

**GUIDELINES FOR
ASSESSING AND MITIGATING
AIR QUALITY IMPACTS OF
LAND USE PROJECTS**

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(Revised September 10, 2007)

**NORTHERN SIERRA AIR QUALITY MANAGEMENT
DISTRICT
2007**

Introduction

This document provides guidance to government agencies, planners and project proponents for assessing air quality impacts from land use projects and in identifying appropriate mitigations within the Northern Sierra Air Quality Management District (referred to here as the District).

CEQA requires public agencies to consider and disclose to the public the environmental effects of their decisions. Further, it mandates that agencies implement feasible mitigation measures or alternatives to mitigate significant adverse effects to the environment.

The District typically assumes one of three roles for every project: lead agency, responsible agency, or commenting agency. Most often the District is a commenting agency, which means the District provides comments to assist the responsible or lead agency in assuring that a project's environmental documents meet the requirements of CEQA and that the project complies with air quality regulations.

National and State Air Quality Standards

The Federal and California Clean Air Acts establish air quality standards and measures that must be taken to achieve and maintain these standards. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are based on medical knowledge and have been developed to assure that the air we breathe is healthful. They represent minimum acceptable concentrations of air pollution. There are standards for particulate matter, ozone, carbon monoxide, and a few other pollutants. When an area exceeds these standards, it is designated "non-attainment" by California or U.S. EPA for that pollutant and emission reductions are mandated. The following table summarizes the District's attainment status.

Pollutant		State Standard	Federal Standard
O ₃	1-Hour Standard	Nevada County: Non-attainment Sierra and Plumas Counties: Unclassified	Unclassified/Attainment
	8-Hour Standard	Proposed standard not yet effective – Nevada County will be non-attainment upon effective date	Western Nevada County: Non-attainment; Sierra, Plumas, Eastern Nevada County: Unclassified/Attainment
PM ₁₀		Nevada, Sierra and Plumas Counties: Non-attainment	Unclassified (standard has been proposed for revocation)
PM _{2.5}		Portola Valley in Plumas County: Non-attainment; Nevada, Sierra and Remainder of Plumas County: Unclassified	Unclassifiable/Attainment (Plumas County would be Non-attainment under proposed NAAQS revisions)

In addition, the entire district is either Attainment or Unclassified for NO₂, SO₂, CO, Pb, H₂S, visibility reducing particles, sulfates, and vinyl chloride.

District Authority

An indirect source, such as a shopping center or a residential development, is defined by the State as any facility, building, structure or installation, or combination thereof which generates or attracts mobile source activity that results in the emission of any pollutant for which there is a state ambient air quality standard. The following sections excerpted from the California Health and Safety Code

clarify the District's authority concerning indirect sources.

Section 40000: *The Legislature finds and declares that local and regional authorities have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles. The control of emissions from motor vehicles, except as otherwise provided in this division, shall be the responsibility of the state board”.*

Section 40001(a): *Subject to the powers and duties of the state board, the districts shall adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards in all areas affected by emissions sources under their jurisdiction, and shall enforce all applicable provisions of state and federal law.*

Section 40716(a): *In carrying out its responsibilities pursuant to this division with respect to the attainment of state ambient air quality standards, a district may adopt and implement regulations to accomplish the following:*

(1) Reduce or mitigate emissions from indirect and areawide sources of air pollution.

(2) Encourage or require the use of ridesharing, vanpooling, flexible work hours, or other measures which reduce the number and length of vehicle trips.

(b) Nothing in this section constitutes an infringement on the existing authority of counties and cities to plan or control land use, and nothing in this section provides or transfers new authority over such land use to a district.

In addition, Section 40910 which requires air districts to "consider the full spectrum of emission sources and focus particular attention on reducing the emissions from transportation and areawide sources."

Pollutants of Greatest Concern (Ozone and Particulate Matter)

Ozone is a secondary pollutant generated from nitrogen and reactive organic gases (ozone precursors) reacting with sunlight. Reductions in ozone are accomplished through reducing precursor emissions. Nearly half of the ozone Statewide is from mobile source emissions (principally cars, trucks, trains, aircraft, boats and construction equipment). Ozone levels are influenced by many factors, such as solar radiation, inversion heights and strengths, vertical mixing and wind patterns, and a poorly understood combination of other substances in the air that can either react with ozone to destroy it or lead to accelerated ozone formation. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere, stable atmospheric conditions, sunlight and warm temperatures. Ozone is easily transported by wind. The highest concentrations tend to be found downwind from emission sources. While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are caused and aggravated by exposure to high ozone concentrations. Ozone also irritates people's eyes and throats and damages some man-made materials such as rubber, paint, and plastics. It also damages plants and agricultural crops, leading to reduced food and timber production.

