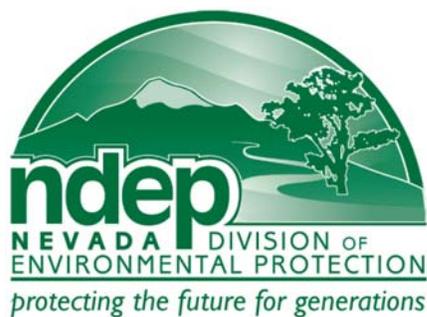


**AMBIENT AIR MONITORING NETWORK PLAN
2010**



**STATE OF NEVADA
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY PLANNING**

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Acronyms and Abbreviations

| | |
|------------------|---|
| CAA: | Clean Air Act |
| AQS: | Air Quality System |
| BAQP: | Bureau of Air Quality Planning |
| BAM: | Beta Attenuation Monitor |
| CFR: | Code of Federal Regulations |
| CO: | Carbon Monoxide |
| DCNR: | Department of Conservation and Natural Resources |
| FEM: | Federal Equivalent Method |
| FRM: | Federal Reference Method |
| IMPROVE: | Interagency Monitoring of Protected Visual Environments |
| NAAQS: | National Ambient Air Quality Standard |
| NAC: | Nevada Administrative Code |
| NDEP: | Nevada Division of Environmental Protection |
| O ₃ : | Ozone |
| PM: | Particulate Matter (2.5 or 10 microns) |
| SLAMS: | State and Local Air Monitoring Station |
| SPMS: | Special Purpose Monitoring Station |
| USEPA: | United States Environmental Protection Agency |

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Overview

The monitoring program of the Nevada Division of Environmental Protection (NDEP) operates an ambient air quality monitoring network of gaseous and particulate pollutant monitors. The monitors are located in small communities throughout rural Nevada. In the metropolitan areas of Reno and Las Vegas; the Washoe County District Health Department, Air Quality Management Division and the Clark County Department of Air Quality and Environmental Management operate and maintain their respective monitoring networks separate from NDEP and submit their Network Plan independently to the United States Environmental Protection Agency (USEPA).

NDEP regulates air quality to protect public health and the environment. Monitoring data is a crucial component of regulations used to determine compliance with the USEPA primary and secondary air quality standards. Other important uses of these monitors include: support of and issuing air quality forecasts, support of long-term health assessments, and tracking long-term air quality both to gauge effectiveness of emission control and abatement strategies and to quantify accuracy of supporting model evaluation.

Goals

NDEP created an ambient air quality monitoring program to provide useful and accurate information on air quality, which is used to evaluate the success of the State's air quality programs. The Clean Air Act of 1970, and subsequent amendments, defines air quality standards for various air pollutants necessary to protect the public from injurious pollution concentrations. Air pollution concentrations that exceed the National Ambient Air Quality Standard (NAAQS) can cause a public health hazard, nuisance, annoyance, or damage to flora, fauna and personal property.

The NAAQS, published by the USEPA, can be found in 40 Code of Federal Regulations (CFR) Part 50, which defines the levels of air quality necessary to protect human health and

welfare. An area is considered to be in nonattainment for a pollutant if it has violated the NAAQS for that pollutant. The CFR includes procedures for evaluating measured air quality against the NAAQS. State air quality standards can be found in Nevada Administrative Code (NAC) 445B.22097.

Background

The State of Nevada has three jurisdictions which independently manage their own air programs as designated by statute: Department of Conservation and Natural Resources (DCNR), Division of Environmental Protection (NDEP), Bureau of Air Quality Planning (BAQP); Washoe County District Health Department, Air Quality Management Division; and Clark County Department of Air Quality and Environmental Management.

State agencies that conduct ambient air monitoring using State and Local Air Monitoring Stations (SLAMS) or Special Purpose Monitoring Stations (SPMS), must use Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM) that comply with federal quality assurance requirements listed in 40 CFR 58, Appendix A. In conjunction with the Network Plan, a BAQP quality assurance plan was developed to form the framework for planning, implementing, assessing and reporting work performed by the BAQP and for implementing quality assurance and quality control protocols.

The Ambient Air Monitoring Program Quality Assurance Project Plan (QAPP) was developed to address quality management as well as quality assurance. The QAPP defines the policies, procedures, specifications, standards, and documentation necessary to: 1) provide data of adequate quality to meet monitoring objectives, and 2) minimize loss of air quality data due to malfunctions or out-of-control conditions. The Quality Management Plan (QMP) describes the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces between planning, implementing, assessing and reporting activities involving environmental data operations.

Additionally, the BAQP has developed ambient monitoring guidelines in order to ensure that ambient air quality data collected, at regulated facilities in the State, are of the highest quality and conform to federal requirements for quality assurance listed under 40 CFR 58.

Ambient air quality monitoring data must be certified on an annual basis as accurate and complete. The certification process begins with the complete submittal of all SLAMS data to the federal Air Quality System (AQS) for the calendar year. Submittal of data into AQS for 2009 has been accomplished. BAQP is hopeful to complete entry of 2010 data into AQS during this calendar year. Precision and accuracy reports and certification of that data should also be submitted within that time frame.

Network Design

There are currently twelve ambient air quality monitoring stations in Nevada under the jurisdiction of NDEP. Air quality monitoring is represented by both SLAMS and SPMS. There are two meteorological stations, one in Carson City and the other in Pahrump. These are used to confirm the local meteorological data from the monitoring stations.

In addition to these three independent monitoring networks, air quality monitoring is conducted through the Interagency Monitoring of Protected Visual Environments (IMPROVE) network by the federal land management agencies. There are two IMPROVE monitoring sites in Nevada, at the Jarbidge Wilderness area and Great Basin National Park, Lehman Caves.

The only monitors required in the NDEP monitoring network by the USEPA are located in Stateline (CO), Carson City (O₃) and Pahrump (PM₁₀). The Stateline monitoring site is a continuation of a highest concentration site started by the California Air Resources Board (CARB). Through a Maintenance Plan with USEPA, monitoring and maintenance of this site was assumed by NDEP in August 2006. The four PM₁₀ monitoring sites in Pahrump are required through a Memorandum of Understanding (MOU) between NDEP, USEPA, Nye County and the Town of Pahrump. Otherwise, according to 40 CFR Appendix D: Tables D-4

and D-5 sections 4.3.2, 4.3.3. 4.5 additional monitoring for criteria pollutants is not presently required.

The following table shows the locations and types of monitors operated by NDEP.

