

Washoe County Health District  
Air Quality Management Division  
2012 Ambient Air Monitoring Network Plan

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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
CFR	Code of Federal Regulations
CMSA	Consolidated Metropolitan Statistical Area
CO	Carbon Monoxide
CSA	Combined Statistical Area
DMV	Department of Motor Vehicles
DSL	Digital Subscriber Line
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
NAMS	National Air Monitoring Station
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
PAMS	Photochemical Assessment Monitoring Station
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>
ReTRAC	Reno Transportation Rail Access Corridor
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 2011 and proposed network modifications for 2012-2013.

## **Public Inspection Process**

This monitoring network plan was available for public inspection from June 1 to June 30, 2012 at the AQMD website ([www.washoecounty.us/health](http://www.washoecounty.us/health)). A hardcopy of the plan was also available at the AQMD office.

## **Agency Contacts**

For information or questions regarding the 2012 Ambient Air Monitoring Network Plan, please contact the following individuals of the AQMD.

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<sup>1</sup> 71 FR 61236-61328.

# Overview of Network Operation

## Network Design

The AQMD operated eight (8) ambient air monitoring sites in 2011 (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.

Figure 1  
Washoe County AQMD Ambient Air Monitoring Sites

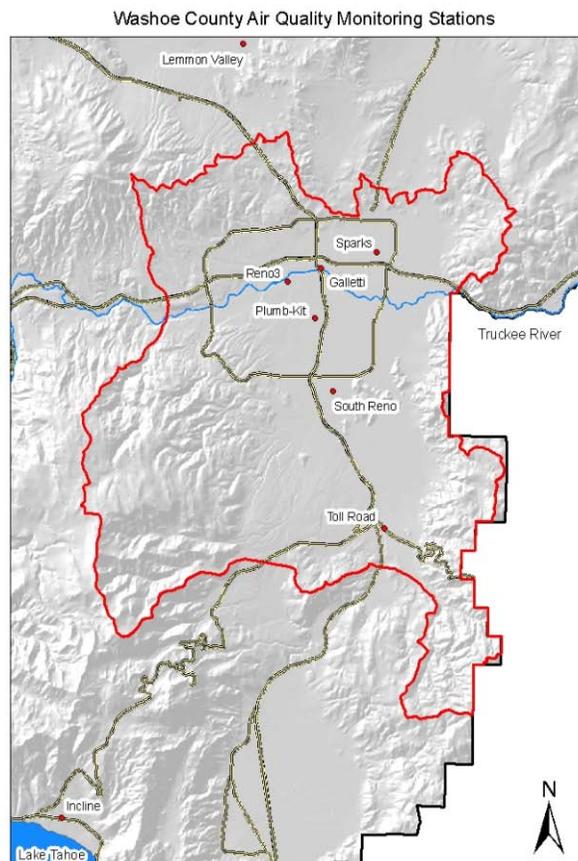


Table 1 lists the parameters monitored in 2011 sorted by network type and site.

<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 SLAMS network includes ambient temperature, wind speed, and wind direction. Meteorology for NCore network includes ambient temperature, wind speed, wind direction, barometric pressure, relative humidity, and liquid precipitation.

Data from the continuous PM<sub>2.5</sub> and PM<sub>10</sub> Special Purpose monitors are 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. Tables 2 through 6 provide pollutant specific monitoring requirements. The design values are based on ambient air monitoring data for single (2011 for NO<sub>2</sub>, CO, and SO<sub>2</sub>) or multiple (2009-2011 for O<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub>) years. Additional pollutant specific design value data may be found in the “[Washoe County, Nevada, Air Quality Trends Report, 2002-2011](#)”. The 2011 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	Design Value (ppm)		Number of Monitors		
			8-hour		Minimum Required	Active	Needed
Reno-Sparks	Washoe	421,593	0.066		2	6	0

Monitors required for SIP or Maintenance Plan: 2

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

MSA	County	Population	Design Value (µg/m <sup>3</sup> )		Number of Monitors		
			24-hour	Annual	Minimum Required	Active	Needed
Reno-Sparks	Washoe	421,593	25.9	6.9	2	3	0

Monitors required for SIP or Maintenance Plan: 0

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<sup>5</sup> Nevada State Demographer’s Office, “Nevada County Certified Population Estimates, July 1, 2000 to July 1, 2011, Includes Cities and Towns”, Page 12.

