

Washoe County Health District  
Air Quality Management Division  
2013 Ambient Air Monitoring Network Plan

Submitted to EPA Region IX July 1, 2013

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## Acronyms and Abbreviations

AADT	Annual Average Daily Traffic Count
AQI	Air Quality Index
AQMD	Washoe County Health District - Air Quality Management Division
AQS	Air Quality System
ARM	Approved Regional Method
ATR	Automatic Traffic Recorder
BAM	Beta Attenuation Monitor
CARB	California Air Resources Board
CBSA	Core-Based Statistical Area
cc/min	Cubic centimeter per minute
CFR	Code of Federal Regulations
CMSA	Consolidated Metropolitan Statistical Area
CO	Carbon Monoxide
CSA	Combined Statistical Area
DMV	Department of Motor Vehicles
EPA	U.S. Environmental Protection Agency
ESC	Environmental Systems Corporation
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GFC	Gas Filter Correlation
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NCore	National Core multipollutant monitoring station
NDOT	Nevada Department of Transportation
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>y</sub>	Reactive Oxides of Nitrogen
O <sub>3</sub>	Ozone
PM <sub>2.5</sub>	Particulate Matter less than or equal to 2.5 microns in aerodynamic diameter
PM <sub>10</sub>	Particulate Matter less than or equal to 10 microns in aerodynamic diameter
PM <sub>coarse</sub>	PM <sub>10</sub> minus PM <sub>2.5</sub>
ppb	parts per billion
ppm	parts per million
RTI	Research Triangle Institute
SASS	Speciation Air Sampling System
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Station
SO <sub>2</sub>	Sulfur Dioxide
SPM	Special Purpose Monitoring
SR	State Route
STN	Speciation Trends Network
TAPI	Teledyne Advanced Pollution Instrumentation, Inc.

# Introduction

## **Purpose**

The U.S. Environmental Protection Agency (EPA) finalized amendments to the ambient air monitoring regulations on October 17, 2006.<sup>1</sup> The amendments revise the technical requirements for certain types of ambient air monitoring sites, add provisions for monitoring of PM<sub>coarse</sub>, and reduce certain monitoring requirements for criteria pollutants. Monitoring agencies are required to submit annual monitoring network plans, conduct network assessments every five years, perform quality assurance activities, and in certain instances, have NCore sites established by January 1, 2011.

This plan was prepared and submitted as part of the fulfillment to these new regulations. It represents the Washoe County Health District - Air Quality Management Division's (AQMD) ambient air monitoring program activities completed in 2012 and proposed network modifications for 2013-2014.

## **Public Inspection Process**

This monitoring network plan was available for public inspection from June 1 to June 30, 2013 at the AQMD website ([www.ourcleanair.com](http://www.ourcleanair.com)). A hardcopy of the plan was also available at the AQMD office.

## **Agency Contacts**

For information or questions regarding the 2013 Ambient Air Monitoring Network Plan, please contact the following individuals of the AQMD.

Kevin Dick, Division Director  
(775) 784-7213, or [kdick@washoecounty.us](mailto:kdick@washoecounty.us)

Daniel Inouye, Branch Chief  
(775) 784-7214, or [dinouye@washoecounty.us](mailto:dinouye@washoecounty.us)

Craig Petersen, Senior Air Quality Specialist  
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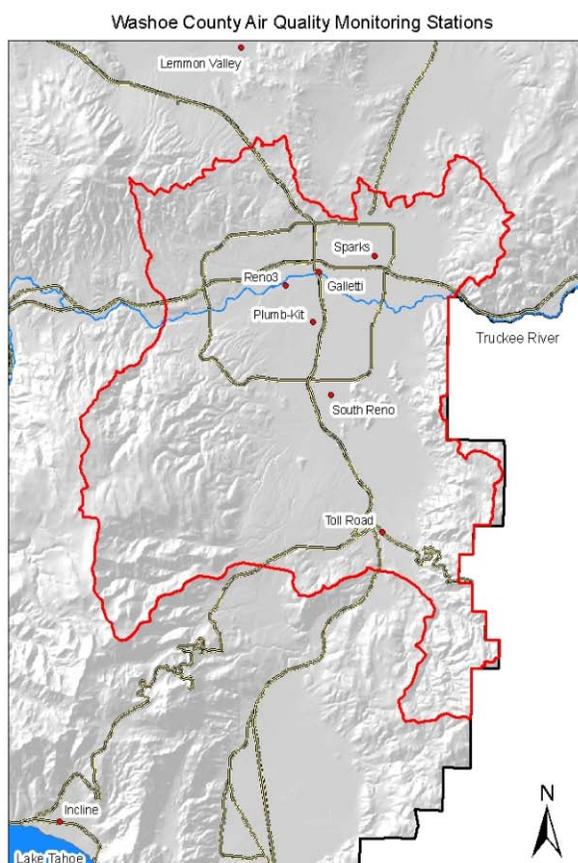
<sup>1</sup> 71 FR 61236-61328.

# Overview of Washoe County Health District Network Operation

## Network Design

The AQMD operated eight (8) ambient air monitoring sites in 2012 (Figure 1). The red boundary delineates Hydrographic Area 87 (HA 87) as defined by the State of Nevada Division of Water Resources and is currently designated as “serious” non-attainment for the 24-hour PM<sub>10</sub> NAAQS.<sup>2,3</sup> Washoe County is classified as “attainment” or “unclassifiable/attainment” for all other pollutants and averaging times. Table 1 lists the parameters monitored in 2012 sorted by network type and site.

Figure 1  
Washoe County Health District - AQMD Ambient Air Monitoring Sites



<sup>2</sup> 40 CFR 81.329.

<sup>3</sup> In July 2009, the AQMD submitted a SIP revision to EPA requesting redesignation of HA 87 to an attainment/maintenance area for the 24-hour PM<sub>10</sub> NAAQS. On April 19, 2011, EPA published a final rule (76 FR 21807) finding that 1) the Truckee Meadows failed to attain the NAAQS by the applicable date and 2) the Truckee Meadows is currently attaining the NAAQS based on recent monitoring data (2007-2009). The rule does not change the “Serious” non-attainment designation.

Table 1  
Ambient Air Monitoring Sites and Parameters Monitored

Network Type Site	O <sub>3</sub>	CO	Trace CO	Trace NO	NO <sub>2</sub>	NO <sub>x</sub>	Trace NOy	Trace SO <sub>2</sub>	PM <sub>10</sub> (manual)	PM <sub>10</sub> (continuous)	PM <sub>2.5</sub> (manual)	PM <sub>2.5</sub> (continuous)	PM <sub>coarse</sub> (manual)	PM <sub>coarse</sub> (continuous)	PM <sub>2.5</sub> Speciation	Meteorology
SLAMS																
Galletti		✓							✓							
Incline	✓															
Lemmon Valley	✓	✓														
Plumb-Kit										✓						
South Reno	✓	✓								✓						
Sparks	✓	✓							✓	✓						
Toll	✓	✓								✓						
NCore <sup>4</sup>																
Reno3	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Speciation Trends																
Reno3															✓	
Special Purpose																
Sparks												✓				

Notes: Meteorology for the NCore network includes ambient temperature, wind speed, wind direction, barometric pressure, relative humidity, and liquid precipitation. The PM<sub>10</sub> manual method monitor at NCore is for PM<sub>coarse</sub> calculation only and is not submitted to AQS for data to be used in comparison to the NAAQS.

Data from the continuous PM<sub>2.5</sub> Special Purpose monitor is used for short term air quality forecasts and are submitted to AQS with SPM and “non-regulatory” designations.

<sup>4</sup> NCore monitoring began December 2010.

**Minimum Monitoring Requirements**

The AQMD’s ambient air monitoring network meets the minimum monitoring requirements for all criteria pollutants pursuant to 40 CFR 58, Appendix D. The AQMD does not monitor for Lead due to there being no sources over 0.5 tons per year and a CBSA population less than 500,000. Additionally, the AQMD does not monitor for near-road NO<sub>2</sub> due to the CBSA population size. Tables 2 through 8 provide pollutant specific monitoring requirements. Additional pollutant specific data may be found in the “[Washoe County, Nevada, Air Quality Trends Report, 2003-2012](#)”. The 2012 population data are from the Nevada State Demographer’s Office.<sup>5</sup>

Table 2  
Minimum Monitoring Requirements for O<sub>3</sub>

MSA	County	Population	8-hour Design Value (2010-2012)		Number of Sites		
			ppm	Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe	427,704	0.068	South Reno (0020) Sparks (1005) Lemmon Valley (2009)	2	6	0

Monitors required for SIP or Maintenance Plan: 2

Table 3  
Minimum Monitoring Requirements for FEM PM<sub>2.5</sub>

MSA	County	Population	Design Value (2010-2012)				Number of Sites		
			Annual (µg/m <sup>3</sup> )	Annual Site (ID)	Daily (µg/m <sup>3</sup> )	Daily Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe	427,704	6.2	Reno3 (0016)	18.0	Reno3 (0016)	1	1	0

Monitors required for: SIP or Maintenance Plan: 0; NCore: 1

Table 4  
Minimum Monitoring Requirements for FRM PM<sub>2.5</sub>

MSA	County	Population	Design Value (2010-2012)				Number of Sites		
			Annual (µg/m <sup>3</sup> )	Annual Site (ID)	Daily (µg/m <sup>3</sup> )	Daily Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe	427,704	6.2	Reno3 (0016)	18.0	Reno3 (0016)	1	1	0

Monitors required for: SIP or Maintenance Plan: 0; NCore: 1

<sup>5</sup> Nevada State Demographer’s Office, “Nevada County Certified Population Estimates, July 1, 2000 to July 1, 2012, Includes Cities and Towns”, Page 16.