Western Nevada County is non-attainment for the federal 8-hour ozone standard and all of Nevada County is non-attainment for the State 1-hour ozone standard. Ozone exceedances in Nevada County are primarily due to transport from the Broader Sacramento Area and the San Francisco Bay Area. As a federal non-attainment area, the District must prepare a federally enforceable State Implementation Plan (SIP) for western Nevada County in accordance with the Clean Air Act. The

SIP is an air quality attainment plan designed to reduce emissions of ozone precursors enough to re-attain the federal ozone standard by the earliest practicable date. This will include various pollution control strategies. Emissions of ozone precursors must be reduced in western Nevada County by at least 3% per year through 2009 and by additional annual increments (to be determined through Statewide modeling) thereafter. Failure to submit and implement the attainment plan could result in federal sanctions, including the loss of federal highway funds, greater emission offset ratios for new sources, and other requirements EPA may deem necessary. Ultimately, EPA could even take over the District's air pollution control program. As western Nevada County's population, industry and motor vehicle travel grow, the pollution transport fraction will decrease if local emissions are insufficiently mitigated. Plumas and Sierra Counties and eastern Nevada County have not exceeded the NAAQS for ozone. Plumas and Sierra Counties are Unclassified for the CAAQS.

Particulate matter (PM) consists of particles small enough to remain suspended in the air for long periods (mostly smoke and dust). PM10 and PM2.5 (10 and 2.5 refer to aerodynamic particle size in microns) are small enough to lodge in the deepest recesses of the lungs and cause serious respiratory problems. A battery of recent scientific studies have linked particulate matter, especially fine particles with a series of significant health problems, including premature death, respiratory related hospital admissions and emergency room visits, aggravated asthma, respiratory symptoms such as severe chest pain, gasping and aggravated coughing, chronic bronchitis, decreased lung function which can be experienced as shortness of breath, and work and school absences.

NAAQS and CAAQS exist for PM10 (mostly dust) and PM2.5 (mostly smoke and fine aerosols, which are combustion byproducts), although more emphasis has recently been placed on PM2.5. EPA has proposed to revoke the federal PM10 standard and tighten the PM2.5 standard. Under the proposed PM2.5 standard, all of Plumas County would be designated non-attainment if ambient concentrations are not reduced below historic levels. Also, eastern Nevada County has historically been dangerously close to the proposed standard. Major contributors to particulate matter in the District are woodstoves and fireplaces, residential open burning, dust emissions from construction and earth-moving equipment, forestry management burns, transport from agricultural burns, vehicle traffic and windblown dust. As is the case with ozone, particulate matter concentrations in the ambient air can be relieved or exacerbated by meteorology.

The Portola area (including Sloat, Cromberg, Johnsville, Mohawk, Graeagle, Blairsden, Clio, Portola, Beckwourth and Lake Davis) is a State-designated PM2.5 non-attainment area, based on monitor data going back to 1999, and has historically had the highest recorded PM2.5 concentrations in the District. The Quincy area has also had some high monitor values.

In addition to ozone and particulate matter, air pollution standards exist for the air pollutants listed beneath Table 1. If a land use is expected to result in the emission of any of these, they should be addressed in detail. However, no part of the District has historically been known to be anywhere near the non-attainment range for these pollutants. Finally, air toxics are also regulated through State and federal regulations. Certain commercial and industrial land uses can result in the emission of air toxics. Also, significant quantities of diesel particulate (a State-listed Toxic Air Contaminant) can be generated by large scale construction activities.

Evaluation of Project for Potential Air Quality Impacts

Consultation

Consultation is required at the following project planning stages: Prior to a Determination to Proceed with a ND or EIR; Notice of Preparation; Scoping Meetings; Review of Proposed Negative Declaration or Mitigated Negative Declaration; Review and Comment on Draft EIR; and Response to Comments on Draft EIR.

The NSAQMD encourages lead agencies to address air quality issues as early as possible in the development review process. Local jurisdictions should work with applicants on issues such as:

- 1) Potential land use conflicts (e.g. odors and other types of nuisance);
- 2) Exposure of sensitive receptors to odors, toxics, and criteria pollutants;
- 3) Site design to encourage alternatives to the automobile and to conserve energy; and
- 4) Applicable rules, regulations, and permit requirements.

