asbestos minerals listed above, other asbestiform amphiboles such as richterite and winchite are known or suspected of posing a health risk (Wylie and Verkouteren, 2000). Further discussion of the mineralogy and geology of asbestos can be found in Clinkenbeard and others (2002).

Location of Areas “Most Likely” to contain Naturally Occurring Asbestos on The TNF: To evaluate the geology of the TNF and the likelihood of the presence of NOA, information on geologic units and soils units was reviewed. The locations most likely to contain NOA are distributed principally in the Foresthill region. Their distribution in the TNF is shown in Figure 3.01-2.

Soils derived from asbestos-bearing rocks may contain free asbestos (asbestos fibers broken down to the size they could become airborne and inhaled by humans). Soils derived from ultramafic rocks and serpentinite commonly are distinctive; they often are identified in soils studies as serpentine- or

ultramafic- related soils. Typically, they are found as linear belts along major fault zones in the western part of the Forest. The areas represent a composite of both the areas of ultramafic rocks and serpentinite and the areas of soil derived from these rocks.

Serpentinite and partially serpentinitized ultramafic rocks often can contain chrysotile asbestos. These rocks may also host amphibole asbestos, typically tremolite, actinolite, or anthophyllite. Also, soils derived from weathering of ultramafic rocks and serpentinite may contain NOA. Soil maps include the following ultramafic- and serpentinite related soils series: Dubakella and Forbes.