Table 5  
Minimum Monitoring Requirements for PM<sub>10</sub>

MSA	County	Population	Maximum Concentration (2012)		Number of Sites		
			µg/m <sup>3</sup>	Site (ID)	Minimum Required	Active	Needed
Reno-Sparks	Washoe	427,704	100	Sparks (1005)	4	6	0

Monitors required for SIP or Maintenance Plan: 4

Table 6  
Minimum Monitoring Requirements for NO<sub>2</sub>

CBSA	Counties	Population	Design Value (2010-2012)		Number of Sites		
			Annual (ppb)	1-hour (ppb)	Minimum Required	Active	Needed
Reno, NV	Washoe <u>Storey</u> Total	427,704 4,103 431,807	17	6	1	1	0

Monitors required for: SIP or Maintenance Plan: 0; NCore: 1

Table 7  
Minimum Monitoring Requirements for CO

CBSA	Counties	Population	Design Value (2011-2012)		Number of Sites		
			1-hour (ppm)	8-hour (ppm)	Minimum Required	Active	Needed
Reno, NV	Washoe <u>Storey</u> Total	427,704 4,103 431,807	2.9	2.4	2	6	0

Monitors required for: SIP or Maintenance Plan: 2; NCore: 1

Table 8  
Minimum Monitoring Requirements for SO<sub>2</sub>

CBSA	Counties	Population	Design Value (2010-2012)	Number of Sites		
			1-hour (ppb)	Minimum Required	Active	Needed
Reno, NV	Washoe <u>Storey</u> Total	427,704 4,103 431,807	5	1	1	0

Monitors required for NCore: 1

## **Network Modifications Completed in 2012**

The following modifications to the ambient air monitoring network were completed in 2012. The AQMD moved offices to Building B in the same complex. As a part of this move, the AQMD filter weigh room was relocated as well. The pre and post weighing of filters was not disrupted during the move.

### SLAMS:

- No modifications completed.

### NCore:

- No modifications completed.

### Speciation Trends:

All other pollutants and monitoring sites

- No modifications completed.

## **Additional Modifications Completed in 2012**

The following additional modifications were completed in 2012.

### SLAMS:

All pollutants

- No modifications completed.

### NCore:

Shelter (Reno3)

- Painted shelter exterior.

### Speciation Trends and Special Purpose Monitor Networks:

All other pollutants and monitoring sites

- No modifications completed.

## **Network Modifications Proposed for 2013-2014**

The following modifications to the ambient air monitoring network are proposed for 2013-2014.

### **SLAMS:**

All pollutants and meteorology (Galletti)

- Relocate entire Galletti monitoring site approximately 45 meters to the north of its current location. The reason for relocating this site is to move the shelter away from trees that are less than 5 meters from the shelter.

PM<sub>10</sub> (Galletti)

- Replace the existing PM<sub>10</sub> Hi-Volume sampler with a Met One BAM 1020 FEM.

PM<sub>10</sub> (Sparks)

- Take the existing designated and collocated PM<sub>10</sub> Hi-Volume samplers offline. The removal of these samplers will complete the change from manual method to a continuous sampling frequency for PM<sub>10</sub> at all SLAMS sites.

Meteorology (Toll, So. Reno, Plumb-Kit, Galletti and Sparks)

- Take the existing cup and vane sensors offline and install Met One 50.5H sonic anemometers.

### **NCore:**

Meteorology (Reno3)

- Install a new Met One 595 solar radiation sensor.
- Install a new Met One 083E relative humidity sensor.
- Take the existing Vaisala WXT520 sensor offline and replace with a new Met One 50.5H sonic anemometer.
- Install a new YSI 700 ambient temperature sensor.

## **Additional Modifications Proposed for 2013-2014**

The following additional modifications are proposed for 2013-2014.

### **SLAMS:**

All pollutants

- No modifications proposed.

### **NCore:**

All pollutants

- No modifications proposed.

### **Speciation Trends Network:**

All other pollutants and monitoring sites

- No modifications proposed.

## **Modifications to PM<sub>2.5</sub> Monitoring Network Proposed for 2013-2014**

### **SLAMS:**

#### **Galletti**

- Install a Met One BAM 1020 FEM PM<sub>2.5</sub> monitor.

#### **Sparks**

- Install a Met One BAM 1020 FEM PM<sub>2.5</sub> collocated monitor.

### **NCore:**

- No modifications proposed.

## **Data Submission Requirements**

Precision and Accuracy Reports for 2012 were submitted to AQS for the:

- 1<sup>st</sup> quarter in June 2012,
- 2<sup>nd</sup> quarter in September 2012,
- 3<sup>rd</sup> quarter in November 2012, and
- 4<sup>th</sup> quarter in March 2013.

Annual Data Certification for all data for 2012 was submitted to EPA on April 30, 2013.

## Overview of Tribal Network Operations

### Network Design

Two tribes operate ambient air monitoring networks within the geographic boundaries of Washoe County - The Reno-Sparks Indian Colony (RSIC) and Pyramid Lake Paiute Tribe (PLPT). Table 9 summarizes the tribal sites and parameters monitored in 2012. Figure 2 shows the location of tribal lands for the Reno-Sparks Indian Colony and Figure 3 is a map showing the locations of the Pyramid Lake Paiute Tribes' monitoring sites. For additional detailed site information about the RSIC and PLPT monitoring networks including annual network plans, refer to the following contact information.

Reno Sparks Indian Colony  
 Elizabeth Acevedo  
 Environmental Specialist II  
 Environmental Program of the  
 Planning Department  
 1937 Prosperity Street  
 Reno, NV 89502  
 (775)785-1363, ext. 5409  
[eacevedo@rsic.org](mailto:eacevedo@rsic.org)  
[www.rsic.org](http://www.rsic.org)

Pyramid Lake Paiute Tribe  
 Donna V. Lamb  
 Air Quality Specialist  
 Environmental Department  
 P.O. Box 256  
 Nixon, NV 89424  
 (775) 574-0101 x12  
[dlamb@plpt.nsn.us](mailto:dlamb@plpt.nsn.us)  
<http://plpt.nsn.us/environmental/air.htm>

Table 9  
 Tribal Ambient Air Monitoring Sites and Parameters Monitored

<u>Network</u> Site Site ID	O <sub>3</sub>	CO	NO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub> (manual)	PM <sub>10</sub> (continuous)	PM <sub>2.5</sub> (manual)	PM <sub>2.5</sub> (continuous)	PM <sub>coarse</sub> (manual)	PM <sub>coarse</sub> (continuous)	Meteorology
RSIC											
Hungry Valley TT 653 2010						✓					
PLPT											
WADSAQ T-561-1026						✓		✓			✓
North Lake T-561-1025						✓					✓

Figure 2  
Reno-Sparks Indian Colony

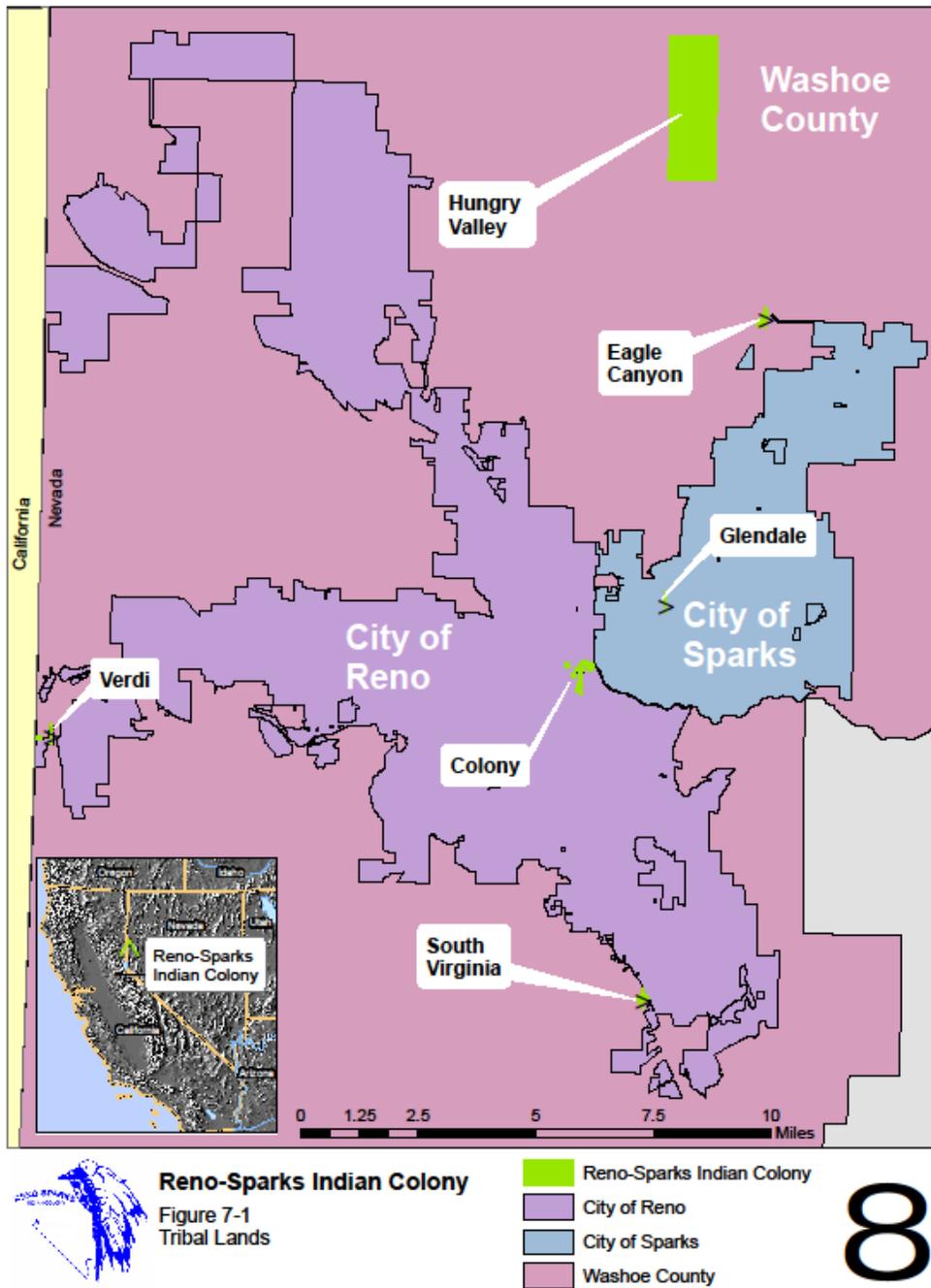


Figure 3  
Pyramid Lake Paiute Tribe



Map 1 - Location of Pyramid Lake Paiute Tribe Air Quality Monitoring Sites. North Lake is being moved to Nixon.  $PM_{2.5}$  at Wadsworth is awaiting approval to start operation. Both sites have meteorological monitoring.