Basic Requirements for Compliance with District/State Rules and Regulations

The requirements listed here are based on existing rules and regulations, and apply to all projects. Therefore, they are technically not considered to be mitigations.

District Rule 226: Dust Control requires the submittal of a Dust Control Plan to the District for approval prior to any surface disturbance, including clearing of vegetation. To help assure compliance by project contractors, it is preferable for the conditions to be included in the General Notes and/or the Grading Plan for the project, under a descriptive heading such as “Dust Control.” The following conditions constitute an approvable Plan under Rule 226. Conditions should be more stringent for projects near sensitive receptors or for mitigation purposes.

Recommended Dust Control Plan Conditions

1. The applicant shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manner during all phases of project development and construction.
2. All material excavated, stockpiled, or graded shall be sufficiently watered, treated, or covered to prevent fugitive dust from leaving the property boundaries and causing a public nuisance or a violation of an ambient air standard. Watering should occur at least twice daily, with complete site coverage.
3. All areas with vehicle traffic shall be watered or have dust palliative applied as necessary for regular stabilization of dust emissions.
4. All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads.
5. All land clearing, grading, earth moving, or excavation activities on a project shall be suspended as necessary to prevent excessive windblown dust when winds are expected to exceed 20 mph.
6. All inactive portions of the development site shall be covered, seeded, or watered until a suitable cover is established. Alternatively, the applicant may apply County-approved non-toxic soil stabilizers (according to manufacturers specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours) in accordance with the local grading ordinance.
7. All material transported off-site shall be either sufficiently watered or securely covered to prevent public nuisance, and there must be a minimum of six (6) inches of freeboard in the bed of the transport vehicle.

8. Paved streets adjacent to the project shall be swept or washed at the end of each day, or more frequently if necessary to remove excessive or visibly raised accumulations of silt and/or mud which may have resulted from activities at the project site.
9. Prior to final occupancy, the applicant shall re-establish ground cover on the site through seeding and watering in accordance with the local grading ordinance.

The Statewide *Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations* (Asbestos ATCM), codified in the California Code of Regulations, Title 17, Section 93105, contains requirements for projects located in areas mapped as having, or observed to have, ultramafic rock or serpentine. Therefore, every project location should be evaluated for its potential to have these rock types. Note that post-construction stabilization of disturbed areas is required. For residential developments in ultramafic areas, the District requires either the placement of at least 3 inches of non-asbestos-containing material or paving on top of the native soil.

The Statewide *Asbestos Airborne Toxic Control Measure for Surfacing Applications* (Surfacing ATCM), codified in the California Code of Regulations, Title 17, Section 93106, prohibits the use of material containing 0.25% asbestos or greater for surfacing of trails, playgrounds, pedestrian areas, roads, landscaping, parking lots, etcetera.

If the emission of air contaminants would occur from a stationary source proposed as part of a project, an *Authority to Construct/Permit to Operate* may be required from the District. This applies to generators, spray booths, boilers, solvent tanks, fueling facilities, and a wide variety of other sources. The District should be consulted by the applicant for additional information on this requirement.

Step One: Primary Screening Process

Each proposed development plan will be reviewed for initial and recurring potential air emissions of criteria pollutants (as established under the California Clean Air Act). Both short term (construction) and long term emission sources will be considered. The following types of projects will require an in-depth review using the methods described herein or their equivalent:

1. All new developments of more than 5 residential units;
2. Any project with the potential to emit toxic or hazardous air pollutants;
3. Any project utilizing toxic or hazardous materials within 1000' of a school, per AB 3205;
4. Any project with the potential to emit an odor or other air pollutants which could impact considerable number of persons, leading to a public nuisance;
5. Any project located near sensitive receptors such as a school, day care facility, hospital or senior center;
6. Any project which is located in an area which is designated as nonattainment or has a likely possibility of violating either a state or federal standard.

Step Two: Estimation of Emissions

An air quality analysis to determine potential emissions (in pounds per day) from each project using a reasonable worst case scenario should be performed. The emission estimation program, URBEMIS (available for free download at the California Air Resources Board's web site, www.arb.ca.gov) should be used for this. The lead agency should provide a listing of the emission increases anticipated from each project for various categories of emissions sources. Simultaneous emissions from projects with multiple, overlapping phases should be added together. For example, construction emissions from the third phase of a 3-phase project should be added to operational emissions from the first two phases if they are operational (e.g. occupied dwellings) when the third