Table 4  
Minimum Monitoring Requirements for PM<sub>10</sub>

MSA	County	Population	Design Value (expected number of exceedances)		Number of Monitors		
			24-hour		Minimum Required	Active	Needed
Reno- Sparks	Washoe	421,593	0.0		4	8	0

Monitors required for SIP or Maintenance Plan: 4

Table 5  
Minimum Monitoring Requirements for NO<sub>2</sub>

MSA	County	Population	Design Value		Number of Monitors		
			Annual (ppm)	1-hour (ppb)	Minimum Required	Active	Needed
Reno- Sparks	Washoe	421,593	0.017	6	1	1	0

Monitors required for SIP or Maintenance Plan: 0

Monitors required for NCore: 1

Table 6  
Minimum Monitoring Requirements for CO

MSA	County	Population	Design Value (ppm)		Number of Monitors		
			1-hour	8-hour	Minimum Required	Active	Needed
Reno- Sparks	Washoe	421,593	3.4	2.6	2	6	0

Monitors required for SIP or Maintenance Plan: 2

Table 7  
Minimum Monitoring Requirements for SO<sub>2</sub>

MSA	County	Population	Design Value (ppb)	Number of Monitors		
			1-hour	Minimum Required	Active	Needed
Reno- Sparks	Washoe	421,593	6	1	1	0

Monitors required for NCore: 1

## **Network Modifications Completed in 2011**

The following modifications to the ambient air monitoring network were completed in 2011.

### **SLAMS:**

PM<sub>10</sub> (Toll, So. Reno, Plumb-Kit)

- Took existing PM<sub>10</sub> Hi-Volume sampler offline and replaced with new Met One BAM 1020 FEM PM<sub>10</sub> monitor.

O<sub>3</sub> (Incline)

- Replaced existing O<sub>3</sub> analyzer with new TAPI 400E O<sub>3</sub> analyzer.

Meteorology (Plumb-Kit)

- Installed new YSI 700 thermoliner element ambient temperature sensor.

### **NCORE:**

NO<sub>x</sub> (Reno3)

- Replaced existing Thermo 42C NO<sub>x</sub> analyzer with a new TAPI 200EU trace level NO<sub>x</sub> analyzer.

Meteorology (Reno3)

- Installed new Vaisala WXT520 sensor. Began submitting ambient temperature, wind speed, wind direction, relative humidity, barometric pressure, and liquid precipitation January 1, 2012.

### **Speciation Trends:**

All other pollutants and monitoring sites

- No modifications completed.

### **Special Purpose Monitor:**

PM<sub>10</sub> and PM<sub>2.5</sub> (Sparks)

- Removed Sibata BAM-102 PM<sub>10</sub> monitor.
- Installed new Met One BAM 1020 FEM PM<sub>10</sub> and PM<sub>2.5</sub> monitors.

## **Additional Modifications Completed in 2011**

The following additional modifications were completed in 2011.

### **SLAMS:**

#### Shelter Temperature and DAS (Plumb-Kit)

- Installed new T<sup>o</sup> Sentry 140-100HVB shelter temperature sensor.
- Installed new ESC 8832 data acquisition system.

#### Shelter roofs (Toll, South Reno, Plumb-Kit)

- Installed Trex decking and safety railings on top of shelters.

#### Data polling (Toll, South Reno, Galletti, Lemmon Valley, Sparks, Plumb-Kit)

- Installed wireless broadband communication instrumentation.
- Removed all phone lines and modems.

### **NCore:**

#### Data polling (Reno3)

- Removed DSL broadband communications.
- Installed wireless broadband communication instrumentation.

### **Speciation Trends and Special Purpose Monitor Networks:**

#### All other pollutants and monitoring sites

- No modifications completed.

### **Network Modifications Proposed for 2012-2013**

The AQMD will be moving offices from our current location to Building B in the same complex. As a part of this move, the AQMD filter weigh room will be relocated as well. We anticipate the move to be complete in the summer of 2012.

The following modifications to the ambient air monitoring network are proposed for 2012-2013.

#### **SLAMS:**

All pollutants and meteorology (Galletti)

- Take the existing PM<sub>10</sub> Hi-Volume sampler offline and replace it with the Met One BAM 1020 FEM PM<sub>10</sub> monitor from the So. Reno site.
- 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> (So. Reno)

- Remove the Met One BAM 1020 FEM PM<sub>10</sub> monitor and install at Galletti.

#### **NCore:**

Meteorology (Reno3)

- Remove solar radiation sensor from South Reno.
- Install new solar radiation sensor at Reno3.