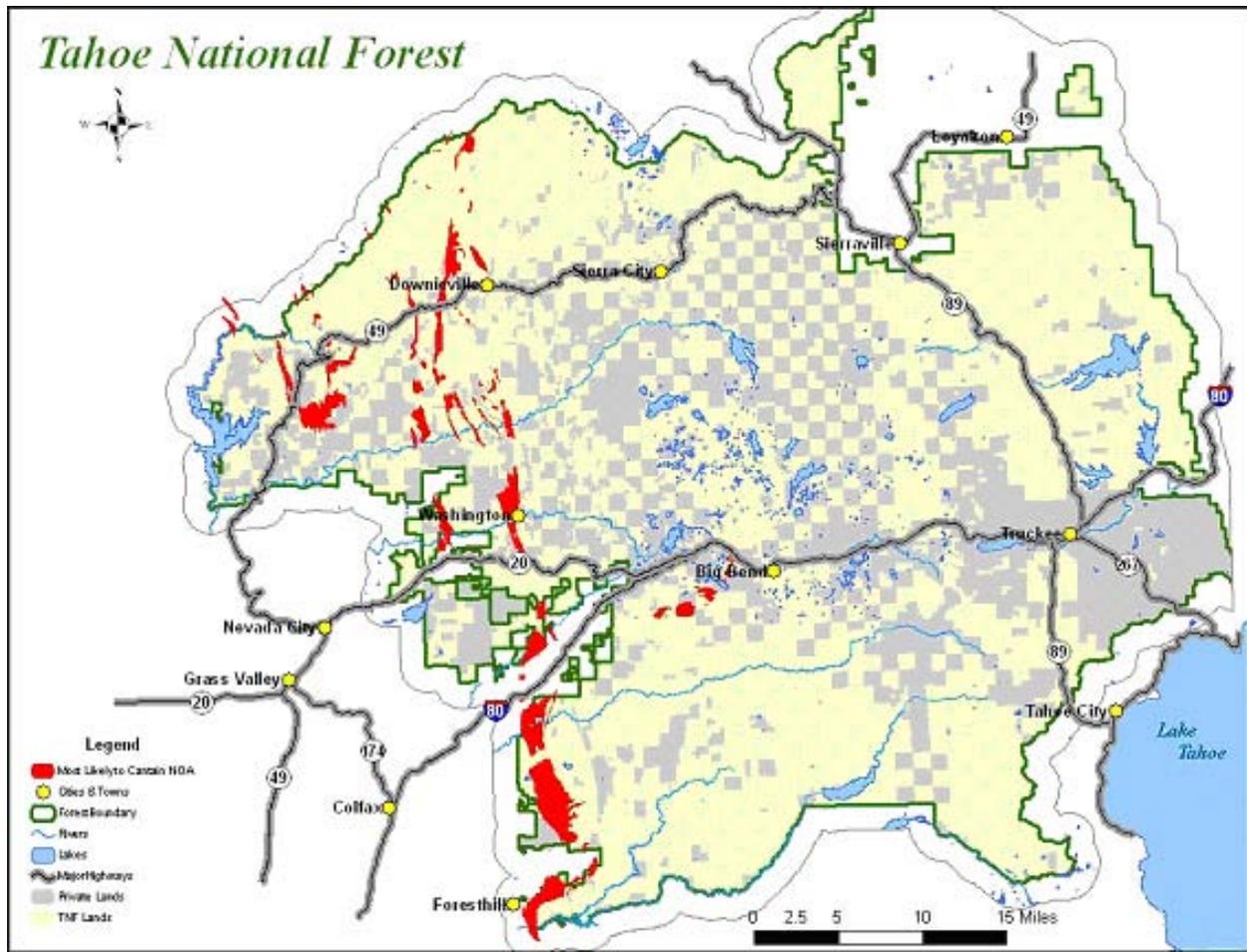


Figure 3.01-2. Areas “Most Likely” to Contain Naturally Occurring Asbestos

Potential Human Effects: Motorized vehicle users on native surface roads and trails with NOA may have increased potential risks for adverse effects to their health. Asbestos is classified as a known human carcinogen by state, federal, and international agencies. State and federal health officials consider all types of asbestos to be hazardous. Information on the health effects of asbestos can be found in the *Toxicological Profile for Asbestos* by the Agency for Toxic Substances and Disease Control (2001). Table 3.01-2 displays the current area available for motor vehicle use on lands “most likely” to contain naturally occurring asbestos.

Table 3.01-2. Motor vehicle use on native surface roads, trails and areas “most likely” to contain naturally occurring asbestos

Category	Amount
Cross Country Travel	
Unauthorized routes and closed NFTS roads still receiving some motorized use (miles)	53.6
Area (acres)	1,660
NFTS Roads (miles)	26.4
NFTS Trails (miles)	42.8
Private roads	24.6

Environmental Consequences

Air Pollution

Emissions: Predictions about changes in total amount of emissions (sulfur compounds, nitrogen compounds and carbon oxides) generated from motorized recreational use that may occur on the Forest are difficult to make and would be highly speculative. The Forest Service believes that under all alternatives, levels of emissions (other than fugitive dust) from motorized recreation use would increase by the same amount based on population growth in the market area. Although the use patterns may change, it is expected that total visitation, and hence emissions, would increase by the same amount in all alternatives. For example, even though the overall number of available motorized roads and trails is reduced in all of the action alternatives, the same levels of use would occur and simply become more concentrated in those areas. Therefore, the amount of pollutants other than fugitive dust is anticipated to increase by the same amount in all alternatives.

It is acknowledged that there are many unknowns regarding future regulations on emissions from non-road engines (lawn and garden equipment, farm and construction equipment, recreational vehicles, marine vessels, and airport service equipment). New standards to reduce hydrocarbon (HC) emissions from gasoline powered non-road recreational vehicles were adopted by EPA in 2002. These new emission standards for new gasoline-powered recreational non-road vehicles were phased in beginning in 2006. EPA expects these standards to reduce HC emissions from these vehicles by 67 percent and CO emissions by 28 percent – nationally – over time. EPA expects that manufacturers would primarily increase their use of 4-stroke engine system designs and improve materials and barrier treatments to reduce the permeation of gasoline through fuel tanks and hoses.

Since EPA has shown that non-road equipment (lawn and garden equipment, farm and construction equipment, recreational vehicles, marine vessels, and airport service equipment) emits large amounts of nitrogen oxides as well as HC and CO, it is likely that regulations would be developed to reduce the amounts of nitrogen oxides produced from recreational gasoline powered vehicles also. New non-road diesel engines already have emission standards designed to reduce nitrous oxide emissions (EPA 2003). However, current regulations still allow the sale of non-complying OHVs with two-stroke engines found on most non-compliant OHVs (CARB 2007). Table 3.01-3 shows average emissions in tons/day for

Placer, Nevada and Sierra Counties within the Mountain Counties Air Basin. It is unknown if these emissions would go up or down over time.