Table 1: NDEP’S AMBIENT AIR MONITORING NETWORK

| Location | Ozone | Carbon Monoxide | PM10 | PM2.5 |
|--------------------------|------------|-----------------|-----------|----------|
| Elko | | | 1 (SLAMS) | |
| Fallon | *1 (SLAMS) | | | |
| Stateline- Harvey’s | | 1 (SLAMS) | | |
| Fernley | 1 (SLAMS) | | | 1 (SPMS) |
| Carson City-5th Street | 1(SLAMS) | | | 1(SPMS) |
| Gardnerville Ranchos | | | | 1 (SPMS) |
| Pahrump-Church Site | | | 1 (SLAMS) | |
| Pahrump-Manse Elementary | | | 1 (SLAMS) | |
| Pahrump-Glen Oaks | | | 1 (SLAMS) | |
| Pahrump-Linda Street | | | 1 (SLAMS) | |
| Total | 3 | 1 | 5 | 3 |

SLAMS – State and Local Air Monitoring Station

SPMS – Special Purpose Monitoring Station

*Reclassified as SLAMS starting in 2008

Comment [J1]: This was the monitor relocated from the Long Street site. Long Street location was deleted out of the table.

Changes in Monitoring Network

Over the last 12 months, no significant changes have occurred throughout the monitoring network. However, for the next year, NDEP is anticipating changes in the monitoring network. Depending on the final decision regarding the new ozone standard, NDEP may install new ozone monitors throughout the network. Also, NDEP is evaluating the PM_{2.5} monitors to determine if these monitors are meeting our air quality objectives. Due to inadequate siting criteria, the PM_{2.5} monitor currently located at Long Street will be relocated to East Fifth Street monitoring location.

This annual monitoring network plan will be used to identify changes in the ozone and PM_{2.5} monitoring network during the next 12 months. Presently there are no violating ozone or PM_{2.5} monitors in the NDEP monitoring network. Over the next five years, through 2015, NDEP will evaluate our current network to determine if any new sites or monitors need to be added to the existing monitoring network.

Purpose of Monitors

The purpose of the Nevada Air Monitoring Network is to provide useful and accurate information on air quality, which is used to evaluate the success of the State's air quality programs. To accomplish this task, the NAAQS is used to identify the criteria pollutants; CO (Carbon Monoxide), Pb (Lead), NO₂ (Nitrogen Dioxide), O₃ (Ozone), particulate matter (PM₁₀ and PM_{2.5}), and SO₂ (Sulfur Dioxide). Measuring pollutant concentrations in outdoor air and comparing the measured concentrations to corresponding standards help to classify ambient air quality status of an area as either attainment or nonattainment. The NAAQS is broken down into primary and secondary standards. Primary standards are those established to protect public health. Secondary standards are those established to protect the public welfare from adverse pollution effects on soils, water, vegetation, man-made materials, animals, weather, visibility, climate, property, and the economy. The scientific criteria upon which the standards are based are reviewed periodically by the USEPA, who may reestablish or change the standards according to its findings. Note that there are hundreds of compounds that are generally considered pollutants when found in ambient air but their health and welfare effects are not well enough understood for ambient standards to be defined.

A pollutant measurement that is greater than the ambient air quality standard for its specific averaging time is called an exceedance. This is not necessarily a synonym for a violation; for each pollutant there are specific rules about how many exceedances are allowed in a given time period before a pattern of exceedances is considered to be a violation of the NAAQS. A violation may result in regulatory action to clean up the area's air. Exceptions are made to allow for certain limited exceedances of the standard that may occur, for example, during an

unusual weather pattern. Regulatory action is typically reserved for cases where the exceedances are too large or too frequent.

Historically, ambient air quality monitoring by BAQP has looked at trends in air quality to aid in the local planning process. Traffic, wood burning stoves, and growth related activities have prompted air quality monitoring in specific areas around the State. Data from these sites has lead to public education and outreach to communities identifying the potential health effects caused by air pollutants in the environment. Ordinances controlling surface area disturbances and other related activities that produce dust have also been implemented with the help of the monitoring sites.

Overview of Monitored Parameters

Carbon Monoxide (CO)

CO is a poisonous gas that, when introduced into the bloodstream, inhibits the delivery of oxygen to body tissue. The health risk is greatest for individuals with cardiovascular disease.

Ozone (O₃)

Ground-level ozone, or photochemical smog, is not emitted into the atmosphere as ozone, but rather is formed by the reactions of other pollutants. The primary pollutants entering into this reaction, VOCs and oxides of nitrogen, create ozone in the presence of sunlight. Ozone is a strong irritant of the upper respiratory system and also causes damage to crops.

Particulate Matter (PM₁₀)

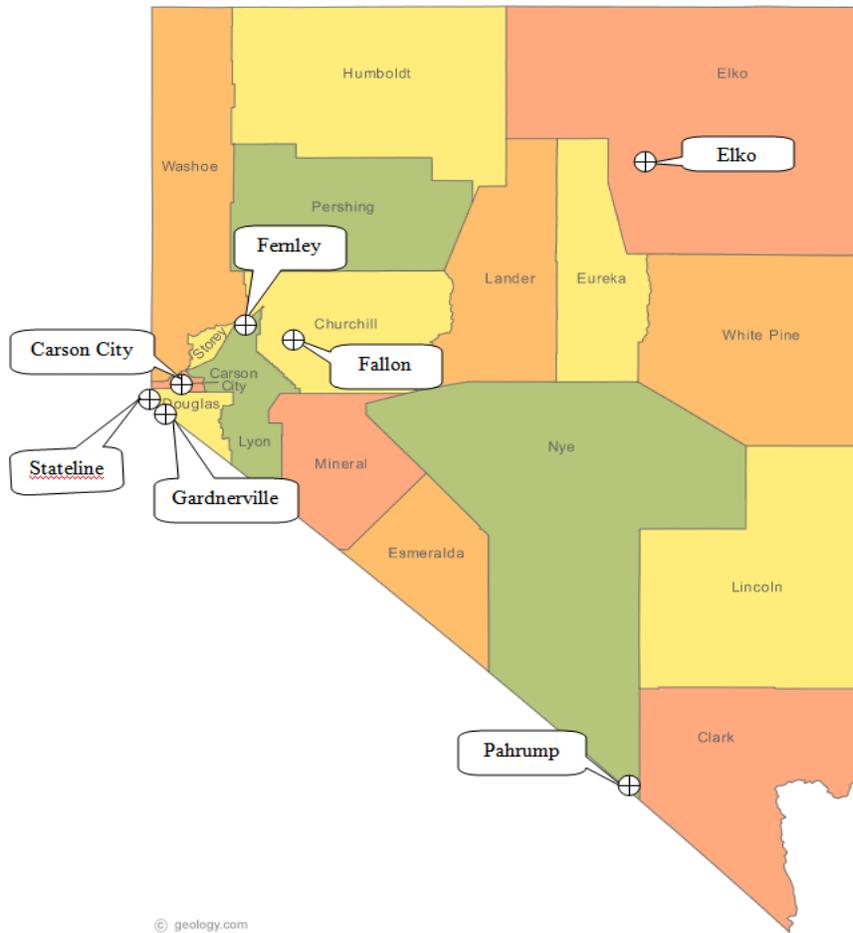
Particulate matter with an aerodynamic diameter of 10 microns or less is emitted from transportation and industrial sources. Exposure to particle pollution is linked to a variety of significant health problems ranging from aggravated asthma to premature death in people with heart and lung disease.