## Washoe County Health District Detailed Site Information

### Galletti

The Galletti site is located southeast of the Interstate 80 - US Highway 395/Interstate 580 interchange in a commercial/industrial area. The Galletti site, which monitors PM<sub>10</sub> and CO, is heavily impacted by on-road vehicle emissions from interstate highways. The site type is to determine typical concentrations of CO and PM<sub>10</sub>.

<b>Site Name:</b>	Galletti
<b>AQS ID:</b>	32-031-0022
<b>Geographical coordinates:</b>	CO: 39° 31.920'N, 119° 47.099'W PM <sub>10</sub> : 39° 31.947'N, 119° 46.973'W
<b>Location:</b>	CO: South end of NDOT equipment yard. PM <sub>10</sub> : Northwest corner of Nevada DMV parking lot.
<b>Street address:</b>	305 Galletti Way Reno, NV 89431
<b>County:</b>	Washoe
<b>Distance to road:</b>	CO: 15 meters to Kietzke Lane; 117 meters to IR 580 PM <sub>10</sub> : 68 meters Kietzke Lane; 308 meters to IR 580
<b>Traffic count:</b>	14,700 AADT (2009-2011) (NDOT ATR 0312210 - Kietzke Lane, 0.15 miles south of Galletti Way) 145,666 AADT (2009-2011) (NDOT ATR 0310461 - IR580 (US 395), 'Exit 67' 0.2 miles north of Glendale Ave.)
<b>Groundcover:</b>	Paved
<b>Representative area:</b>	Reno-Sparks MSA

Figure 4  
Galletti Monitoring Station



Figure 5  
Galletti PM<sub>10</sub> Monitoring Station



Figure 6  
Galletti Monitoring Site Vicinity Map

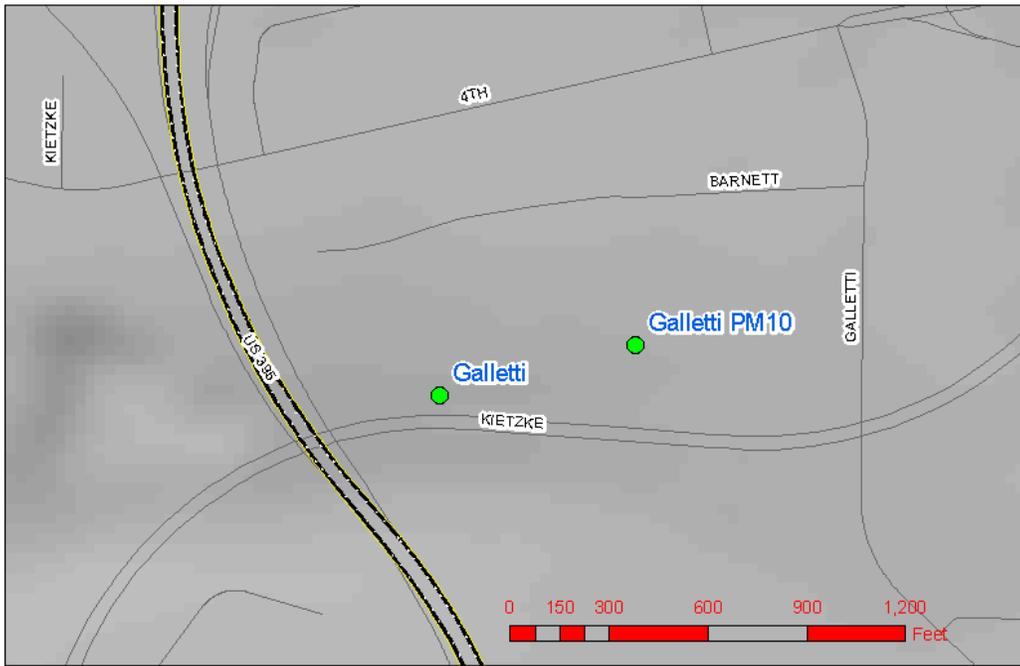
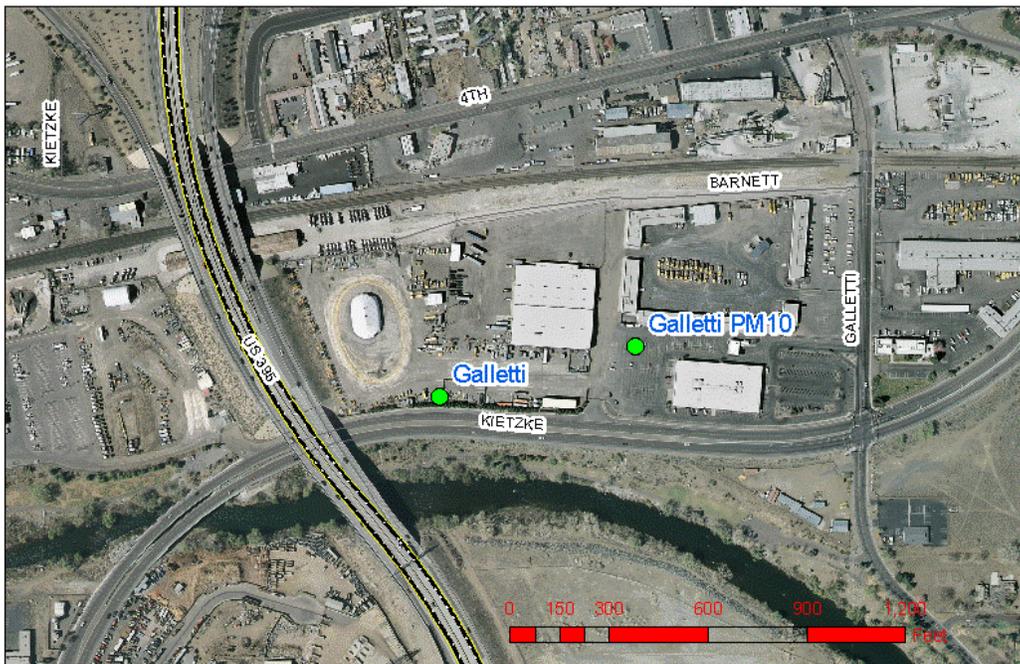


Figure 7  
Galletti Monitoring Site Vicinity Aerial



**Galletti (continued)**

	<b>CO</b>	<b>PM<sub>10</sub></b>
<b>Site type</b>	Typical concentration	Typical concentration
<b>Monitor type</b>	SLAMS	SLAMS
<b>Spatial scale</b>	Middle	Neighborhood
<b>Sampling method</b>	API 300E	Andersen 1200 Hi-Vol
<b>Analysis method</b>	GFC	AQMD lab
<b>Method code</b>	093	063
<b>Parameter code</b>	42101	81102
<b>Parameter occurrence code</b>	1	1
<b>Start date</b>	August 1988	August 1988
<b>Operation schedule</b>	Continuous	1:6
<b>Sampling season</b>	All year	All year
<b>Probe height</b>	4.0 meters	3.0 meters
<b>Height of obstruction not on roof</b>	n/a	n/a
<b>Distance:</b>		
<b>from obstructions not on roof</b>	None	None
<b>from obstructions on roof</b>	n/a	n/a
<b>from trees</b>	8.2 meters*	70 meters
<b>to furnace or incinerator flue</b>	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a
<b>from supporting structure</b>	1.2 meters	1.5 meters
<b>Flow rate</b>	720-880 cc/min	1.13 m <sup>3</sup> /min
<b>Unrestricted airflow</b>	360 degrees	360 degrees
<b>Probe material</b>	Teflon	n/a
<b>Residence time</b>	13 seconds	n/a
<b>Proposed modifications within the next 18 months?</b>	See page 7	See page 7
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a
<b>Frequency of:</b>		
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	Every 1:6 run and quarterly
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a
<b>one-point QC check (gaseous)</b>	Bi-weekly (3 point)	n/a
<b>Last:</b>		
<b>annual performance evaluation (gaseous)</b>	03-20-12 04-12-12 09-11-12 12-18-12	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	03-08-12 04-24-12 08-06-12 11-02-12

\* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

## Incline

This site is located at the Washoe County Service Center at 855 Alder Avenue and is outside HA 87. It is located in a residential/commercial neighborhood, where the site type is typical concentration for O<sub>3</sub>. The AQMD had monitored PM<sub>10</sub> (1993-2002) and CO (1993-2002) and currently monitors for O<sub>3</sub>. This site was temporarily closed from December 2005 to May 2008 for remodeling. By multi-agency cooperative agreement, the California Air Resources Board (CARB) monitored PM<sub>2.5</sub> (1999-2002) and NO<sub>2</sub> (1999-2002). Since May 2008, this site only monitors for O<sub>3</sub>.

<b>Site Name:</b>	Incline
<b>AQS ID:</b>	32-031-2002
<b>Geographical coordinates:</b>	39° 15.025'N, 119° 57.404'W
<b>Location:</b>	Inside northeast corner of Washoe County office building.
<b>Street address:</b>	855 Alder Avenue Incline Village, NV 89451
<b>County:</b>	Washoe
<b>Distance to road:</b>	57 meters to Tahoe Boulevard
<b>Traffic count:</b>	11,333 AADT (2009-2011) (NDOT ATR 0310379 – SR28, North Shore Rd (Tahoe Blvd), 450ft south of Village Blvd.)
<b>Groundcover:</b>	Paved / Vegetated
<b>Representative area:</b>	Reno-Sparks MSA