#### **Special Purpose Monitor:**

PM<sub>2.5</sub>, PM<sub>10</sub> (Sparks)

- No modifications proposed.

### **Additional Modifications Proposed for 2012-2013**

The following additional modifications are proposed for 2012-2013.

#### **SLAMS:**

All pollutants

- No modifications proposed.

#### **NCore:**

All pollutants

- Install a digital strip chart recorder.

#### **Speciation Trends and Special Purpose Monitor Networks:**

All other pollutants and monitoring sites

- No modifications proposed.

## **Review of Changes to PM<sub>2.5</sub> Monitoring Network**

In the event that a review of changes to the PM<sub>2.5</sub> monitoring network is required, the annual network plan and five year network assessment would be used to provide for this review. No changes are proposed to the PM<sub>2.5</sub> monitoring network for 2012-2013.

## **Data Submission Requirements**

Precision and Accuracy Reports for 2011 were submitted to AQS for the:

- 1<sup>st</sup> quarter in June 2011,
- 2<sup>nd</sup> quarter in August 2011,
- 3<sup>rd</sup> quarter in November 2011, and
- 4<sup>th</sup> quarter in February 2012.

Annual Data Certification for all ozone data for 2011 was submitted to EPA on February 27, 2012 and the Annual Data Certification for all other pollutants was submitted to EPA on April 24, 2012.

## Detailed Site Information

### Galletti

It is located southeast of the Interstate 80 - US Highway 395 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 monitoring objective is to determine highest concentrations of PM<sub>10</sub> and is population oriented for CO.

<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 US 395 PM <sub>10</sub> : 68 meters Kietzke Lane; 308 meters to US 395
<b>Traffic count:</b>	15,166 AADT (2007-2009)* (NDOT ATR 0312210 - Kietzke Lane, 0.15 miles south of Galletti Way) 146,333 AADT (2008-2010) (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

\*Traffic counts for 2010 not available

Figure 2

Galletti Monitoring Station



Figure 3

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



Figure 4  
Galletti Monitoring Site Vicinity Map

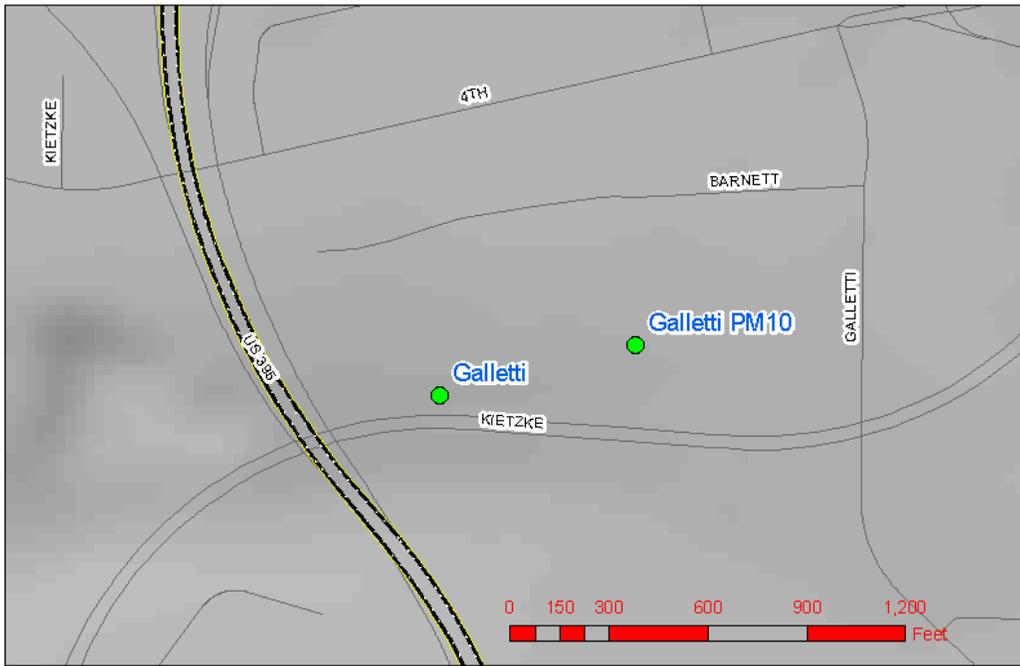
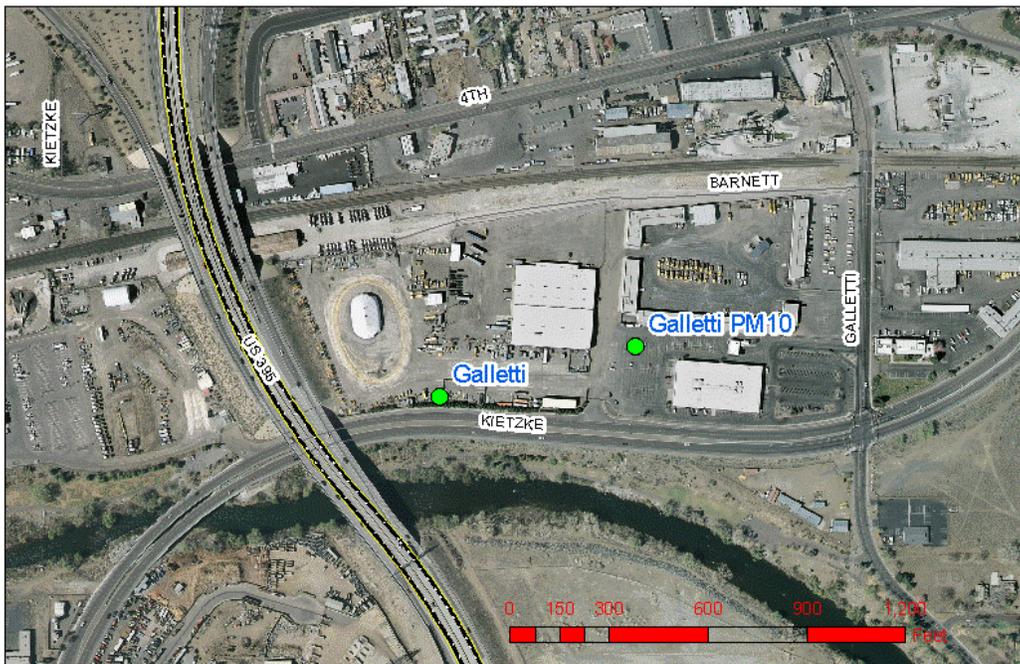