Fine Particulate Matter (PM_{2.5})

Fine particulate matter with a diameter of 2.5 microns or less is created primarily from industrial processes and fuel combustion. These particles are breathed deeply into the lungs. Exposure to particle pollution is linked to a variety of significant health problems ranging from aggravated asthma to premature death in people with heart and lung disease.

Site Map¹

Figure 1: A map showing the locations of the monitoring stations maintained by BAQP.



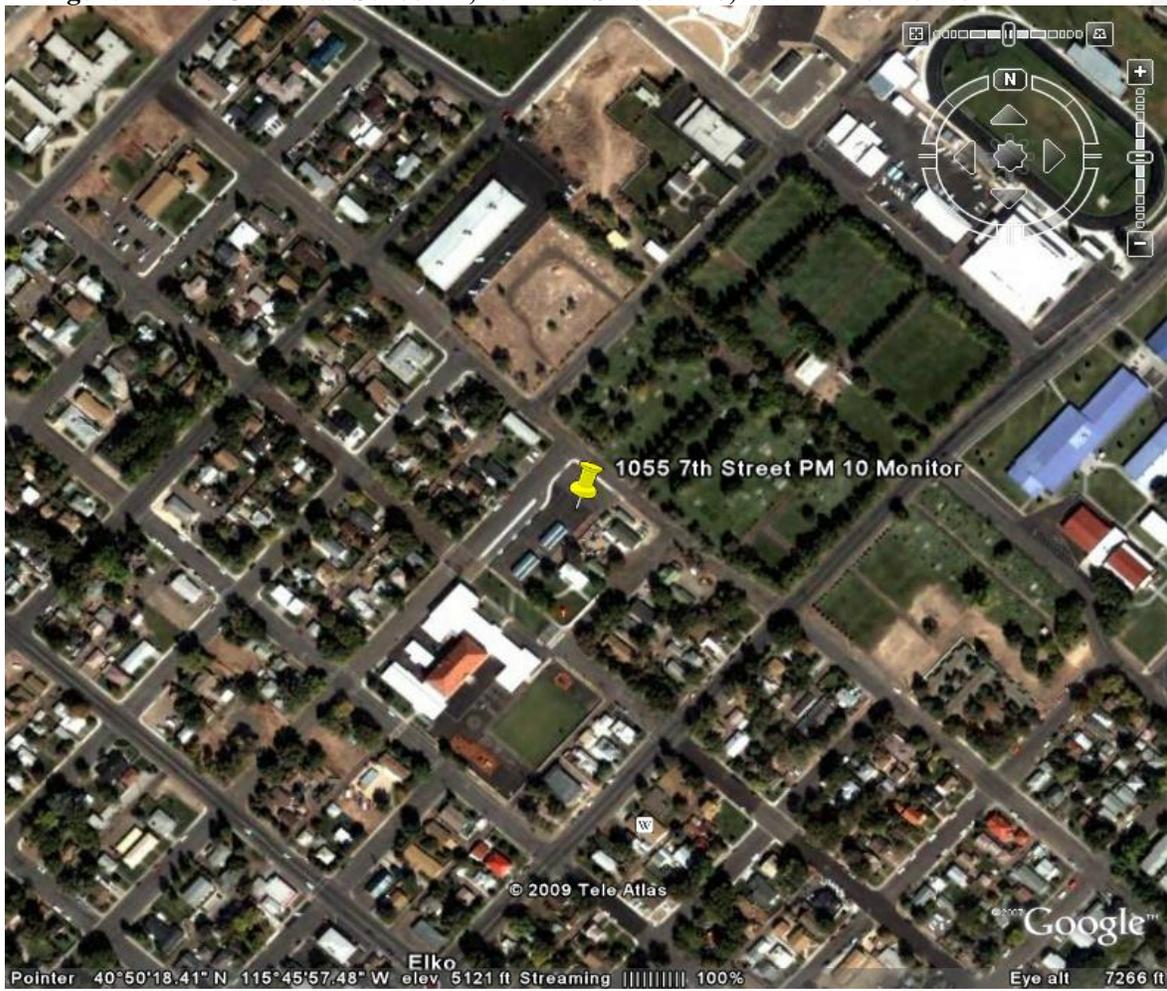
Map template from:
<http://geology.com/state-map/maps/nevada-county-map.gif>

Elko: Detailed Site Information

| | | | | | | | |
|--|--|--|--|---|--|---|--|
| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
| Elko | 32-007-0005-81102-1 | Lat +40.838347 Long -115.765961 | Elko Grammar School #2 | 1055 7th Street | Elko | 18 meters | 940 AADT (2008) Station # 0070203 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Asphalt | Elko MSA | PM₁₀ | SLAMS | Typ. Conc./Population Oriented | Neighborhood | BAM-1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 09/25/2008 | Continuous | All Year | 2.6 meters | Vertical Distance 1.2 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | 27 meters | N/A | N/A | 360 | N/A | N/A | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Monthly | N/A | N/A | 12/3/09 | |

Prior to 1992 the location for this sampler was the fire station at 723 Railroad Street (ID #32-007-003) in a commercial area. In November of 1992 this continuous PM₁₀ monitoring site was relocated to the roof of the State offices at 850 Elm Street in a predominantly residential area. The monitoring objective was to determine typical concentration/population oriented. The manual sampler was replaced with a continuous (TEOM) PM₁₀ monitor in December 1998. In September 2008, the TEOM monitor was closed and a new BAM 1020 monitor was sited at the Elko Grammar School #2.