Figure 8  
Incline Monitoring Station



Figure 9  
Incline Monitoring Site Vicinity Map

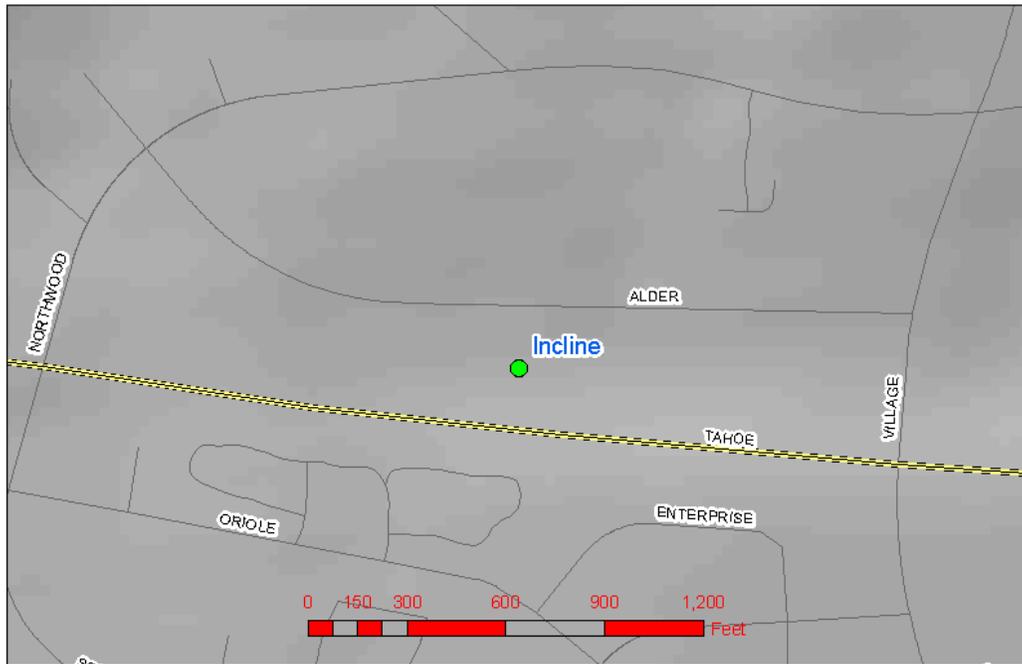
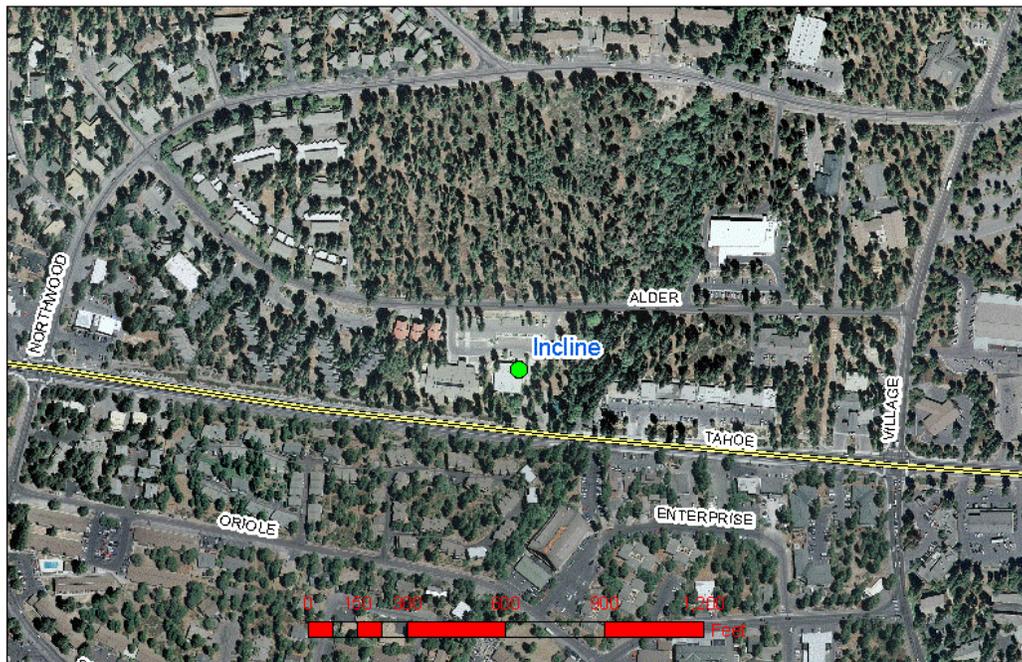


Figure 10  
Incline Monitoring Site Vicinity Aerial



**Incline (continued)**

	<b>O<sub>3</sub></b>
<b>Site type</b>	Typical concentration
<b>Monitor type</b>	SLAMS
<b>Spatial scale</b>	Neighborhood
<b>Sampling method</b>	API 400A/TAPI 400E
<b>Analysis method</b>	UV Photometry
<b>Method code</b>	087
<b>Parameter code</b>	44201
<b>Parameter occurrence code</b>	1
<b>Start date</b>	June 1993
<b>Operation schedule</b>	Continuous
<b>Sampling season</b>	All year
<b>Probe height</b>	4.6 meters
<b>Height of obstruction not on roof</b>	n/a
<b>Distance:</b>	
<b>from obstructions not on roof</b>	None
<b>from supporting structure</b>	1.1 meters
<b>from obstructions on roof</b>	n/a
<b>from trees</b>	5.2 meters*
<b>to furnace or incinerator flue</b>	12.2 meters
<b>between collocated monitors</b>	n/a
<b>Flow rate</b>	720-880 cc/min
<b>Unrestricted airflow</b>	360 degrees
<b>Probe material</b>	Teflon
<b>Residence time</b>	14 seconds
<b>Proposed modifications within the next 18 months?</b>	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a
<b>Frequency of:</b>	
<b>flow rate verification for manual samplers audit (PM)</b>	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a
<b>one-point QC check (gaseous)</b>	Bi-weekly (3 point)
<b>Last:</b>	
<b>annual performance evaluation (gaseous)</b>	03-21-12 06-18-12 09-13-12 12-19-12
<b>two semi-annual flow rate audits (PM)</b>	n/a

\* At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

## Lemmon Valley

Located at the Boys and Girls Club at 325 Patrician Drive, this site is outside HA 87. It is in a transitional area among residences, parks, and open fields. The pollutants monitored are O<sub>3</sub> and CO. The site type is typical concentration for CO and highest concentration for O<sub>3</sub>.

<b>Site name:</b>	Lemmon Valley
<b>AQS ID:</b>	32-031-2009
<b>Geographical coordinates:</b>	39° 38.716'N, 119° 50.401'W
<b>Location:</b>	Inside northwest corner of Boys and Girls Club.
<b>Street address:</b>	325 W. Patrician Drive Reno, NV 89506
<b>County:</b>	Washoe
<b>Distance to road:</b>	59 meters to Patrician Drive.
<b>Traffic count:</b>	1,070 AADT (2009-2011) (NDOT ATR 0310926 - Patrician Drive, 150 feet west of Lemmon Drive)
<b>Groundcover:</b>	Paved / Vegetated
<b>Representative area:</b>	Reno-Sparks MSA

Figure 11  
Lemmon Valley Monitoring Station



Figure 12  
Lemmon Valley Monitoring Site Vicinity Map

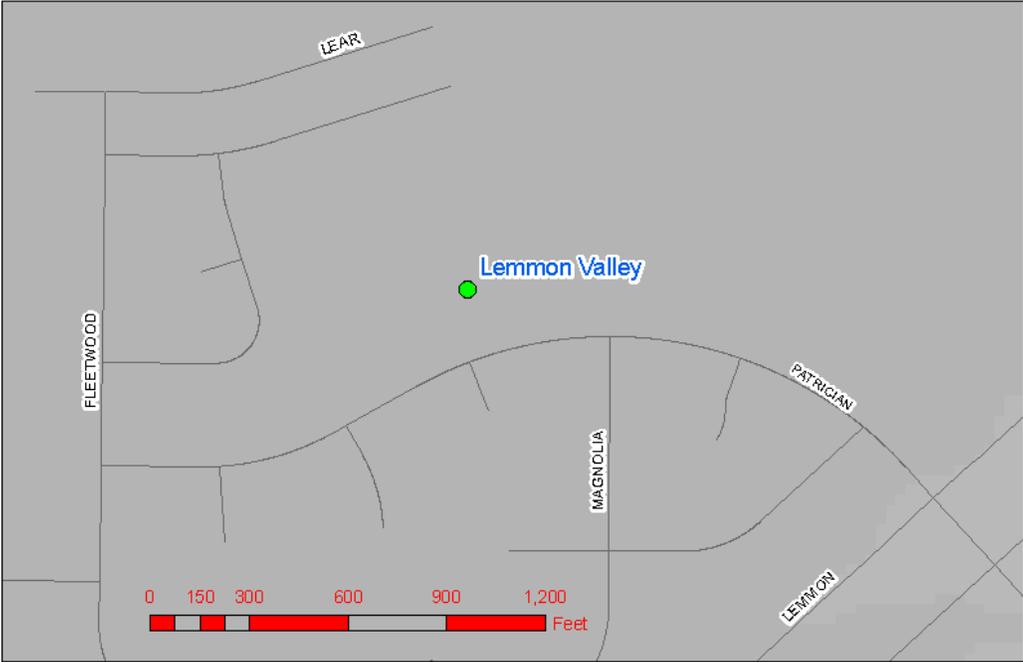


Figure 13  
Lemmon Valley Monitoring Site Vicinity Aerial



**Lemmon Valley (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>
<b>Site type</b>	Highest concentration	Typical concentration
<b>Monitor type</b>	SLAMS	SLAMS
<b>Spatial scale</b>	Urban	Urban
<b>Sampling method</b>	TAPI 400E	TAPI 300EU
<b>Analysis method</b>	UV Photometry	GFC
<b>Method code</b>	087	093
<b>Parameter code</b>	44201	42101
<b>Parameter occurrence code</b>	1	1
<b>Start date</b>	January 1987	January 1987
<b>Operation schedule</b>	Continuous	Continuous
<b>Sampling season</b>	All year	All year
<b>Probe height</b>	5.5 meters	5.5 meters
<b>Height of obstruction not on roof</b>	n/a	n/a
<b>Distance:</b>		
<b>from obstructions not on roof</b>	None	None
<b>from supporting structure</b>	2.0 meters	2.0 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from trees</b>	21 meters	21 meters
<b>to furnace or incinerator flue</b>	9.1 meters	9.1 meters
<b>between collocated monitors</b>	n/a	n/a
<b>Flow rate</b>	720-880 cc/min	1440-2160 cc/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon
<b>Residence time</b>	9 seconds	9 seconds
<b>Proposed modifications within the next 18 months?</b>	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a
<b>Frequency of:</b>		
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a
<b>one-point QC check (gaseous)</b>	Bi-weekly (3 point)	Bi-weekly (3 point)
<b>Last:</b>		
<b>annual performance evaluation (gaseous)</b>	03-19-12 06-05-12 09-10-12 12-17-12	03-19-12 06-05-12 09-10-12 12-17-12
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a

## Plumb-Kit

The Plumb-Kit site is located on the northeast corner of Plumb Lane and Kietzke Lane. The site is surrounded by both residential and commercial properties as well as a school. The only pollutant measured at this site is PM<sub>10</sub>. The site type is typical concentration.