Figure 5  
Galletti Monitoring Site Vicinity Aerial



**Galletti (continued)**

	<b>CO</b>	<b>PM<sub>10</sub></b>
<b>Monitor objective</b>	Population Oriented	Highest concentration
<b>Monitor classification</b>	SLAMS	SLAMS
<b>Spatial scale</b>	Middle	Neighborhood
<b>Sampling method</b>	API 300E	Andersen 1200 Hi-Vol
<b>Analysis method</b>	GFC	Weighed by AQMD lab
<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>Distance:</b>		
<b>from supporting structure</b>	1.2 meters	1.5 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from obstructions not on roof</b>	82 meters	39 meters
<b>from trees</b>	4.6 meters*	70 meters
<b>to furnace or incinerator flue</b>	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a
<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 9	See page 9
<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>	03-03-11 06-22-11 09-15-11 12-19-11	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	03-09-11 06-15-11 09-15-11 12-27-11

\* 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 monitoring objective is population oriented 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 and 53 meters to Alder Avenue.
<b>Traffic count:</b>	4,333 AADT (2008-2010) (NDOT ATR 0310756 - Lakeshore Blvd, 100 feet east of Village Blvd)
<b>Groundcover:</b>	Paved / Vegetated
<b>Representative area:</b>	Reno-Sparks MSA