Figure 2: Elko Grammar School #2, 1055 7th Street Elko, NV. PM 10 Monitor

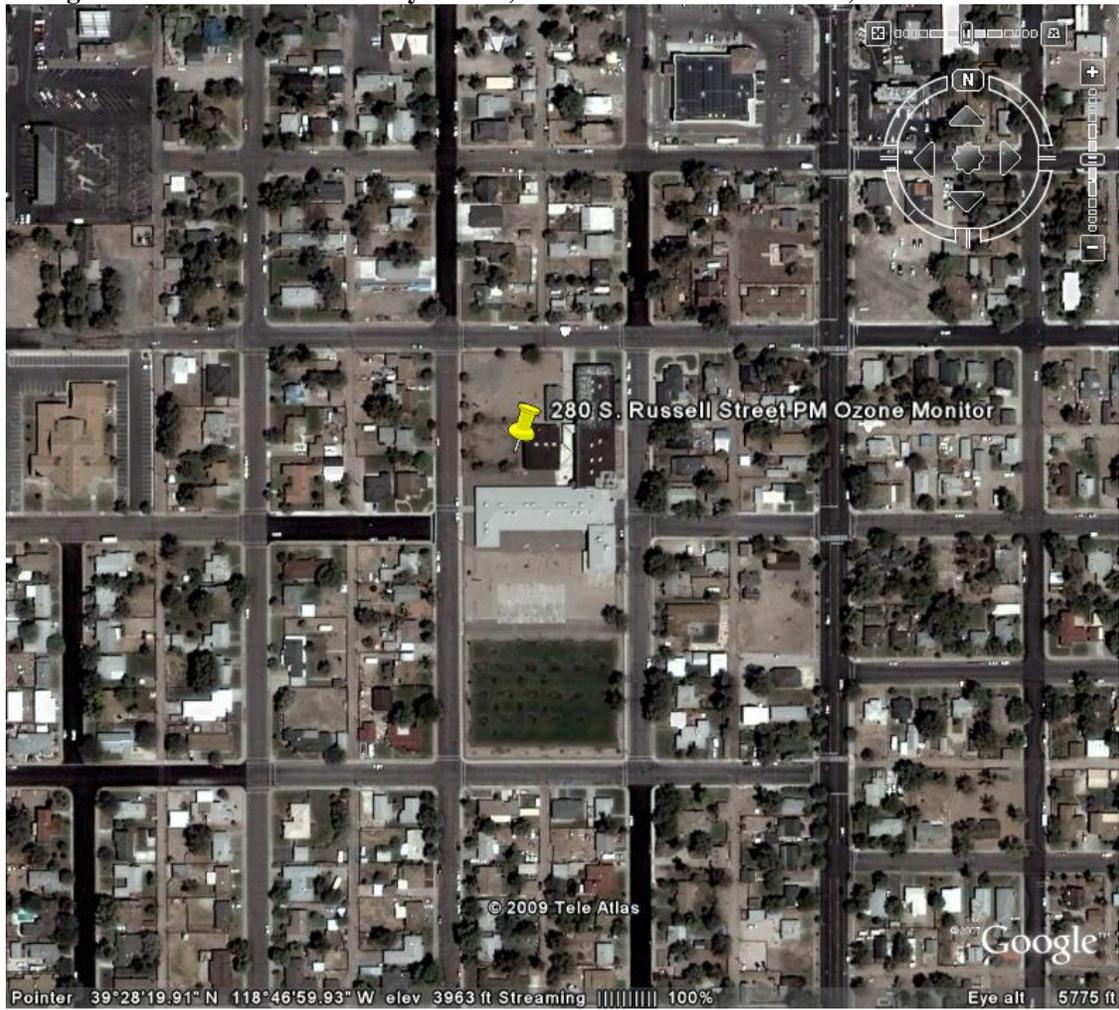


Fallon: Detailed Site Information

| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
|---|--|---|--|---|---|---|--|
| Fallon | 32-001-002-44201-1 | Lat +39.472502 Long -118.783596 | On West End Elementary School | 280 South Russell St. Fallon, Nevada | Churchill | 65 meters | 410 AADT (2008) Station # 0010135 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Paved, grass and dirt | Fallon MSA | O₃ | SLAMS | Typ. Conc. /Population Oriented | Neighborhood | Model 400E (UV Absorption) | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 10/1/1999 | Seasonal | April thru October | 3.7 meters | 0.3 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | > 10 meters | N/A | N/A | 180 | Glass Funnel W/Teflon tubing | 10 seconds | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one- point QC check (gaseous) | Last Annual Performance Evaluation (gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | N/A | Bi-weekly | 9/22/09 | N/A | |

The ozone monitoring site at 280 South Russell Street is at the West End Elementary School in a residential neighborhood that may be affected by agricultural operations surrounding the City of Fallon. The monitoring objective is to determine typical concentration/population orientation. PM₁₀ sampling commenced at this site in May 1993 and was discontinued at the end of June 1998. Monitoring for ozone began in October 1999 as an ozone transport site downwind of Reno and Fernley.

Figure 3: West End Elementary School, 280 S. Russell Street Fallon, NV. Ozone Monitor



Harvey's Casino and Resort: Detailed Site Information

| | | | | | | | |
|--|--|--|--|---|--|---|---|
| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
| Harvey's Casino and Resort | 32-005-0009-42101-1 | Lat +38.960500 Long -119.941564 | 1st level of parking garage facing HWY | Stateline, NV 89449 | Douglas, NV | 9 meters | 28,000 AADT (2008) Station # 0052110 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Paved -Asphalt | Sacramento-Arden Arcade-Truckee CSA | CO | SLAMS | Highest Concentrations | Micro | Dasibi 3008 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 10/1/1999 | Continuous | All Year | 3.2 meters | 1 meter Horizontally | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | 4 meters | N/A | N/A | 270 degrees | Teflon | 5 seconds | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | N/A | Bi-weekly | 09/28/09 | N/A | |

This is a "micro-scale" monitoring site for carbon monoxide in the core of the Stateline casino hotel area at Lake Tahoe. The site is designed to monitor the highest CO concentrations at Lake Tahoe, and is, taken to be representative of the California and Nevada sides of the south shore casino district. Monitoring at this site began in October 1999 and was previously conducted by the California Air Resources Board by multi-agency cooperative agreement. Starting in July of 2006, NDEP took over the monitoring responsibility for this site under a maintenance agreement with EPA.