phase is being constructed. Daily maximum emissions of PM₁₀, reactive organic gases, nitrogen oxides and carbon monoxide should be compared to the thresholds of significance listed in this document. It is important that both short term and long term emission impacts are identified. The impacts of hazardous air pollutants such as diesel exhaust and asbestos) should be evaluated, as well as cumulative air quality impacts (excluding natural disasters). Important note: In the case of projects involving fewer than 40 residential units, and some slightly larger, it is the District's policy to allow mitigations assuming a Level B significance threshold, without the need for modeling or applying URBEMIS, unless the project is located a great distance from goods and services, is within 1,000 feet of sensitive receptors, or is likely to increase an intersection's level of service to D or beyond. The District should be contacted to see if this is acceptable for a project. Pursuant to provisions and precedents stemming from AB32, greenhouse gas emissions should also be quantified for decision-makers and the public to consider.

Construction Emissions

There are many short-term air quality impacts from construction activities. Emissions estimates in pounds per day should be provided for all sources of pollution, including the following:

- A. Emissions of PM, CO, ROG and NO_x from diesel powered earth moving equipment and other construction equipment
- B. Emissions of ROG from paint and solvents
- C. Particulate emissions from vehicular traffic on unpaved roads.
- D. Particulate emissions from soil disturbance. This estimate should be based upon how many acres are disturbed by earth moving equipment.

Mobile Source Emissions

Long-term mobile source emissions should be estimated. Emissions estimates should be provided in pounds per day and tons per year. If a traffic study is performed for a project, it should identify any intersection(s) that would fall at Level of Service D or higher under the project alone or cumulative development scenarios, a detailed Caline 4 (or other, most recently approved) carbon monoxide analysis should be prepared. The traffic study should evaluate project alone and cumulative Level of Service impacts to such intersections, taking into consideration other planned and existing projects that could affect traffic at those intersections. Additionally, particulate emissions from traffic should be estimated.

Residential Heating

The emissions from this source are long term and difficult to mitigate once installed. An estimate of PM, ROG and NO_x emissions from residential heating devices (fireplaces, wood stoves, propane, natural gas, etc.) should be performed. A commonly used mitigation measure is foregoing the installation of fireplaces or wood-fired heating appliances.

Miscellaneous Emissions

Emissions of particulate matter, carbon monoxide and nitrogen oxides should be estimated for gasoline powered landscape tools, such as lawn mowers, leaf blowers and chainsaws; for residential activities such as household chemicals and cookouts; and for recreational activities.

Step Three: Emission Thresholds of Significance

This section describes and establishes the NSAQMD's Thresholds of Significance, developed pursuant to Section 15382 and Appendix G of the CEQA Guidelines. These thresholds are recommended for use by Lead Agencies when preparing Initial Studies. If, during the preparation of the Initial Study, the Lead Agency finds that any of the following thresholds may be exceeded and

cannot be mitigated down to Level B, then a determination of significant air quality impact must be made and an EIR is required.

Thresholds of significance are based on a source’s projected impacts and are a basis from which to apply mitigation measures. The District has developed a tiered approach to significance levels: a project with emissions meeting Level A thresholds will require the most basic mitigations; projects with projected emissions in the Level B range will require more extensive mitigations; and those projects which exceed Level C thresholds will require the most extensive mitigations. The tiered thresholds for Level A, B and C are given below for a project’s estimated emissions of criteria pollutants in lbs/day.

Level A Thresholds		
NOX	ROG	PM10
<24 lbs/day	<24 lbs/day	<79 lbs/day

Level B Thresholds		
NOX	ROG	PM10
24-136 lbs/day	24-136 lbs/day	79-136 lbs/day

Level C Thresholds		
NOX	ROG	PM10
>136 lbs/day	>136 lbs/day	>136 lbs/day

NOx, ROG and PM10 emissions must be mitigated to a level below significant. If emissions for NOx, ROG and PM10 exceeds 136 pounds per day (Level C), then there is a **significant** impact; below Level C would be **potentially significant**.

Step Four: Select Mitigation Measures

As stated in CEQA, the responsible or commenting agency shall submit to the lead agency complete and detailed performance objectives for mitigation measures. Once emission impacts from all significant sources are calculated, the District will request that the lead agency review a suggested list of mitigations (below) for both short-term and long-term sources. This list is not all-inclusive, and may be revised by the lead agency. During the CEQA review process, the District may recommend additional, project-specific mitigation measures. The lead agency will either accept or reject recommendations of the District. In some cases, project applicants may choose to introduce additional mitigations to increase public acceptability of a project or ensure that impacts are sufficiently mitigated. The lead agency should contact the District office to discuss the mitigations before the lead agency commits to a final mitigation plan for each project.