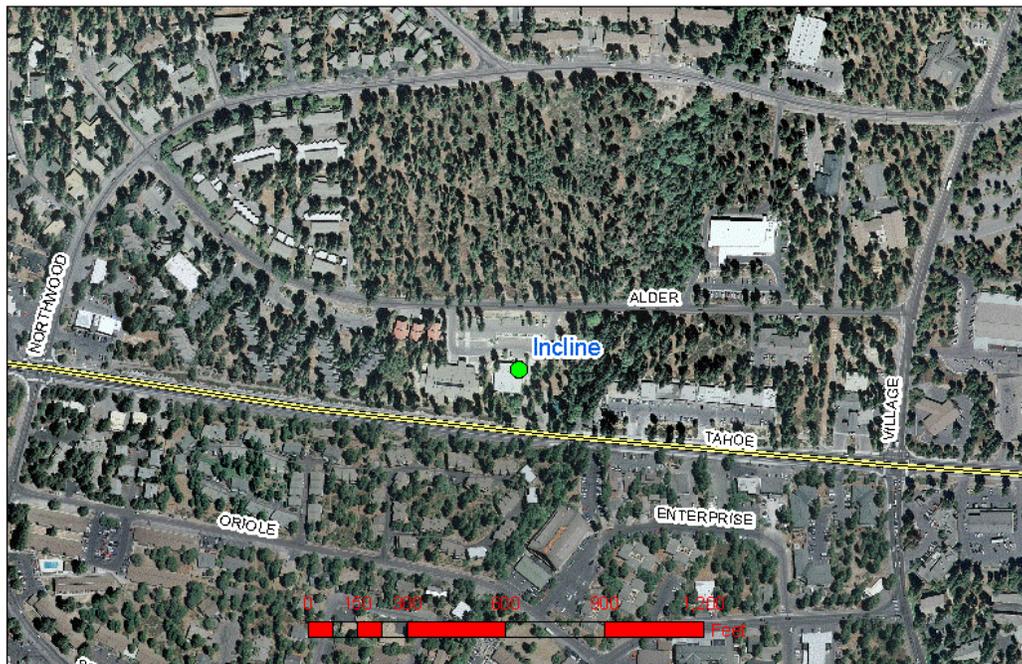
Figure 6  
Incline Monitoring Station



Figure 7  
Incline Monitoring Site Vicinity Map



Figure 8  
Incline Monitoring Site Vicinity Aerial



**Incline (continued)**

	<b>O<sub>3</sub></b>
<b>Monitor objective</b>	Population Oriented
<b>Monitor classification</b>	SLAMS
<b>Spatial scale</b>	Neighborhood
<b>Sampling method</b>	API 400A/TAPI 400E
<b>Analysis method</b>	UV Photometry
<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>Distance:</b>	
<b>from supporting structure</b>	1.1 meters
<b>from obstructions on roof</b>	n/a
<b>from obstructions not on roof</b>	41 meters
<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>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>	03-28-11 06-23-11 09-19-11 12-21-11
<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 monitoring objective is population oriented.

<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>	1,073 AADT (2008-2010) (NDOT ATR 0310926 - Patrician Drive, 150 feet west of Lemmon Drive)
<b>Groundcover:</b>	Paved / Vegetated
<b>Representative area:</b>	Reno-Sparks MSA

Figure 9  
Lemmon Valley Monitoring Station



Figure 10  
Lemmon Valley Monitoring Site Vicinity Map

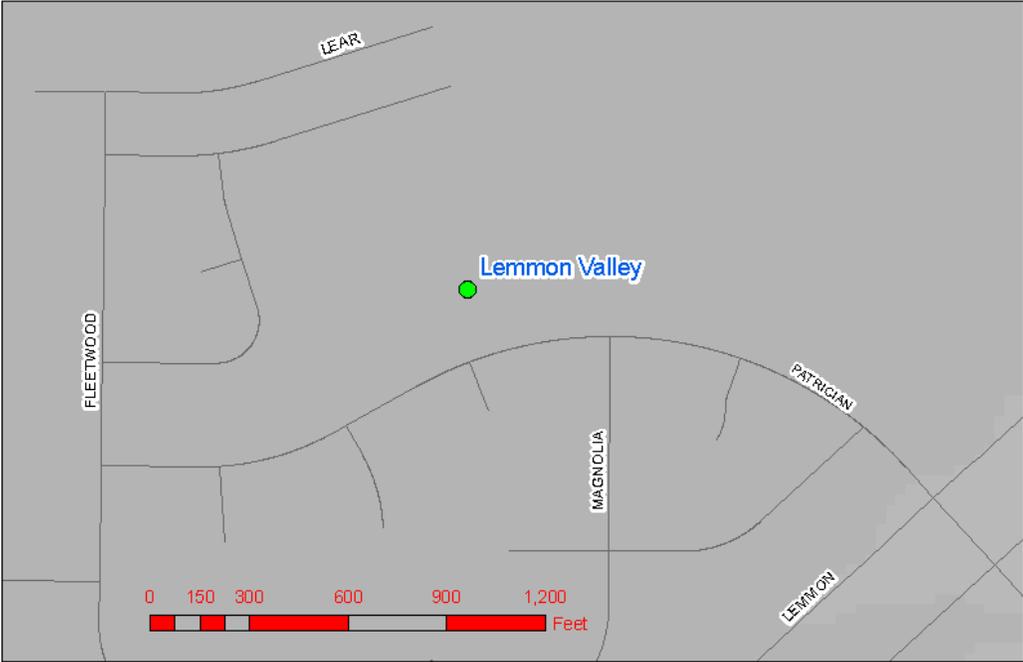


Figure 11  
Lemmon Valley Monitoring Site Vicinity Aerial



**Lemmon Valley (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>
<b>Monitor objective</b>	Population Oriented	Population Oriented
<b>Monitor classification</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>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>Distance:</b>		
<b>from supporting structure</b>	2.0 meters	2.0 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from obstructions not 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>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>	03-01-11 06-21-11 09-16-11 12-19-11	03-01-11 06-21-11 09-16-11 12-19-11
<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 monitoring objective is population oriented for PM<sub>10</sub>.