Figure 4: Harvey's Casino and Resort Lake Tahoe NV. CO Monitor



Fernley Intermediate School: Detailed Site Information

| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
|--|--|--|--|---|--|---|---|
| Fernley Intermediate School | 32-019-0006-88501-1 | Lat +39.600859 Long -119.246945 | Fernley, NV | 320 Hardie Lane Fernley, NV | Lyon County | 220 meters | 1200 AADT (2008) Station # 0190119 |
| | 32-019-0006-44201-1 | | | | | | |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Paved -Asphalt | Rural (Micropolitan Statistical Area) | PM_{2.5} O₃ | SPMS SLAMS | Typ. Conc. / Population Oriented | Urban Urban | ES-640 Model 400E (UV Absorption) | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 6/8/1999 | Continuous | All Year | 7 Meters | 1.5 Vertical meters | N/A (Elevated) | |
| N/A | 7/6/2007 | Continuous | April to October | 7 Meters | Vert. distance above 2.1 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | 15 meters | N/A | N/A | 360 Degrees | Aluminum | N/A | |
| N/A | 15 Meters | N/A | N/A | 360 Degrees | Teflon | 4 Seconds | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Bi-weekly | Bi-weekly | 9/22/09 | N/A | |

Particulate and ozone monitoring is done at the Fernley Intermediate School which is located at 320 Hardie Lane. This is an area of mainly residential and agricultural use. There has recently been a large growth of industry both upwind and downwind of this site. Monitoring for PM₁₀ at this site commenced on May 1995, to determine the agricultural and industrial source impacts and population exposure. PM₁₀ sampling was discontinued in November 1998. Monitoring for PM_{2.5} began in June 1999. In addition to the PM_{2.5} monitoring, ozone monitoring began at this site July 2007. However, ozone monitoring (SPMS) was previously conducted at the Fernley Volunteer Fire Department starting in October 1997 and discontinued on October 2003.

Figure 5: Fernley Intermediate School, 320 Hardie Lane Fernley NV PM 2.5 Monitor

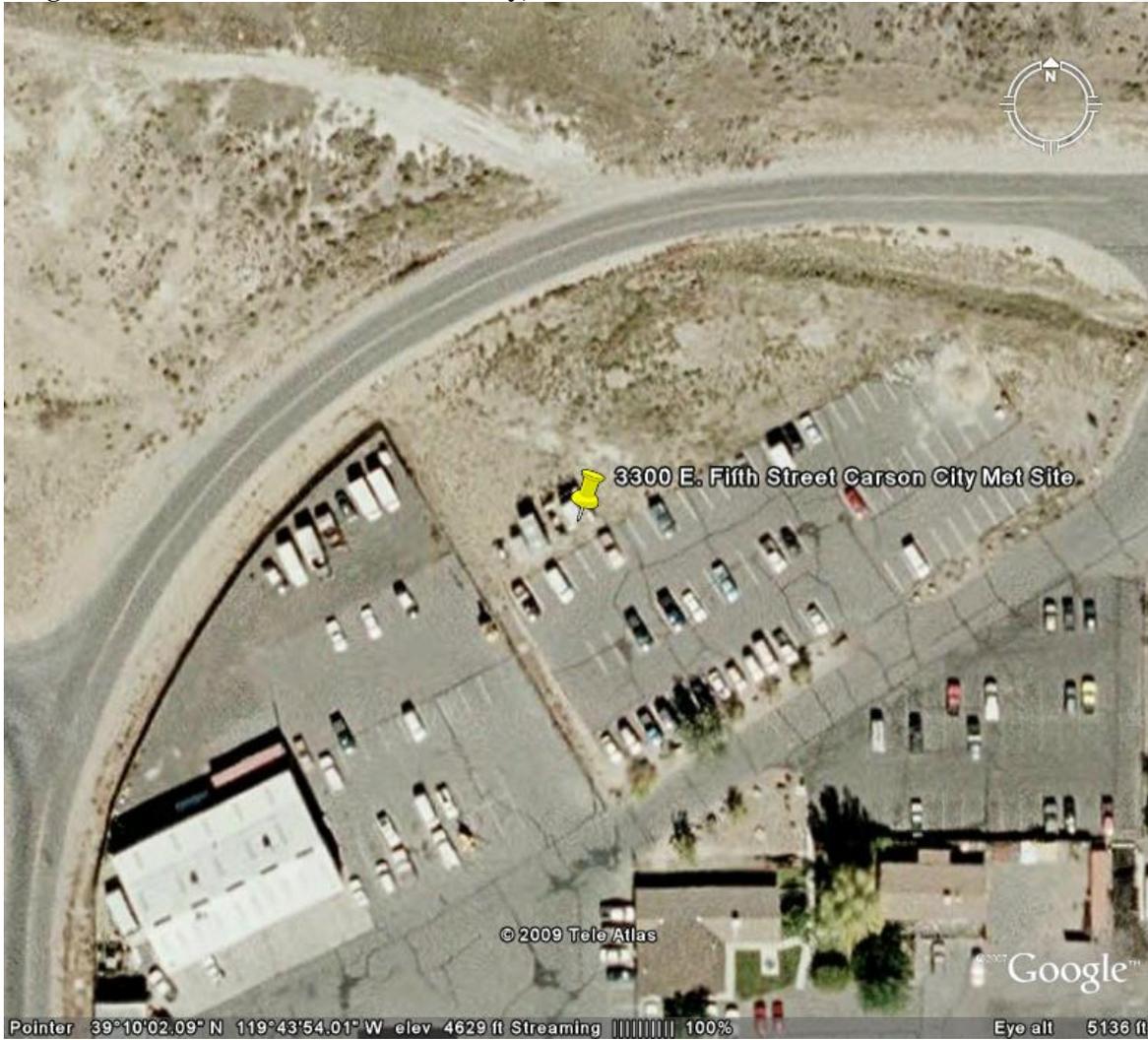


3300 E. 5th Street: Detailed Site Information

| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
|--|--|---|--|---|--|---|--|
| East 5 th Street | 32-510-0002-44201-2 | Lat +39.1671 Long -119.7314 | Carson City | 3300 East Fifth Street | Carson | 10 meters | 4000 AADT (2006) Station # 0250116 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Dirt | Carson City MSA | Met Site O ₃ PM _{2.5} | N/A SLAMS SPMS | Modeling, Natural Events and Confirmation Typ. Conc. /Population Oriented Typ. Conc. /Population Oriented | Neighborhood Neighborhood Neighborhood | N/A Model 400E (UV Absorption) BAM 1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 1/1/1989 | Continuous | All Year | 10 meters | Vertical distance above 7 meters | N/A | |
| N/A | 04/03/2008 | April through October | Seasonal | 4 meters | Vertical distance above 1.4 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | N/A | N/A | N/A | 360 Degrees | N/A | N/A | |
| N/A | N/A | N/A | N/A | 360 Degrees | Teflon | 6 seconds | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one- point QC check (gaseous) | Last Annual Performance Evaluation (Gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Monthly | Bi-weekly | 9/25/09 | N/A | |

This site is located at 3300 East Fifth Street near the Carson City Public Works Department maintenance yard in a transition area, adjacent to wetlands, the City yard, sewage treatment plant, residential neighborhood and the new highway extension of 580. The pollutants monitored included carbon monoxide and ozone (through 1989) and PM₁₀ (March 1991- February 1997). The monitoring objective is to determine typical concentration/population oriented. In 2007, an existing meteorological station was restarted, and as previously stated, the ozone monitor from Long Street site was relocated to East Fifth Street. At the end of 2009, the PM_{2.5} was relocated to this monitoring site.