I. Mitigations for Use During Construction Phase of Project
For all Significance Level Thresholds (A, B and C)

- a. Alternatives to open burning of vegetative material will be used unless otherwise deemed infeasible by the District. Among suitable alternatives are chipping, mulching, or conversion to biomass fuel.
- b. Adequate dust control measures will be implemented in a timely and effective manner during all phases of project development and construction (pursuant to the project’s Dust Control Plan).

- c. Temporary traffic control will be provided during all phases of the construction to improve traffic flow as deemed appropriate by local transportation agencies and/or Caltrans.
- d. Construction activities should be scheduled to direct traffic flow to off-peak hours as much as practicable.

For Classifications at Level B Threshold

- e. All controls discussed above (a-d) shall be implemented.
- f. All inactive portions of the construction site should be covered, seeded, or watered until a suitable cover is established.

For Classification at Level C Threshold

- g. All controls discussed above (a-f) shall be implemented.
- h. During initial grading, earth moving, or site preparation, larger projects may be required to construct a paved, coarse gravel or dust palliative treated apron, at least 100 feet in length, leading onto the paved road(s).
- i. Wheel washers will be installed where project vehicles and/or equipment enter and/or exit onto paved streets from unpaved roads on larger projects. Vehicles and/or equipment will be washed prior to each trip, if necessary.

II. Mitigation for Residential Heating if Project Emissions are Classified as either Level A, B or C Threshold

- a. All new wood burning devices shall be EPA Phase II certified.

III. Mitigation for Public Transit (if public transit is available in the project area)

For All Significance Thresholds (Level A, B or C)

- a. Streets should be designed to maximize pedestrian access to transit stops.

For Classification at Level C Threshold

- b. The project will provide for on-site road and off-site bus turnouts, passenger benches, and shelters as demand and service routes warrant subject to review and approval by local transportation planning agencies.
- c. Larger projects may be required to contribute a proportionate share to the development and/or continuation of a regional transit system. Contributions may consist of dedicated right-of-way, capital improvements, easements, etc. The local transportation agency should be consulted for specific needs.

IV. Mitigation for Traffic Emissions

For Classification as Level B Threshold

- a. The project shall provide for pedestrian access between bus service and major transportation points within the project where feasible.
- b. The project should contribute to traffic-flow improvements (IE, right-of-way, capital improvements, etc.) that reduce emissions and are not considered as substantially growth inducing. The local transportation agency should be consulted for specific needs.
- c. Larger projects may be required to provide for, contribute to, or dedicate land for the provision of off-site bicycle trails linking the project to designated bicycle commuting routes in accordance with an adopted citywide or countrywide bikeway plan.

V. Mitigation for Land Use Emissions

For Classification as Level B Threshold

- a. The project shall incorporate mixed uses, where permitted by local development regulations, to achieve a balance of commercial, employment, retail and housing options where feasible.
- b. Larger projects shall provide for neighborhood parks or other recreational options such as trails to minimize vehicle travel to off-site recreational uses and/or commercial areas.

- c. The project should provide densities of nine units per acre or greater, where allowed by the General Plan and/or Zone Plan, along bus routes and at bus stops to encourage transit use, where feasible.

Additional Recommended Mitigations

1. There shall be a limit of one wood-burning appliance per residence, and it shall be an EPA Phase II certified appliance. Also, each residence shall be equipped with a non-wood-burning source of heat.
2. Grid power shall be used (as opposed to diesel generators) for job site power needs where feasible during construction.

Offsite Mitigation

If a new project is unable to provide adequate on-site mitigation of their long-term air quality impacts, an off-site mitigation program may be necessary. Projects emitting high levels of pollutants (as determined by the District) may be required to implement all feasible on-site mitigation measures AND participate in an offsite mitigation program to reduce emissions. Impacts of local pollutants are cumulatively significant when modeling shows that combined emissions from the project and other existing and planned projects will exceed air quality standards. With an offsite mitigation program, these programs could be better coordinated, especially across county jurisdictional lines.

Mitigation Monitoring and Reporting

A mitigation monitoring and reporting program should be developed for each mitigated project and should include the following components:

1. A description of each mitigation measure adopted by the Lead Agency;
2. The party responsible for implementing each mitigation measure;
3. A schedule for the implementation of each measure;
4. The agency or entity responsible for monitoring mitigation measure implementation;
5. Criteria for assessing whether each measure has been implemented;
6. Enforcement mechanisms.