Table 3.01-3. 2006 Estimated Annual Average Emissions for Off-Road Recreational Vehicles (tons per day)

Area	TOG	ROG	CO	NO ₂	SO ₂	PM	PM ₁₀
Statewide	70.54	66.18	184.19	2.04	.57	.83	.75
Sierra County	2.10	1.96	4.75	.05	.02	.03	.02
Nevada County	1.45	1.36	3.24	.03	.01	.02	.02
Placer County	1.98	1.85	4.16	.04	.02	.03	.02

Note: TOG - Total organic gases; ROG - Reactive organic gas; CO - Carbon monoxide; NO₂ - Nitrogen oxides; and SO₂ - Sulfur oxides.

Ozone: As mentioned previously the western Nevada County portion of the TNF is in federal non-attainment for ozone. Motorized vehicle use does not generate significant amounts of ozone precursors and if generated these ozone precursors are generally below *de minimis* (so small or minimal in difference that it does not matter or the law does not take it into consideration) and are thus exempt from conformity determination. This statement is based on a 1991 non-road and vehicle emission study done by EPA and SNFPA 2001 air quality modeling. The emissions of ozone precursors (NO₂ and VOCs) are expected to increase over time with levels of wet and dry nitrogen deposition in the Sierra Nevada also increasing. However, levels are still below saturation levels in the northern forests (SNFPA 2001) and non-road recreational vehicles are not considered a significant source of ozone precursors at this time. New emission regulations would further reduce contributions from non-road vehicles in the future.

Fugitive Dust (Particulate Matter): To assess the air quality effects from fugitive dust, the alternatives are compared by the number of miles of native surface (dirt) motorized roads, trails and areas available for use. Those alternatives with the greatest amount of native surface roads, trails and areas have the greatest potential to release fugitive dust (particulate matter) into the air. The amount and timing of the motorized vehicle use and the type of motorized vehicle recreating on each road/trail/area is unknown. Other unknown factors that contribute to the amount of fugitive dust produced include: the weather at the time of use and the condition of the road/trail/area, etc.

Fugitive dust from unpaved roads/trails/areas can add suspended particles into the air especially during summer use when the soils are dry. There is currently no way to know exactly how much particulate matter is being generated on the TNF through use of motorized vehicles or to speculate how much would be produced by alternative in the future. Therefore, it is assumed that the alternatives that provide the greatest number of miles available for use by motorized vehicles have the greatest potential for producing fugitive dust. Refer to Table 3.01-4.

Table 3.01-4. Amount of Native Surface Roads, Trails and Areas Open to Motorized Vehicles

Action type		Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
1. Cross country travel (acres)		Prohibitions continue on 81,975 acres	Prohibited on 833,392 acres	Prohibited on 836,000 acres	Prohibited on 836,000 acres	Prohibited on 836,000 acres	Prohibited on 835,800 acres	Prohibited on 836,000 acres
		Continues on 754,066 acres	2,649 acres established open	<100 acres established open	<100 acres established open	<100 acres established open	<300 acres established open	<100 acres established open
2. Additions to the NFTS	a. Roads added to the NFTS	0.0	5.0	0.0	3.7	5.0	13.1	0.0
	b. Motorized Trails added to the NFTS	0.0	54.6	0.0	22.6	75.4	48.3	36.7
3. Establishment of Motorized "Open Areas" (acres)		0	2,649	0	0	0	244	0
4. Changes to the NFTS	a. Change in Class of Vehicles resulting from approval of mixed use	No Effect						
	b. Change in Class of Vehicles resulting from changes in maintenance levels	0.0	157.2	0.00	3.4	157.2	122.0	3.4
	c. Change in Season of Use	No Effect						
	d. Reopening Maintenance Level 1 Roads	0.0	0.0	0.0	0.1	93.4	11.4	1.1
5. Amendments to the Forest Plan		No Effect						
Total Miles*		5,293.8	4,053.5	3,595.6	3,625.3	4,167.8	3,803.4	3,636.7
Total Acres		754,066	2,649	0	0	0	244	0

*Includes State, County and private roads. Alternative 1 includes unauthorized routes and closed NFTS roads still receiving some motorized use.

Alternative 1 poses the greatest risk of impacts to air quality due to the continuation of cross country travel on 754,066 acres including 1,698.3 miles of native surface roads and trails unauthorized for motorized use. All of the action alternatives reduce the potential risks to air quality by prohibiting cross country travel and reducing the amount of native surface roads and trails available for motorized travel.

It is anticipated that implementation of Alternative 1 would have the highest potential risk for producing fugitive dust. Implementation of Alternative 1 could potentially contribute to air quality degradation more than any of the action alternatives. All of the action alternatives could potentially improve air quality.