Figure 6: 3300 E. Fifth Street Carson City, NV Met Site



Gardnerville: Detailed Site Information

| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
|--|--|--|--|---|--|--|---|
| Gardnerville Ranchos | 32-005-0007-88501-1 | Lat + 38.898889 Long -119.732222 | Aspen Park maintenance yard | 820 Lyell Way | Douglas | 12 meters East, 100 meters South 200 meters North | 5700 AADT (2008) Station # 0050073 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Gravel | Gardnerville Ranchos MSA | PM 2.5 | SPMS | Typ. Conc. /Population Oriented | Neighborhood | Met-One BAM 1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | Jul-98 | Continuous | All Year | 3 meters | Vertical distance above 1.5 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| 4 meters | 21 Meters | N/A | N/A | 360 Degrees | Aluminum | N/A | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (Gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| Yes | N/A | N/A | Monthly | N/A | N/A | N/A | |

This particulate monitoring site at 820 Lyell Way is located in Aspen Park in the Gardnerville Ranchos, a residential neighborhood. The site monitor objective is typical concentration/ population oriented. PM₁₀ commenced at this site in December 1995 and was discontinued at the end of 1998. Monitoring for PM_{2.5} began in July 1998.

Figure 7: 820 Lyell Way, Gardnerville, NV PM 2.5 Monitor

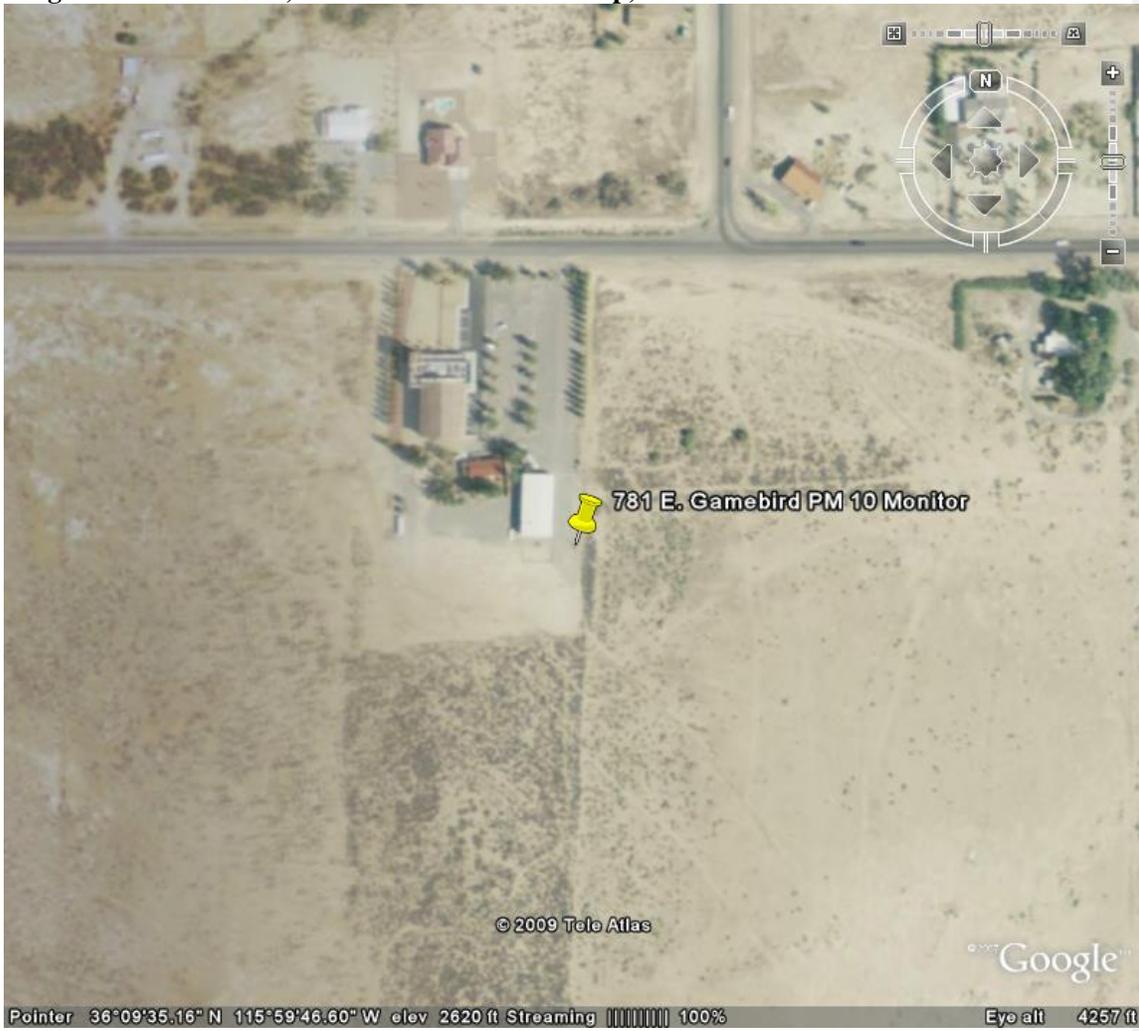


Church: Detailed Site Information

| | | | | | | | |
|--|--|--|--|---|--|---|---|
| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
| Our Lady of the Valley Catholic Church | 32-023-0013-81102-1 | Lat +36.161319 Long -115.996267 | Pahrump | 781 E. Gamebird | Nye | 100 Meters | 1300 AADT (2008) Station # 0230010 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Desert | Pahrump MSA Las Vegas-Paradise- Pahrump CSA | PM 10 | SLAMS | Significant sources | Urban | BAM-1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 2/14/2004 | Continuous | All Year | 4 meters | Vertical distance above 2 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| 10 meters | 50 Meters | N/A | N/A | 360 Degrees | Aluminum | N/A | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (Gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Monthly | N/A | N/A | 04/08/2009, 10/20/09 | |

The Church Site began operation in 2004 to complement the existing three other sites in the Pahrump monitoring network. Monitoring is accomplished with a continuous beta attenuated monitor located in the southeast corner of the Catholic Church. This site represents the southern-most monitoring in Pahrump Valley. The monitoring objective of this site is a significant source of PM₁₀. The surrounding area represents residential with little commercial, some native desert with a mix of dirt and paved roads.