<b>Site name:</b>	Plumb-Kit
<b>AQS ID:</b>	32-031-0030
<b>Geographical coordinates:</b>	39° 30.381'N, 119° 47.314'W
<b>Location:</b>	Northeast corner of Plumb and Kietzke Lanes.
<b>Street address:</b>	891 East Plumb Lane Reno, NV 89502
<b>County:</b>	Washoe
<b>Distance to road:</b>	36 meters to Kietzke Lane, 44 meters to Plumb Lane and 12 meters to Kietzke/Plumb Lane Intersection
<b>Traffic count:</b>	22,667 AADT (2009-2011) (NDOT ATR 0310191 - Kietzke Lane, 0.3 mi S of Plumb Lane. 28,667 AADT (2009-2011) (NDOT ATR 0310192 - East Plumb Lane, 590 feet east of Kietzke Lane)
<b>Groundcover:</b>	Gravel
<b>Representative area:</b>	Reno-Sparks MSA

Figure 14  
Plumb-Kit Monitoring Station



Figure 15  
Plumb-Kit Monitoring Site Vicinity Map

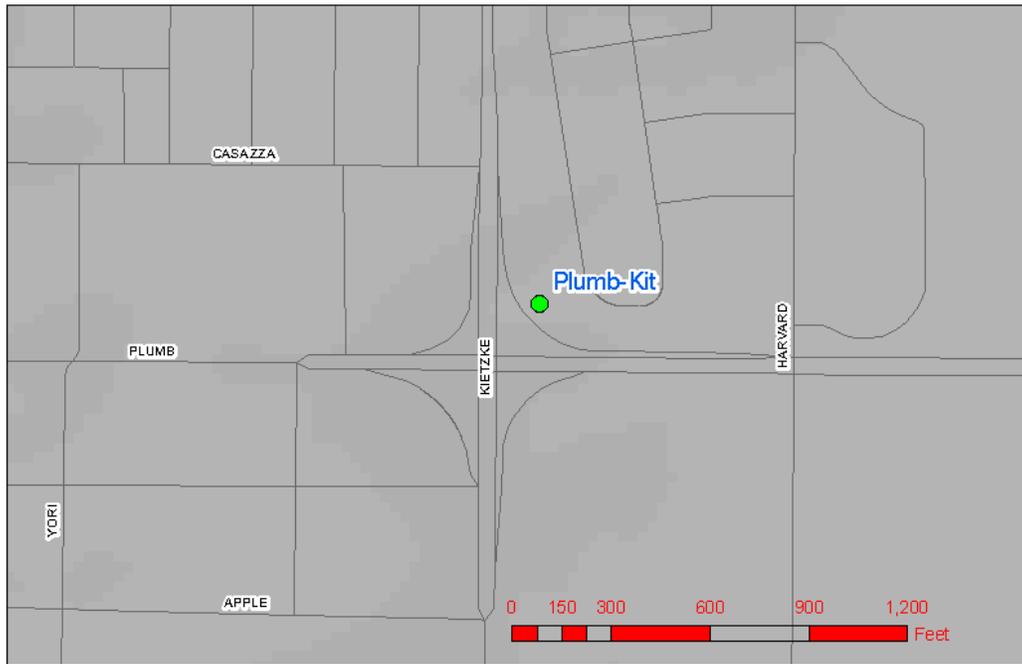


Figure 16  
Plumb-Kit Monitoring Site Vicinity Aerial



**Plumb-Kit (continued)**

	<b>PM<sub>10</sub> BAM</b>
<b>Site type</b>	Typical concentration
<b>Monitor type</b>	SLAMS
<b>Spatial scale</b>	Neighborhood
<b>Sampling method</b>	Met One BAM 1020
<b>Analysis method</b>	Beta Attenuation
<b>Method code</b>	122
<b>Parameter code</b>	81102
<b>Parameter occurrence code</b>	2
<b>Start date</b>	November 2011
<b>Operation schedule</b>	Continuous
<b>Sampling season</b>	All year
<b>Probe height</b>	4.3 meters
<b>Height of obstruction not on roof</b>	n/a
<b>Distance:</b>	
<b>from obstructions not on roof</b>	None
<b>from supporting structure</b>	1.5 meters
<b>from obstructions on roof</b>	n/a
<b>from trees</b>	12.2 meters*
<b>to furnace or incinerator flue</b>	n/a
<b>between collocated monitors</b>	n/a
<b>Flow rate</b>	16.7 l/min
<b>Unrestricted airflow</b>	360 degrees
<b>Probe material</b>	n/a
<b>Residence time</b>	n/a
<b>Proposed modifications within the next 18 months?</b>	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a
<b>Frequency of:</b>	
<b>flow rate verification for manual samplers audit (PM)</b>	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	Bi-weekly verifications and quarterly audits
<b>one-point QC check (gaseous)</b>	n/a
<b>Last:</b>	
<b>annual performance evaluation (gaseous)</b>	n/a
<b>two semi-annual flow rate audits (PM)</b>	03-08-12 06-25-12 08-01-12 12-03-12

\* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

### Reno3

This downtown site began operation in January 2002 to replace the Reno site. Both a residential neighborhood and a commercial growth area surround this site. As of December 2010 this site became an NCore site. The pollutants measured are PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>coarse</sub>, O<sub>3</sub>, Trace CO, Trace SO<sub>2</sub> and Trace NO<sub>y</sub>, and NO<sub>2</sub>. The site type is typical concentration for all pollutants except PM<sub>2.5</sub>, which is highest concentration.

<b>Site name:</b>	Reno3
<b>AQS ID:</b>	32-031-0016
<b>Geographical coordinates:</b>	39° 31.505'N, 119° 48.463'W
<b>Location:</b>	Southwest corner of City of Reno parking lot.
<b>Street address:</b>	301A State Street Reno, NV 89501
<b>County:</b>	Washoe
<b>Distance to road:</b>	38 meters to Mill Street, 13.1 meters to State Street, and 6.7 meters to River Rock.
<b>Traffic count:</b>	5,700 AADT (2009-2011) (NDOT ATR 0310862 - Mill Street, 100 feet west of Holcomb Avenue)
<b>Groundcover:</b>	Paved
<b>Representative area:</b>	Reno-Sparks MSA

Figure 17  
Reno3 Monitoring Station

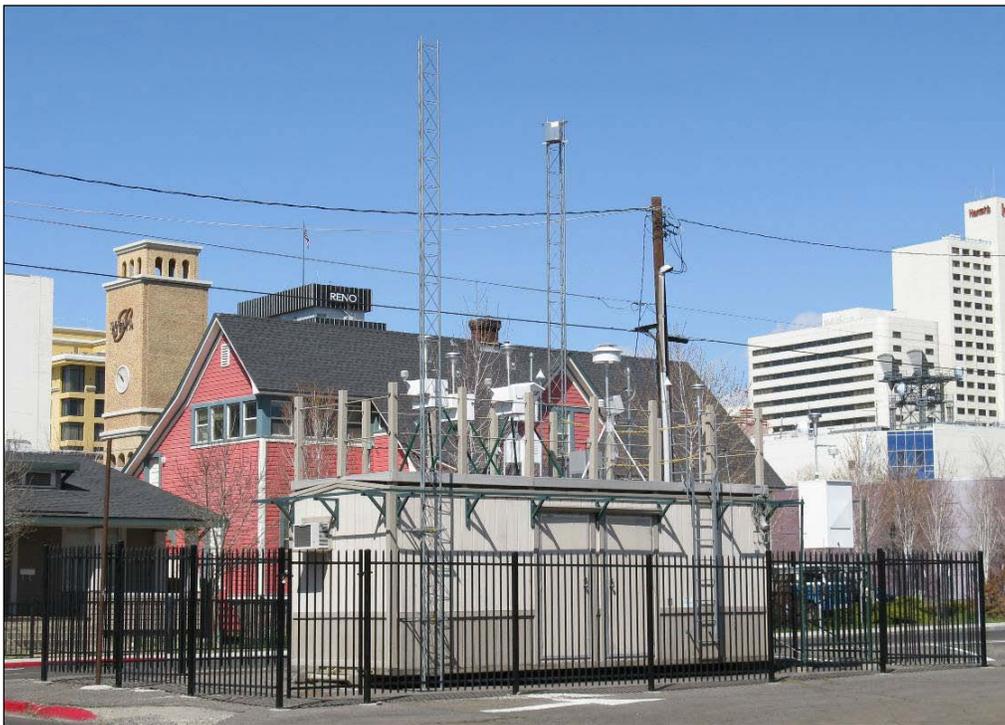
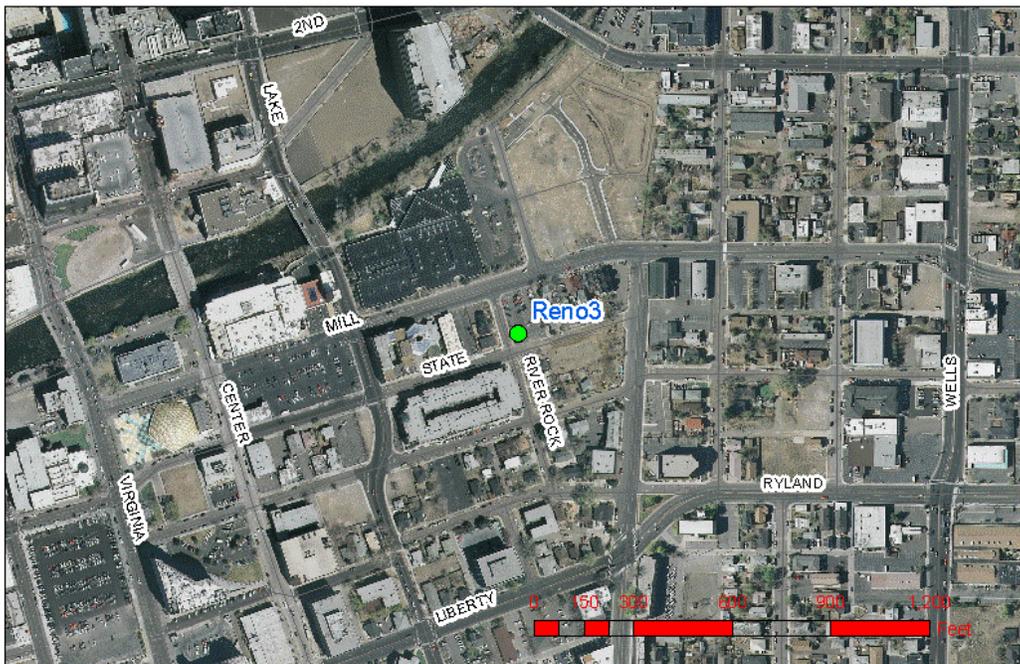