Alternative 1

Cross Country Travel: Cross country travel would not be prohibited in Alternative 1. Predicting where cross country motorized vehicle use would occur is not possible. It is likely that this cross country travel would damage and/or kill some vegetation and increase the amount of bare soil. Cross country travel also results in the continued use of 754,066 acres resulting in approximately 1,700 miles of unauthorized routes and closed NFTS roads on native surfaces. This use could contribute to increased air quality degradation.

Additions to the NFTS: There are no additions of any native surface roads or motorized trails to the NFTS in Alternative 1. Since there are no additions, there would be no potential adverse impacts on air quality from this element.

Establishment of Motorized “Open Areas”: “Open Areas” would not be established in Alternative 1 and would therefore have no potential adverse impacts to air quality from this element.

Changes to the NFTS: There are no changes to the NFTS in this alternative.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: By not prohibiting cross country travel, motorized use would continue on 754,066 acres resulting in 5,293.8 miles of native surface roads and trails. The proliferation of additional unauthorized native surface roads and trails by motor vehicles would continue.

Alternative 2

Cross Country Travel: Cross country travel would be prohibited in Alternative 2. This would stop the proliferation of new unauthorized routes with native surfaces. The prohibition of cross country travel also results in reducing use of all unauthorized roads, trails and areas not added to the NFTS. These changes could have a positive effect on air quality conditions.

Additions to the NFTS: Alternative 2 would add an additional 5 miles of roads and 54.6 miles of motorized trails on native surface soils to the NFTS. These additional roads and motorized trails have the potential to produce fugitive dust and thus contribute to air quality degradation.

Establishment of Motorized “Open Areas”: Four areas totaling 2,649 acres would be established as “Open Areas.” These additional established “Open Areas” could increase the potential for fugitive dust and have an adverse impact on ambient air quality.

Changes to the NFTS: Approval of mixed use and changing season of use on NFTS roads and trails would have no effect on ambient air quality. Changing maintenance levels on 157.2 miles of NFTS roads would result in an increased mileage of native surface roads and could have potential adverse effects on ambient air quality. No changes in seasonal restrictions are proposed. No Maintenance Level 1 roads would be reopened, and therefore no increased risk of fugitive dust.

Amendments to the Forest Plan: The Forest Plan Amendment of removing the Deer Winter Range Seasonal Restrictions in Management Area 84 would not increase the potential for fugitive dust and therefore would have no effect on ambient air quality.

Cumulative Effects: Alternative 2 potentially improves air quality by reducing the amount of acreage open to motorized vehicle use on native surfaces from 754,066 acres to 2,649. It also reduces the total number of native surface roads and trails available for motorized use from 5,293.8 to 4,053.5 miles.

Alternative 3

Cross Country Travel: Cross country travel would be prohibited in Alternative 3. This would stop the proliferation of new unauthorized routes with native surfaces. The prohibition of cross country travel also results in reducing use of all unauthorized roads, trails and areas not added to the NFTS. These changes could have a positive effect on air quality conditions.

Additions to the NFTS: There are no additions to the NFTS in Alternative 3. Since there are no additions, there would be no potential adverse impacts on air quality from this element.

Establishment of Motorized “Open Areas”: “Open Areas” would not be established in Alternative 3 and would therefore have no potential adverse impacts to air quality from this element.

Changes to the NFTS: There are no changes to the NFTS in this alternative.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative

Cumulative Effects: Alternative 3 potentially improves air quality by reducing the amount of acreage open to motorized vehicle use on native surfaces from 754,066 acres to less than 100. It also reduces the total number of native surface roads and trails available for motorized use from 5,293.8 to 3,595.6 miles.

Alternative 4

Cross Country Travel: Cross country travel would be prohibited in Alternative 4. This would stop the proliferation of new unauthorized routes with native surfaces. The prohibition of cross country travel also results in reducing use of all unauthorized roads, trails and areas not added to the NFTS. These changes could have a positive effect on air quality conditions.

Additions to the NFTS: Alternative 4 would add an additional 3.7 miles of roads and 22.6 miles of motorized trails on native surface soils to the NFTS. These additional roads and motorized trails have the potential to produce fugitive dust and thus contribute to air quality degradation.