Figure 8: Church Site, 781 E. Gamebird Pahrump, NV PM 10 Monitor

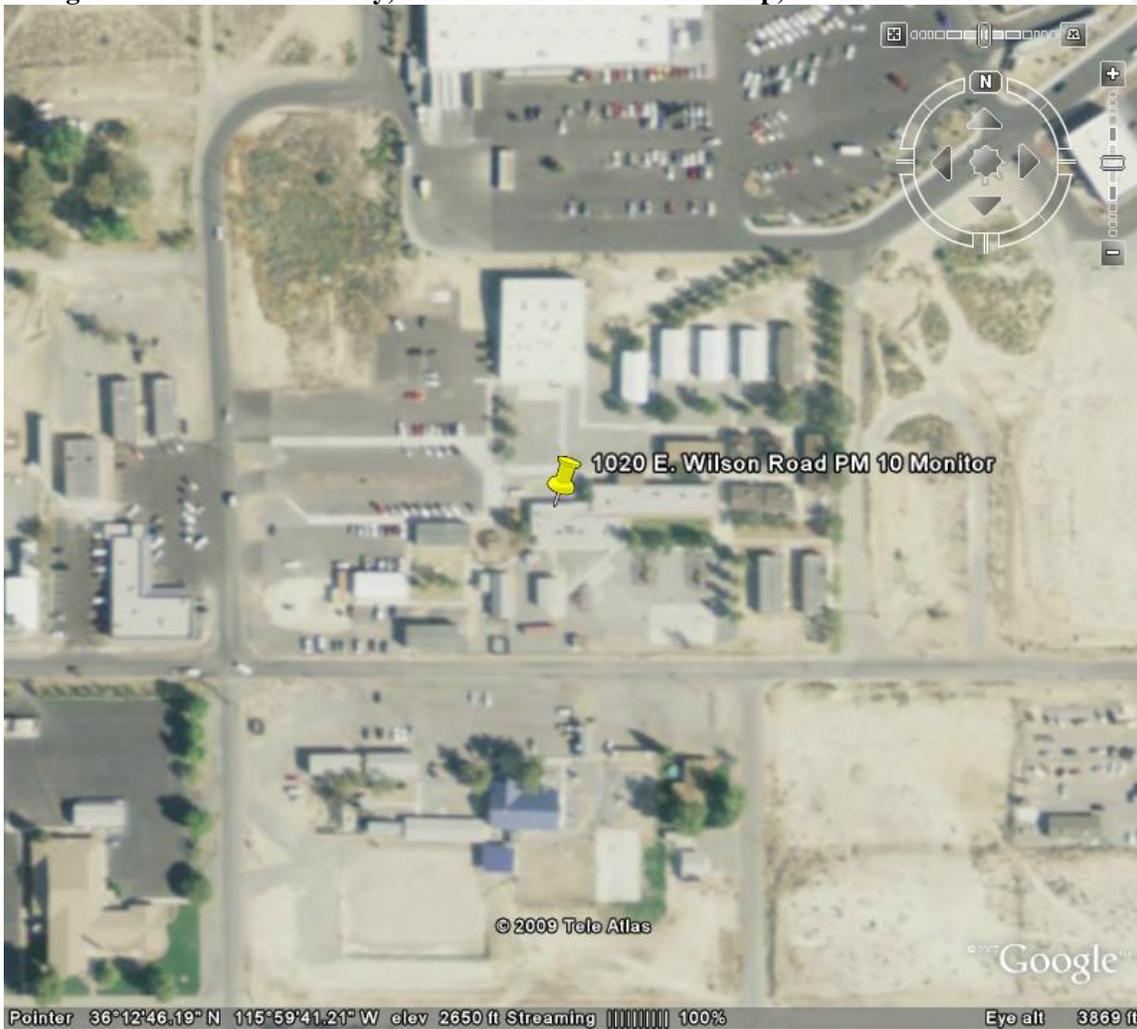


Manse Elementary: Site Detailed Information

| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
|--|--|--|--|---|--|---|--------------------------|
| Manse Elementary | 32-023-0014-81102-1 | Lat +36.225093 Long -115.997467 | Pahrump | 1020 E. Wilson Rd | Nye | 50 meters South, 100 meters South East, 68 meters South West | 3,000 AADT (2006) |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Gravel school yard | Pahrump MSA Las Vegas-Paradise-Pahrump CSA | PM₁₀ | SLAMS | Highest Concentrations | Neighborhood | BAM-1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 11/17/2005 | Continuous | All Year | 3 meters | Vertical distance above 1 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | > 10 Meters | N/A | N/A | 360 Degrees | Aluminum | N/A | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (Gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Monthly | N/A | N/A | 04/08/2009, 10/20/09 | |

The Manse site represents the monitoring objective for highest concentrations of PM₁₀ in Pahrump. This site replaces the Community Pool site, which at the time it was operating, represented the highest concentrations of PM₁₀ in Pahrump. Located at 1020 E. Wilson Road, the Manse Elementary site is located on the roof of the school and monitors for PM₁₀ using the continuous beta attenuation monitor. The area adjacent to this site represents mostly commercial, some residential, and is adjacent to the busiest activity area of Pahrump. This site is located downwind from residential construction developments that have cleared large parcels of ground for building, as well as agricultural areas that cultivate large areas of farm-ground and raise livestock. Roads surrounding this site are both paved and dirt.

Figure 9: Manse Elementary, 1020 E. Wilson Road Pahrump, NV PM 10 Monitor



Glen Oaks: Site Detailed Information

| | | | | | | | |
|--|--|--|--|---|--|---|--|
| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
| Glen Oaks | 32-023-0012-81102-1 | Lat +36.195996 Long -116.004882 | Pahrump | 145 Glen Oaks St. | Nye | 200 m | 1300 AADT (2006) Station # 0230010 |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Grass | Pahrump MSA Las Vegas-Paradise- Pahrump CSA | PM ₁₀ | SLAMS | Typ. Conc. /Population Oriented | Neighborhood | BAM-1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 11/20/2003 | Continuous | All Year | 6 meters | Vertical distance above 2 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| N/A | 12 Meters | N/A | N/A | 360 Degrees | Aluminum | N/A | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (Gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Monthly | N/A | N/A | 4/8/2009, 10/20/2009 | |

The Willow Creek site was started in 2003 and is located at 1500 Red Butte on the roof of a building in which irrigation equipment for the golf course is housed. The monitoring objective of this site is to measure typical concentrations/population oriented of PM₁₀ using the beta attenuated monitor. The surrounding area adjacent to this site is fairway/golf course and residential structures. Due to closure of the golf course, the Willow Creek site was relocated to the Glen Oaks sewer treatment plant in 2009. The Glen Oaks site is a short distance away from the existing golf course site and the monitoring objective did not change.