Figure 18  
Reno3 Monitoring Site Vicinity Map



Figure 19  
Reno3 Monitoring Site Vicinity Aerial



**Reno3 (continued)**

	<b>NO<sub>2</sub></b>	<b>Trace NO<sub>y</sub></b>
<b>Site type</b>	Typical concentration	Typical concentration
<b>Monitor type</b>	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood
<b>Sampling method</b>	TAPI 200EU	TAPI 200EU with 501
<b>Analysis method</b>	Chemiluminescent	Chemiluminescent
<b>Method code</b>	099	599
<b>Parameter code</b>	42602	42612
<b>Parameter occurrence code</b>	1	1
<b>Start date</b>	November 2001	December 2010
<b>Operation schedule</b>	Continuous	Continuous
<b>Sampling season</b>	All year	All year
<b>Probe height</b>	4.6 meters	4.6 meters
<b>Height of obstruction not on roof</b>	n/a	n/a
<b>Distance:</b>		
<b>from obstructions not on roof</b>	None	None
<b>from supporting structure</b>	1.8 meters	1.8 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from trees</b>	17.4 meters*	17.4 meters*
<b>to furnace or incinerator flue</b>	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a
<b>Flow rate</b>	900-1100 cc/min	900-1100 cc/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon
<b>Residence time</b>	12 seconds	8 seconds
<b>Proposed modifications within the next 18 months?</b>	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a
<b>Frequency of:</b>		
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a
<b>one-point QC check (gaseous)</b>	Weekly (4 point w/ GPT)	Weekly (4 point w/ GPT)
<b>Last:</b>		
<b>annual performance evaluation (gaseous)</b>	03-26-12 06-06-12 09-12-12 12-21-12	03-23-12 04-14-12 09-14-12 12-21-12
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a

\* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

**Reno3 (continued)**

	<b>Trace CO</b>	<b>Trace SO<sub>2</sub></b>	<b>O<sub>3</sub></b>
<b>Site type</b>	Typical concentration	Typical concentration	Typical concentration
<b>Monitor type</b>	NCore	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	TAPI 300EU	TAPI 100EU	TAPI 400E
<b>Analysis method</b>	GFC	UV Fluorescence	UV Photometry
<b>Method code</b>	593	600	087
<b>Parameter code</b>	42101	42401	44201
<b>Parameter occurrence code</b>	1	1	1
<b>Start date</b>	December 2010	December 2010	December 2010
<b>Operation schedule</b>	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year
<b>Probe height</b>	4.6 meters	4.6 meters	4.6 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a
<b>Distance:</b>			
<b>from obstructions not on roof</b>	None	None	None
<b>from supporting structure</b>	1.8 meters	1.8 meters	1.8 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a
<b>from trees</b>	17.4 meters*	17.4 meters*	17.4 meters*
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a	n/a
<b>Flow rate</b>	1440-2160 cc/min	585-715 cc/min	720-880 cc/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon	Teflon
<b>Residence time</b>	6 seconds	6 seconds	6 seconds
<b>Proposed modifications within the next 18 months?</b>	None	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a	n/a
<b>Frequency of:</b>			
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	n/a
<b>one-point QC check (gaseous)</b>	Weekly	Weekly	Weekly
<b>Last:</b>			
<b>annual performance evaluation (gaseous)</b>	03-22-12 04-10-12 09-14-12 12-20-12	03-22-12 04-10-12 09-14-12 12-20-12	03-22-12 04-10-12 09-14-12 12-20-12
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	n/a

\* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

**Reno3 (continued)**

	<b>PM<sub>2.5</sub> (Designated)</b>	<b>PM<sub>2.5</sub> (Collocated)</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>coarse</sub></b>
<b>Site type</b>	Highest concentration	Typical concentration	Typical concentration	Typical concentration
<b>Monitor type</b>	NCore	NCore	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	BGI PQ200	BGI PQ200	BGI PQ200	BGI PQ200 coarse pair
<b>Analysis method</b>	AQMD lab	AQMD lab	AQMD lab	Subtraction
<b>Method code</b>	142	142	125	173
<b>Parameter code</b>	88101	88101	85101	86101
<b>Parameter occurrence code</b>	1	2	1	1
<b>Start date</b>	November 2001	November 2001	November 2001	March 2009
<b>Operation schedule</b>	1:3	1:3	1:3	1:3
<b>Sampling season</b>	All year	All year	All year	All year
<b>Probe height</b>	4.9 meters	4.9 meters	4.9 meters	4.9 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a	n/a
<b>Distance:</b>				
<b>from obstructions not on roof</b>	None	None	None	None
<b>from supporting structure</b>	2.0 meters	2.0 meters	2.0 meters	2.0 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a	n/a
<b>from trees</b>	20 meters	19.0 meters*	19.0 meters*	19.0 meters*
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a	n/a
<b>between collocated monitors</b>	1.1 meters	1.1 meters	n/a	n/a
<b>Flow rate</b>	16.7 l/min	16.7 l/min	16.7 l/min	16.7 l/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a	n/a	n/a
<b>Residence time</b>	n/a	n/a	n/a	n/a
<b>Proposed modifications within the next 18 months?</b>	None	None	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	Yes for all current sites in Region IX	Yes for all current sites in Region IX	n/a	n/a
<b>Frequency of:</b>				
<b>flow rate verification for manual samplers audit (PM)</b>	Monthly verifications and quarterly audits			
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	n/a	n/a
<b>one-point QC check (gaseous)</b>	n/a	n/a	n/a	n/a
<b>Last:</b>				
<b>annual performance evaluation (gaseous)</b>	n/a	n/a	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	03-21-12 05-31-12 09-13-12 11-07-12	03-21-12 05-31-12 09-13-12 11-07-12	03-21-12 05-31-12 09-13-12 11-07-12	03-21-12 05-31-12 09-13-12 11-07-12

\* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.

**Reno3 (continued)**

	<b>PM<sub>2.5</sub> Speciation</b>	<b>PM<sub>10</sub> BAM</b>	<b>PM<sub>2.5</sub> BAM</b>	<b>PM<sub>coarse</sub> BAM</b>
<b>Site type</b>	Trends network	Typical concentration	Typical concentration	Typical concentration
<b>Monitor type</b>	STN	NCore	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	Met One SASS; URG 3000N	Met One BAM 1020	Met One BAM 1020	Met One BAM 1020 Coarse Pair
<b>Analysis method</b>	RTI lab	Beta Attenuation	Beta Attenuation	Subtraction
<b>Method code</b>	SASS: 810 URG: 870	122	170	185
<b>Parameter code</b>	88502	85101	88101	86101
<b>Parameter occurrence code</b>	1	2	3	2
<b>Start date</b>	November 2001	December 2010	December 2010	December 2010
<b>Operation schedule</b>	1:3	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year	All year
<b>Probe height</b>	SASS: 4.7 meters URG: 5.0 meters	4.0 meters	4.0 meters	4.0 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a	n/a
<b>Distance:</b>				
<b>from obstructions not on roof</b>	None	None	None	None
<b>from supporting structure</b>	SASS: 1.8 meters URG: 2.1 meters	2.4 meters	2.4 meters	2.4 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a	n/a
<b>from trees</b>	20 meters	20 meters	20 meters	20 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a	n/a	n/a
<b>Flow rate</b>	SASS: 6.7 l/min URG: 22.0 l/min	16.7 l/min	16.7 l/min	16.7 l/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a	n/a	n/a
<b>Residence time</b>	n/a	n/a	n/a	n/a
<b>Proposed modifications within the next 18 months?</b>	None	None	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	Yes for all current sites in Region IX	n/a	Yes for all current sites in Region IX	n/a
<b>Frequency of:</b>				
<b>flow rate verification for manual samplers audit (PM)</b>	Monthly verifications and quarterly audits	n/a	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits	Bi-weekly verifications and quarterly audits
<b>one-point QC check (gaseous)</b>	n/a	n/a	n/a	n/a
<b>Last:</b>				
<b>annual performance evaluation (gaseous)</b>	n/a	n/a	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	03-14-12 06-22-12 08-09-12 10-29-12	03-21-12 06-19-12 08-06-12 12-06-12	03-21-12 06-19-12 08-06-12 12-06-12	03-21-12 06-19-12 08-06-12 12-06-12

**Reno3 (continued)**

	<b>Wind Speed</b>	<b>Wind Direction</b>	<b>Ambient Temp</b>
<b>Site type</b>	Typical concentration	Typical concentration	Typical concentration
<b>Monitor type</b>	NCore	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	Vaisala WXT520	Vaisala WXT520	Vaisala WXT520
<b>Analysis method</b>	Vector Summation	Vector Summation	Electronic Average
<b>Method code</b>	020	020	040
<b>Parameter code</b>	61103	61104	62101
<b>Parameter occurrence code</b>	1	1	1
<b>Start date</b>	April 1, 2012	April 1, 2012	January 1, 2012
<b>Operation schedule</b>	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year
<b>Probe height</b>	10 meters	10 meters	10 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a
<b>Distance:</b>			
<b>from obstructions not on roof</b>	None	None	None
<b>from supporting structure</b>	10 meters	10 meters	10 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a
<b>from trees</b>	20 meters	20 meters	20 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a	n/a
<b>Flow rate</b>	n/a	n/a	n/a
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a	n/a
<b>Residence time</b>	n/a	n/a	n/a
<b>Proposed modifications within the next 18 months?</b>	See page 7	See page 7	See page 7
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a	n/a
<b>Frequency of:</b>			
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	n/a
<b>one-point QC check (gaseous)</b>	n/a	n/a	n/a
<b>audit (meteorology)</b>	Quarterly audits	Quarterly audits	Quarterly audits
<b>Last:</b>			
<b>annual performance evaluation (gaseous)</b>	n/a	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	n/a
<b>quarterly audit/annual recertification (meteorology)</b>	03-22-12 06-02-12 08-31-12 12-30-12	03-22-12 06-02-12 09-07-12 12-30-12	03-22-12 05-29-12 09-05-12 12-28-12