Establishment of Motorized “Open Areas”: “Open Areas” would not be established in Alternative 4 and would therefore have no potential adverse impacts to air quality from this element.

Changes to the NFTS: Approval of mixed use and changing season of use on NFTS roads and trails would have no effect on ambient air quality. Changing maintenance levels on 3.4 miles of NFTS roads

would result in an increased mileage of native surface roads and could have potential adverse effects on ambient air quality. Wet weather seasonal restrictions would be applied to all native surface roads and motorized trails. This change might slightly improve air quality conditions by reducing emissions from vehicles during the winter months. The wet weather seasonal restrictions would have no benefit in terms of the amount of fugitive dust produced on native surface roads and trails during the dry season. One Maintenance Level 1 road at 0.1 mile would be reopened with a minimal increased risk of fugitive dust.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: Alternative 4 potentially improves air quality by reducing the amount of acreage open to motorized vehicle use on native surfaces from 754,066 acres to less than 100. It also reduces the total number of native surface roads and trails available for motorized use from 5,293.8 to 3,625.3 miles.

Alternative 5

Cross Country Travel: Cross country travel would be prohibited in Alternative 5. This would stop the proliferation of new unauthorized routes with native surfaces. The prohibition of cross country travel also results in reducing use of all unauthorized roads, trails and areas not added to the NFTS. These changes could have a positive effect on air quality conditions.

Additions to the NFTS: Alternative 5 would add an additional 5 miles of roads and 75.4 miles of motorized trails on native surface soils to the NFTS. These additional roads and motorized trails have the potential to produce fugitive dust and thus contribute to air quality degradation.

Establishment of Motorized “Open Areas”: “Open Areas” would not be established in Alternative 5 and would therefore have no potential adverse impacts to air quality from this element.

Changes to the NFTS: Approval of mixed use and changing season of use on NFTS roads and trails would have no effect on ambient air quality. Changing maintenance levels on 157.2 miles of NFTS roads would result in increased mileage of native surface roads available for motorized use and could have potential adverse effects on ambient air quality. Wet weather seasonal restrictions would be applied to all native surface roads and motorized trails. This change might slightly improve air quality conditions in terms of emissions from vehicles during the winter months. The wet weather seasonal restrictions would have no benefit in terms of the amount of fugitive dust produced on native surface roads and trails during the dry season. About 93 miles of Maintenance Level 1 roads would be reopened, and could result in an increased risk of fugitive dust.

Amendments to Forest Plan: The Forest Plan Amendment of removing the Deer Winter Ranger Seasonal Restrictions in Management Area 84 would not increase the potential for fugitive dust and therefore would have no effect on ambient air quality.

Cumulative Effects: Alternative 5 potentially improves air quality by reducing the amount of acreage open to motorized vehicle use on native surfaces from 754,066 acres to less than 300. It also reduces the total number of native surface roads and trails available for motorized use from 5,293.8 to 4,167.8 miles.

Alternative 6

Cross Country Travel: Cross country travel would be prohibited in Alternative 6. This would stop the proliferation of new unauthorized routes with native surfaces. The prohibition of cross country travel also results in reducing use of all unauthorized roads, trails and areas not added to the NFTS. These changes could have a positive effect on air quality conditions.

Additions to the NFTS: Alternative 6 would add an additional 13.1 miles of roads and 48.3 miles of motorized trails on native surface soils to the NFTS. These additional roads and motorized trails have the potential to produce fugitive dust and thus contribute to air quality degradation.

Establishment of Motorized “Open Areas”: Four new areas totaling 244 acres would be established as “Open Areas.” These additional designated “Open Areas” could increase the potential for fugitive dust and have an adverse impact on ambient air quality.

Changes to the NFTS: Approval of mixed use and changing the season of use on NFTS roads and trails would have no effect on ambient air quality. Changing maintenance levels on 122.0 miles of NFTS roads would result in an increased mileage of native surface roads available for motorized use and could have potential adverse effects on ambient air quality. Wet weather seasonal restrictions would be applied to all native surface roads and motorized trails. This change may have a slight improvement on air quality conditions by reducing emissions from vehicles during the winter months. The wet weather seasonal restrictions would have no benefit in terms of the amount of fugitive dust produced on native surface roads and trails during the dry season. A total of 11.4 miles of Maintenance Level 1 roads would be reopened, and could result in an increased risk of fugitive dust.