Figure 10: 145 Glen Oaks St., Pahrump, NV PM10 Monitor

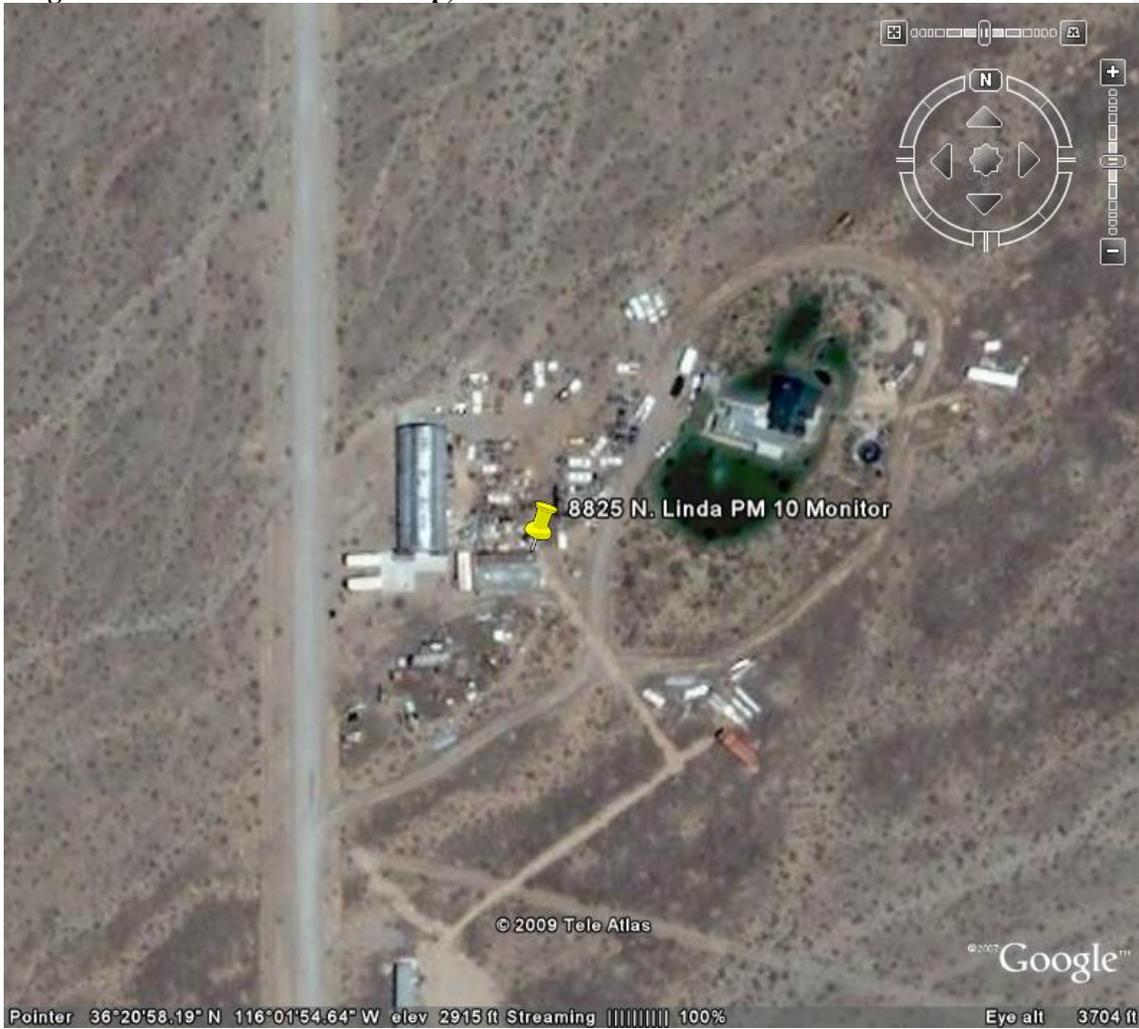


Linda Street: Site Detailed Information

| Site Name | AQS ID | GIS coordinates | Location | Address | County | Dist. to road | Traffic count |
|--|--|--|--|---|--|---|--------------------|
| Linda St. | 32-023-0011-81102-1 | Lat +36.351622 Long -116.031916 | Pahrump | 8825 N. Linda | Nye | 20 Meters | 100 AADT (2006) |
| Groundcover | Representative Area | Pollutant | Classification | Monitor objective (Site Type) | Spatial scale | Sampling method | |
| Desert | Pahrump MSA Las Vegas-Paradise- Pahrump CSA | PM ₁₀ | SLAMS | General Background | Urban | BAM-1020 | |
| Analysis method | Start date | Operational schedule | Sampling season | Probe Height | Distance from supporting structures | Distance from obstructions on roof | |
| N/A | 5/03/2003 | Continuous | All Year | 6.7 meters | Vertical distance above 3 meters | N/A | |
| Distance from obstructions not on roof | Distance from trees | Distance to furnace or incinerator flue | Distance between collocated monitors | Unrestricted airflow | Probe material | Residence time | |
| 10 Meters | N/A | N/A | N/A | 360 Degrees | Aluminum | N/A | |
| Will there be changes within the next 18 months? | Is it suitable for comparison against the annual PM _{2.5} ? | Frequency of flow rate verification for manual PM samplers audit | Frequency of flow rate verification for automated PM analyzers audit | Frequency of one-point QC check (gaseous) | Last Annual Performance Evaluation (Gaseous) | Last two semi-annual flow rate audits for PM monitors | |
| No | N/A | N/A | Monthly | N/A | N/A | 04/08/2009, 10/20/2009 | |

The Linda Street site was started in 2003 and is located at 8825 North Linda Street. The beta attenuated monitor is located on the roof of an old railroad box car and represents not only the northern-most site in the Pahrump monitoring network, but the most rural area. There is some residential surrounding this site, but mainly native desert vegetation with little or no surface disturbances. The monitoring objective for this site is general background levels of PM₁₀ in Pahrump.

Figure 11: 8825 N. Linda Pahrump, NV PM 10 Monitor



**Appendix A.
Comment Submittal Information**

The proposed 2010 Ambient Air Monitoring Network Plan is posted on the NDEP website for review and comment for thirty (30) days.

Comments may be emailed to
Daren Winkelman (dwinkelman@ndep.nv.gov)
or mailed to,
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Bureau of Air Quality Planning
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