**Reno3 (continued)**

	<b>Relative Humidity</b>	<b>Barometric Pressure</b>	<b>Precipitation</b>
<b>Site type</b>	Typical concentration	Typical concentration	Typical concentration
<b>Monitor type</b>	NCore	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	Vaisala WXT520	Vaisala WXT520	Vaisala WXT520
<b>Analysis method</b>	Instrument Average	Barometric Sensor	Incremental
<b>Method code</b>	011	014	011
<b>Parameter code</b>	62201	64101	65102
<b>Parameter occurrence code</b>	1	1	1
<b>Start date</b>	January 1, 2012	January 1, 2012	April 1, 2012
<b>Operation schedule</b>	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year
<b>Probe height</b>	10 meters	10 meters	10 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a
<b>Distance:</b>			
<b>from obstructions not on roof</b>	None	None	None
<b>from supporting structure</b>	10 meters	10 meters	10 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a
<b>from trees</b>	20 meters	20 meters	20 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a	n/a
<b>Flow rate</b>	n/a	n/a	n/a
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a	n/a
<b>Residence time</b>	n/a	n/a	n/a
<b>Proposed modifications within the next 18 months?</b>	See page 7	See page 7	See page 7
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a	n/a
<b>Frequency of:</b>			
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	n/a
<b>one-point QC check (gaseous)</b>	n/a	n/a	n/a
<b>audit (meteorology)</b>	Quarterly audits	Quarterly audits	Annual recertification
<b>Last:</b>			
<b>annual performance evaluation (gaseous)</b>	n/a	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	n/a
<b>quarterly audit/annual recertification (meteorology)</b>	03-22-12 05-29-12 09-05-12 12-28-12	03-22-12 05-29-12 09-05-12 12-28-12	05-21-12

## South Reno

Located on the NV Energy property at 4110 DeLucchi Lane, this site is in a transitional environment between open fields and office buildings. The site type is typical concentration for CO and PM<sub>10</sub> and highest concentration for O<sub>3</sub>.

<b>Site name:</b>	South Reno
<b>AQS ID:</b>	32-031-0020
<b>Geographical coordinates:</b>	39° 28.153'N, 119° 46.521'W
<b>Location:</b>	Northeast corner of NV Energy campus.
<b>Street address:</b>	4110 DeLucchi Lane Reno, NV 89502
<b>County:</b>	Washoe
<b>Distance to road:</b>	37 meters to DeLucchi Lane.
<b>Traffic count:</b>	5,500 AADT (2009-2011) (NDOT ATR 0310690 - Neil Road, 515 feet north of DeLucchi Lane)
<b>Groundcover:</b>	Gravel / Dirt / Vegetated
<b>Representative area:</b>	Reno-Sparks MSA

Figure 20  
South Reno Monitoring Station



Figure 21  
South Reno Monitoring Site Vicinity Map

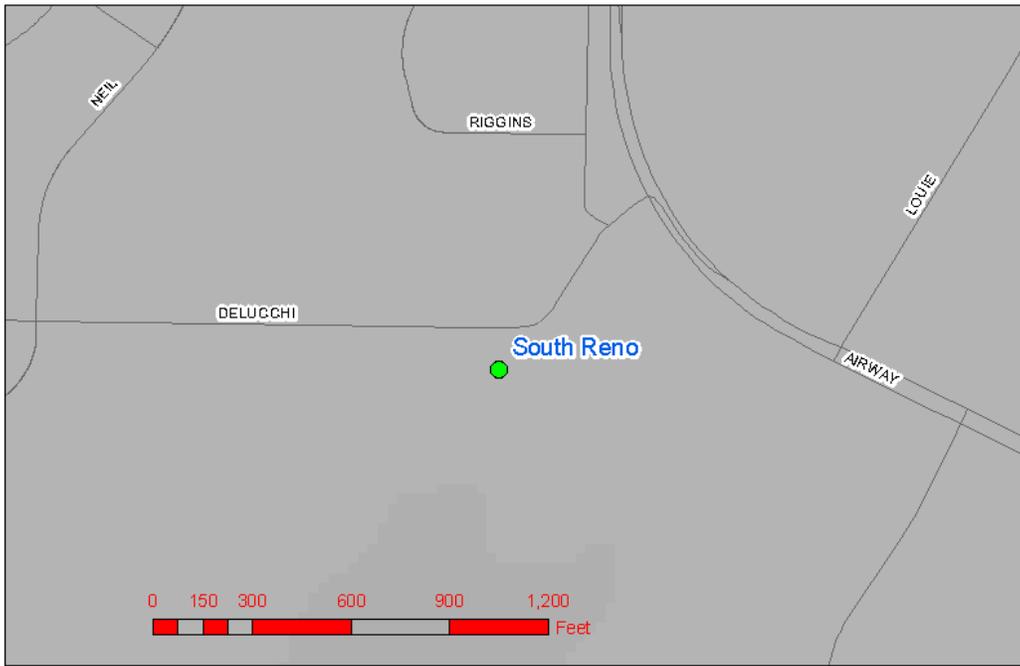


Figure 22  
South Reno Monitoring Site Vicinity Aerial



**South Reno (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>	<b>PM<sub>10</sub> BAM</b>
<b>Site type</b>	Highest concentration	Typical concentration	Typical concentration
<b>Monitor type</b>	SLAMS	SLAMS	SLAMS
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	TAPI 400E	TAPI 300EU	Met One BAM 1020
<b>Analysis method</b>	UV Photometry	GFC	Beta Attenuation
<b>Method code</b>	087	093	122
<b>Parameter code</b>	44201	42101	81102
<b>Parameter occurrence code</b>	1	1	2
<b>Start date</b>	January 1988	January 1988	October 2011
<b>Operation schedule</b>	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year
<b>Probe height</b>	4.0 meters	4.0 meters	4.3 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a
<b>Distance:</b>			
<b>from obstructions not on roof</b>	None	None	None
<b>from supporting structure</b>	1.2 meters	1.2 meters	1.5 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a
<b>from trees</b>	29 meters	29 meters	20 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a	n/a
<b>Flow rate</b>	720-880 cc/min	1440-2160 cc/min	16.7 l/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon	n/a
<b>Residence time</b>	9 seconds	9 seconds	n/a
<b>Proposed modifications within the next 18 months?</b>	None	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a	n/a
<b>Frequency of:</b>			
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	Bi-weekly verifications and quarterly audits
<b>one-point QC check (gaseous)</b>	Bi-weekly (3 point)	Bi-weekly (3 point)	n/a
<b>Last:</b>			
<b>annual performance evaluation (gaseous)</b>	03-20-12 04-09-12 09-11-12 12-18-12	03-20-12 04-09-12 09-11-12 12-18-11	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	03-21-12 06-14-12 08-01-12 12-03-12

## Sparks

The Sparks site is located on US Postal Service property at 750 Fourth Street. The site is surrounded by commercial property, a residential neighborhood and is adjacent to Dilworth Middle School. In 2007 the Sparks site was moved approximately 55 meters north of its previous location, due to tree growth affecting siting criteria. The site type is highest concentration for CO, PM<sub>10</sub> and O<sub>3</sub>. This site also has a PM<sub>2.5</sub> Special Purpose Monitor which measures typical concentrations of PM<sub>2.5</sub>.

<b>Site name:</b>	Sparks
<b>AQS ID:</b>	32-031-1005
<b>Geographical coordinates:</b>	39° 32.455'N, 119° 44.806'W
<b>Location:</b>	East end of US Postal Service back parking lot.
<b>Street address:</b>	750 4 <sup>th</sup> Street Sparks, NV 89431
<b>County:</b>	Washoe
<b>Distance to road:</b>	50 meters to Prater Way and 103 meters to 4 <sup>th</sup> Street.
<b>Traffic count:</b>	15,000 AADT (2009-2011) (NDOT ATR 0310497 - Prater Way, 100 feet east of Pyramid Way)
<b>Groundcover:</b>	Paved / Vegetated / Decomposed Granite
<b>Representative area:</b>	Reno-Sparks MSA