Amendments to Forest Plan: The Forest Plan Amendment of removing the Deer Winter Range Seasonal Restrictions in Management Area 84 would not increase the potential for fugitive dust and therefore would have no effect on ambient air quality.

Cumulative Effects: Alternative 6 potentially improves air quality by reducing the amount of acreage open to motorized vehicle use on native surfaces from 754,066 acres to less than 300. It also reduces the total number of native surface roads and trails available for motorized use from 5,293.8 to 3,803.4 miles.

Alternative 7

Cross Country Travel: Cross country travel would be prohibited in Alternative 7. This would stop the proliferation of new unauthorized routes with native surfaces. The prohibition of cross country travel also results in reducing use of all unauthorized roads, trails and areas not added to the NFTS. These changes could have a positive effect on air quality conditions.

Additions to the NFTS: Alternative 7 would add an additional 36.7 miles of motorized trails on native surface soils to the NFTS. These additional motorized trails have the potential to produce fugitive dust and thus contribute to air quality degradation.

Establishment of Motorized “Open Areas”: “Open Areas” would not be established in Alternative 7 and would therefore have no potential adverse impacts to air quality from this element.

Changes to the NFTS: Approval of mixed use and changing season of use on NFTS roads and trails would have no effect on ambient air quality. Changing maintenance levels on 3.4 miles of NFTS roads

would result in an increased mileage of native surface roads available for motorized use and could have potential adverse effects on ambient air quality. A total of 1.1 miles of Maintenance Level 1 roads would be reopened, and could result in minor increase in risk of fugitive dust.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: Alternative 7 potentially improves air quality by reducing the amount of acreage open to motorized vehicle use on native surfaces from 754,066 acres to less than 100. It also reduces the total number of native surface roads and trails available for motorized use from 5,293.8 to 3,636.7 miles.

Naturally Occurring Asbestos

Motorized vehicle users on native surface roads and trails with Naturally Occurring Asbestos (NOA) may have increased potential risks for adverse effects to their health. Asbestos is classified as a known human carcinogen by state, federal, and international agencies. Table 3.01-5 displays the area available for motor vehicle use on lands “most likely” to contain naturally occurring asbestos by alternative. Each of these routes was tested under the "Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California" and; 1) it was determined there was no significant risks of human exposure to airborne asbestos or 2) the route will be encapsulated to assure there are no significant risks of human exposure to airborne asbestos prior to the route being opened to public motorized use see Appendix A (Site Specific Road, Trail and Open Area Information).

Table 3.01-5. Native Surface Roads, Trails and Areas Open to Motorized Vehicles on Lands “Most Likely” to Contain Naturally Occurring Asbestos

Action type		Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
1. Cross country travel : Unauthorized routes and closed NFTS roads still receiving some motorized use (miles)		53.6	0	0	0	0	0	0
(acres)		1,660	0	0	0	0	0	0
2. Additions to the NFTS	a. Roads added to the NFTS	0.0	0.1	0.0	0.0	0.1	0.1	0.0
	b. Motorized Trails added to the NFTS	0	3.9	0.0	2.9	4.1	3.3	3.5
3. Establishment of Motorized “Open Areas” (acres)		0	0	0	0	0	0	0
4. Changes to the NFTS	a. Change in Class of Vehicles resulting from approval of mixed use	No Effect						
	b. Change in Class of Vehicles resulting from changes in maintenance levels							
	c. Change in Season of Use							
	d. Reopening Maintenance Level 1 Roads	0	0.0	0.0	0.0	1.2	0.3	0.0
5. Amendments to the Forest Plan		No Effect						
Total Miles*		121.0	76.1	67.4	70.3	77.5	73.0	70.9
Total Acres		1,660	0	0	0	0	0	0

*Includes State, County and private roads. Alternative 1 includes unauthorized routes and closed NFTS roads still receiving some motorized use.

Alternative 1 poses the greatest potential risk of human exposure to airborne asbestos due to the continuation of country travel on 1,660 acres that are “Most Likely” to contain naturally occurring asbestos. This includes 53.6 miles of unauthorized routes and closed NFTS roads still receiving some motorized use. All of the action alternatives reduce the potential human exposure to asbestos by prohibiting cross country travel and use of those unauthorized routes not being added to the NFTS.