Figure 23  
Sparks Monitoring Station



Figure 24  
Sparks Monitoring Site Vicinity Map

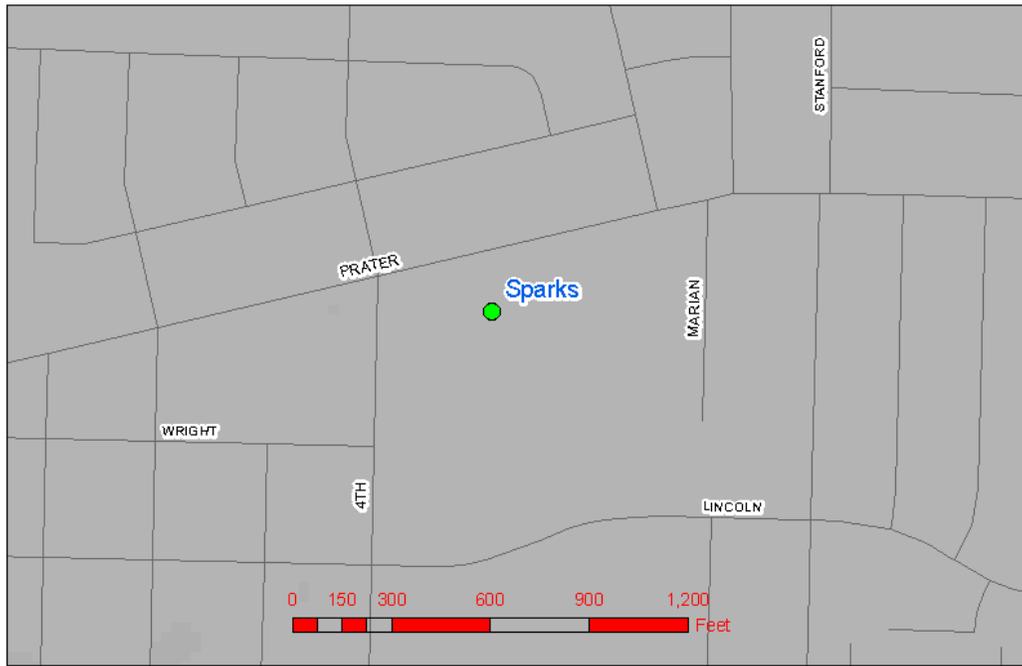


Figure 25  
Sparks Monitoring Site Vicinity Aerial



**Sparks (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>
<b>Site type</b>	Highest concentration	Highest concentration
<b>Monitor type</b>	SLAMS	SLAMS
<b>Spatial scale</b>	Neighborhood	Neighborhood
<b>Sampling method</b>	TAPI 400E	TAPI 300EU
<b>Analysis method</b>	UV Photometry	GFC
<b>Method code</b>	087	093
<b>Parameter code</b>	44201	42101
<b>Start date</b>	January 1979	January 1980
<b>Parameter occurrence code</b>	1	1
<b>Operation schedule</b>	Continuous	Continuous
<b>Sampling season</b>	All year	All year
<b>Probe height</b>	4.6 meters	4.6 meters
<b>Height of obstruction not on roof</b>	n/a	n/a
<b>Distance:</b>		
<b>from obstructions not on roof</b>	None	None
<b>from supporting structure</b>	1.7 meters	1.7 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from trees</b>	26 meters	26 meters
<b>to furnace or incinerator flue</b>	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a
<b>Flow rate</b>	720-880 cc/min	1440-2160 cc/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon
<b>Residence time</b>	9 seconds	9 seconds
<b>Proposed modifications within the next 18 months?</b>	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a
<b>Frequency of:</b>		
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a
<b>one-point QC check (gaseous)</b>	Bi-weekly (3 point)	Bi-weekly (3 point)
<b>Last:</b>		
<b>annual performance evaluation (gaseous)</b>	03-19-12 04-12-12 09-10-12 12-17-12	03-19-12 04-12-12 09-10-12 12-17-12
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a

**Sparks (continued)**

	<b>PM<sub>10</sub> (Designated)</b>	<b>PM<sub>10</sub> (Collocated)</b>	<b>PM<sub>2.5</sub> BAM</b>	<b>PM<sub>10</sub> BAM</b>
<b>Site type</b>	Highest concentration	Highest concentration	Typical concentration	Highest concentration
<b>Monitor type</b>	SLAMS	SLAMS	SPM	SPM
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	Andersen 1200 Hi-Vol	Andersen 1200 Hi-Vol	Met One BAM 1020	Met One BAM 1020
<b>Analysis method</b>	Weighed by AQMD lab	Weighed by AQMD lab	Beta Attenuation	Beta Attenuation
<b>Method code</b>	063	063	170	122
<b>Parameter code</b>	81102	81102	88101	81102
<b>Parameter occurrence code</b>	1	2	1	4
<b>Start date</b>	April 1988	April 1988	July 2011	July 2011
<b>Operation schedule</b>	1:6	1:6	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year	All year
<b>Probe height</b>	4.4 meters	3.5 meters	4.3 meters	4.5 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a	n/a
<b>Distance:</b>				
<b>from obstructions not on roof</b>	None	None	None	None
<b>from supporting structure</b>	1.5 meters	1.5 meters	1.5 meters	1.4 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a	n/a
<b>from trees</b>	28 meters	26 meters	26 meters	26 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a	n/a
<b>between collocated monitors</b>	2.7 meters	2.7 meters	n/a	n/a
<b>Flow rate</b>	1.13 m <sup>3</sup> /min	1.13 m <sup>3</sup> /min	16.7 l/min	16.7 l/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a	n/a	n/a
<b>Residence time</b>	n/a	n/a	n/a	n/a
<b>Proposed modifications within the next 18 months?</b>	See page 7	See page 7	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a	The monitor is a SPM and therefore n/a	n/a
<b>Frequency of:</b>				
<b>flow rate verification for manual samplers audit (PM)</b>	Every 1:6 run and quarterly	Every 1:6 run and quarterly	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	Bi-weekly and quarterly audits	Bi-weekly and quarterly audits
<b>one-point QC check (gaseous)</b>	n/a	n/a	n/a	n/a
<b>Last:</b>				
<b>annual performance evaluation (gaseous)</b>	n/a	n/a	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	03-08-12 04-24-12 08-06-12 11-02-12	03-08-12 04-24-12 08-06-12 11-02-12	03-08-12 06-25-12 09-13-12 12-06-12	03-08-12 06-25-12 09-13-12 12-06-12

## Toll

The Toll Road site is located at 684A State Route 341 (Geiger Grade), one-half mile east of US Highway 395. The site is near the edge of a residential neighborhood and adjacent to an area that may become commercially developed. Due to the distance from the probe to the nearest roadway, this is a middle scale site. This site monitors source impacts of CO, O<sub>3</sub> and PM<sub>10</sub> from the roadways.

<b>Site name:</b>	Toll
<b>AQS ID:</b>	32-031-0025
<b>Geographical coordinates:</b>	39° 23.990'N, 119° 44.376'W
<b>Location:</b>	North end of Washoe County School District parking lot.
<b>Street address:</b>	684A State Route 341 Reno, NV 89521
<b>County:</b>	Washoe
<b>Distance to road:</b>	21 meters to SR341 (Geiger Grade Road).
<b>Traffic count:</b>	15,000 AADT (2009-2011) (NDOT ATR 0310137 - SR 341, 0.4 miles east of US 395)
<b>Groundcover:</b>	Paved parking lot / Dirt
<b>Representative area:</b>	Reno-Sparks MSA

Figure 26  
Toll Monitoring Station



Figure 27  
Toll Monitoring Site Vicinity Map

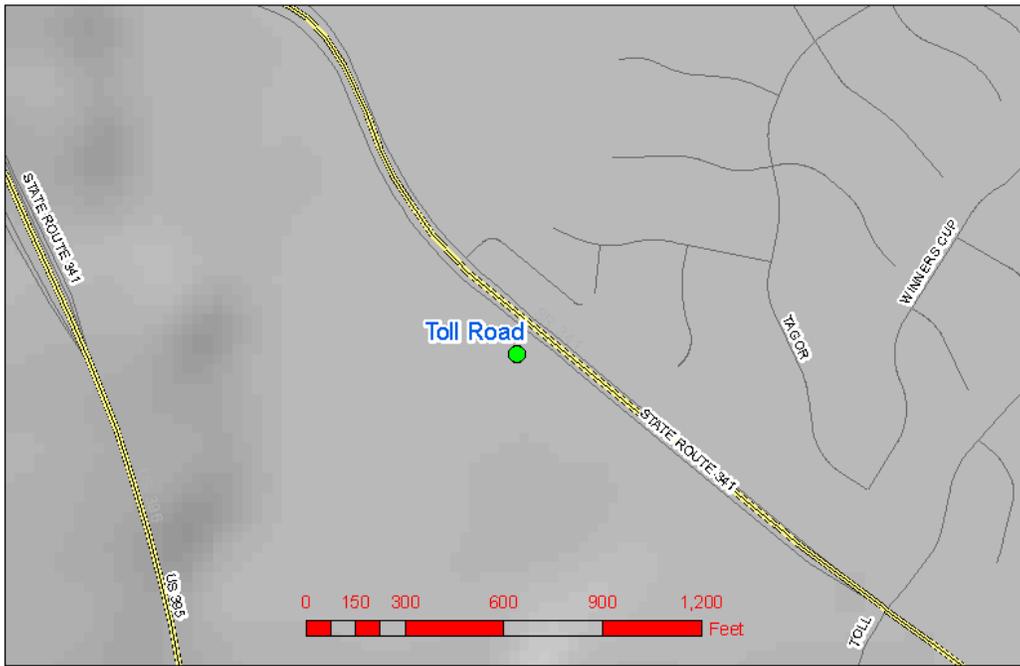


Figure 28  
Toll Monitoring Site Vicinity Aerial



**Toll (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>	<b>PM<sub>10</sub> BAM</b>
<b>Site type</b>	Source impact	Source impact	Source impact
<b>Monitor type</b>	SLAMS	SLAMS	SLAMS
<b>Spatial scale</b>	Middle	Middle	Middle
<b>Sampling method</b>	TAPI 400E	API 300	Met One BAM 1020
<b>Analysis method</b>	UV Photometry	GFC	Beta Attenuation
<b>Method code</b>	087	093	122
<b>Parameter code</b>	44201	42101	81102
<b>Parameter occurrence code</b>	1	1	2
<b>Start date</b>	March 1996	March 1996	July 2011
<b>Operation schedule</b>	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year
<b>Probe height</b>	4.0 meters	4.0 meters	4.4 meters
<b>Height of obstruction not on roof</b>	n/a	n/a	n/a
<b>Distance:</b>			
<b>from obstructions not on roof</b>	None	None	None
<b>from supporting structure</b>	1.2 meters	1.2 meters	1.5 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a
<b>from trees</b>	12.5 meters*	12.5 meters*	26 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a	n/a
<b>Flow rate</b>	720-880 cc/min	720-880 cc/min	16.7 l/min
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon	n/a
<b>Residence time</b>	8 seconds	8 seconds	n/a
<b>Proposed modifications within the next 18 months?</b>	None	None	None
<b>Is the monitor suitable for comparison against the annual PM<sub>2.5</sub> NAAQS?</b>	n/a	n/a	n/a
<b>Frequency of:</b>			
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	n/a	Bi-weekly and quarterly audits
<b>one-point QC check (gaseous)</b>	Bi-weekly (3 point)	Bi-weekly (3 point)	n/a
<b>Last:</b>			
<b>annual performance evaluation (gaseous)</b>	03-21-12 04-09-12 09-13-12 12-19-12	03-21-12 04-09-12 09-13-12 12-19-12	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	03-21-12 06-14-12 08-01-12 12-03-12

\* Trees are not of sufficient height and leaf canopy density to interfere with the normal unrestricted airflow around the monitoring path. At least 90 percent of the monitoring path is at least 10 meters from the drip line of the trees.