Alternative 1

Cross Country Travel: Cross country travel would not be prohibited in Alternative 1. Predicting where cross country motorized vehicle use would occur is not possible. It is likely that this cross country travel would include travel on lands “Most Likely” to contain naturally occurring asbestos. Cross country travel also results in the continued unauthorized use of approximately 53.6 miles of native surface routes “Most Likely” to contain naturally occurring asbestos. This use would contribute to an increased risk of human exposure to naturally occurring asbestos.

Additions to the NFTS: There are no additions to the NFTS in Alternative 1. Since there are no additions, there would be no increased risks to asbestos exposure from this element.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas.”

Changes to the NFTS: There are no proposed changes to the NFTS in this alternative.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: Alternative 1 poses the greatest potential risk of human exposure to airborne asbestos due to the continuation of cross country travel on 1,660 acres that are “Most Likely” to contain naturally occurring asbestos. This includes 53.6 miles of unauthorized routes and closed NFTS roads still receiving some motorized use.

Alternative 2

Cross Country Travel: Cross country travel would be prohibited in Alternative 2. This would stop the proliferation of new unauthorized routes in areas “Most Likely” to contain naturally occurring asbestos. The cross country travel ban also results in reducing the use of all unauthorized routes not added to the NFTS located on these lands. These changes would reduce the risk of human exposure to airborne asbestos.

Additions to the NFTS: Alternative 2 would add an additional 4 miles of native surface roads and trails to the NFTS on land “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas” on lands most likely to contain naturally occurring asbestos.

Changes to the NFTS: Changing the class of vehicles or season of use on existing NFTS roads and motorized trails would have no effect on risks to human health associated with exposure to airborne asbestos. Alternative 2 would not reopen any Maintenance Level 1 roads on lands “Most Likely” to contain naturally occurring asbestos.

Amendments to the Forest Plan: The Forest Plan Amendment would have no impact on the potential risk of human exposure to airborne asbestos.

Cumulative Effects: Alternative 2 reduces the risk of human exposure to airborne asbestos by prohibiting cross country travel on 1,660 acres and reducing the total amount of native surface roads and trails available for motorized vehicles from 121.0 to 76.1 miles on lands “Most Likely” to contain naturally occurring asbestos.

Alternative 3

Cross Country Travel: Cross country travel would be prohibited in Alternative 3. This would stop the proliferation of new unauthorized routes on areas “Most Likely” to contain naturally occurring asbestos. The cross country travel ban also results in reducing use of all unauthorized routes not added to the NFTS located on these lands. These changes would reduce the risk of human exposure to airborne asbestos.

Additions to the NFTS: Alternative 3 would not add additional miles of native surface trails to the NFTS on land “Most Likely” to contain naturally occurring asbestos. Implementation of Alternative 3 would not increase the potential risk of human exposure to asbestos.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas.”

Changes to the NFTS: There are no proposed changes to the NFTS in this alternative.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: Alternative 3 reduces the risk of human exposure to airborne asbestos by prohibiting cross country travel on 1,660 acres and reducing the total amount of native surface roads and trails available for motorized vehicles from 121.0 to 67.4 miles on lands “Most Likely” to contain naturally occurring asbestos.

Alternative 4

Cross Country Travel: Cross country travel would be prohibited in Alternative 4. This would stop the proliferation of new unauthorized routes on areas “Most Likely” to contain naturally occurring asbestos. The cross country travel ban also results in reducing use of all unauthorized routes not added to the NFTS located on these lands. These changes would reduce the risk of human exposure to airborne asbestos.

Additions to the NFTS: Alternative 4 would add an additional 2.9 miles of native surface roads and trails to the NFTS on land “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas.”

Changes to the NFTS: Changing the class of vehicles or season of use on existing NFTS roads would have no effect on risks to human health associated with exposure to airborne asbestos. Alternative 4 would not reopen any Maintenance Level 1 roads on lands “Most Likely” to contain naturally occurring asbestos.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: Alternative 4 reduces the risk of human exposure to airborne asbestos by prohibiting cross country travel on 1,660 acres and reducing the total amount of native surface roads and trails available for motorized vehicles from 121.0 to 70.3 miles on lands “Most Likely” to contain naturally occurring asbestos.

Alternative 5

Cross Country Travel: Cross country travel would be prohibited in Alternative 5. This would stop the proliferation of new unauthorized routes on areas “Most Likely” to contain naturally occurring asbestos. The cross country travel ban also results in reducing use of all unauthorized routes not added to the NFTS located on these lands. These changes would reduce the risk of human exposure to airborne asbestos.

Additions to the NFTS: Alternative 5 would add an additional 4.2 miles of native surface roads and trails to the NFTS on land “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas.”

Changes to the NFTS: Changing the class of vehicles or season of use on existing NFTS roads would have no effect on risks to human health associated with exposure to airborne asbestos. Alternative 5 would reopen 1.2 miles Maintenance Level 1 roads on lands “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Amendments to the Forest Plan: The Forest Plan Amendment would have no impact on the potential risk of human exposure to airborne asbestos.

Cumulative Effects: Alternative 5 reduces the risk of human exposure to airborne asbestos by prohibiting cross country travel on 1,660 acres and reducing the total amount of native surface roads and trails available for motorized vehicles from 121.0 to 77.5 miles on lands “Most Likely” to contain naturally occurring asbestos.

Alternative 6

Cross Country Travel: Cross country travel would be prohibited in Alternative 6. This would stop the proliferation of new unauthorized routes on areas “Most Likely” to contain naturally occurring asbestos. The cross country travel ban also results in reducing use of all unauthorized routes not added to the NFTS located on these lands. These changes would reduce the risk of human exposure to airborne asbestos.

Additions to the NFTS: Alternative 6 would add an additional 3.4 miles of native surface roads and trails to the NFTS on land “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas” on lands “Most Likely” to contain naturally occurring asbestos.

Changes to the NFTS: Changing the class of vehicles or season of use on existing NFTS roads would have no effect on risks to human health associated with exposure to airborne asbestos. Alternative 6 would reopen .3 miles Maintenance Level 1 roads on lands “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Amendments to the Forest Plan: The Forest Plan Amendment would have no impact on the potential risk of human exposure to airborne asbestos.

Cumulative Effects: Alternative 6 reduces the risk of human exposure to airborne asbestos by prohibiting cross country travel on 1,660 acres and reducing the total amount of native surface roads and trails available for motorized vehicles from 121.0 to 73.0 miles on lands “Most Likely” to contain naturally occurring asbestos.

Alternative 7

Cross Country Travel: Cross country travel would be prohibited in Alternative 7. This would stop the proliferation of new unauthorized routes on areas “Most Likely” to contain naturally occurring asbestos. The cross country travel ban also results in reducing use of all unauthorized routes not added to the NFTS located on these lands. These changes would reduce the risk of human exposure to airborne asbestos.

Additions to the NFTS: Alternative 7 would add an additional 3.5 miles of native surface roads and trails to the NFTS on land “Most Likely” to contain naturally occurring asbestos. These routes have mitigation measures specified in Appendix A (Site Specific Road, Trail and Open Area Information) to assure there are no significant risks to human health prior to being opened to public motorized use.

Establishment of Motorized “Open Areas”: This alternative would not establish any new motorized “Open Areas.”

Changes to the NFTS: Changing the class of vehicles or season of use on existing NFTS roads would have no effect on risks to human health associated with exposure to airborne asbestos. Alternative 7 would not reopen any Maintenance Level 1 roads on lands “Most Likely” to contain naturally occurring asbestos.

Amendments to the Forest Plan: There are no amendments to the Forest Plan in this alternative.

Cumulative Effects: Alternative 7 reduces the risk of human exposure to airborne asbestos by prohibiting cross country travel on 1,660 acres and reducing the total amount of native surface roads and trails available for motorized vehicles from 121.0 to 70.9 miles on lands “Most Likely” to contain naturally occurring asbestos.

Summary of Effects Analysis across All Alternatives

The following table 3.01-6 summarizes the effects analysis for air quality by ranking each alternative regarding how well it provides for each of the indicators. The following rankings were used: A score of 7 indicates the alternative has the least impact for air quality related to the indicator. A score of 1 indicates the alternative has the greatest adverse impact for air quality. This information is to be used to fill out the alternatives summary at the end of Chapter 2 of the EIS.

Table 3.01-6. Comparison of Effects to Air Quality

Indicator	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Amount of Native Surface Roads, Trails and Areas Open to Motorized Vehicles	1	3	7	6	2	4	5
Native Surface Roads, Trails and Areas Open to Motorized Vehicles on Lands “Most Likely” to Contain Naturally Occurring Asbestos	1	3	7	6	2	4	5
Average	1	3	7	6	2	4	5