<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 12.0 meters to the westbound Plumb Lane to northbound Kietzke Lane roadway.
<b>Traffic count:</b>	30,667 AADT (2008-2010) (NDOT ATR 0310192 - East Plumb Lane, 590 feet east of Kietzke Lane)
<b>Groundcover:</b>	Gravel
<b>Representative area:</b>	Reno-Sparks MSA

Figure 12  
Plumb-Kit Monitoring Station



Figure 13  
Plumb-Kit Monitoring Site Vicinity Map

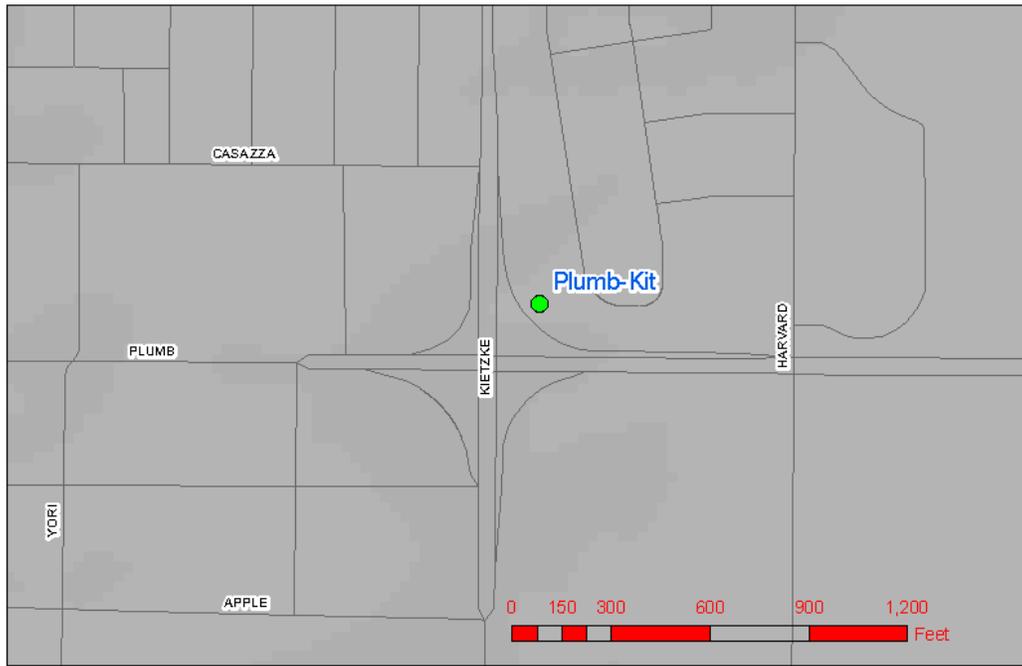


Figure 14  
Plumb-Kit Monitoring Site Vicinity Aerial



**Plumb-Kit (continued)**

	<b>PM<sub>10</sub></b>	<b>PM<sub>10</sub></b>
<b>Monitor objective</b>	Population Oriented	Population Oriented
<b>Monitor classification</b>	SLAMS	SLAMS
<b>Spatial scale</b>	Neighborhood	Neighborhood
<b>Sampling method</b>	Andersen 1200 Hi-Vol	Met One BAM 1020
<b>Analysis method</b>	Weighed by AQMD lab	Beta Attenuation
<b>Start date</b>	January 2006	November 2011
<b>Operation schedule</b>	1:6	Continuous
<b>Sampling season</b>	All year	All year
<b>Probe height</b>	4.2 meters	4.3 meters
<b>Distance:</b>		
<b>from supporting structure</b>	1.5 meters	1.5 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from obstructions not on roof</b>	106 meters	106 meters
<b>from trees</b>	12.2 meters*	12.2 meters*
<b>to furnace or incinerator flue</b>	n/a	n/a
<b>between collocated monitors</b>	n/a	n/a
<b>Unrestricted airflow</b>	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a
<b>Residence time</b>	n/a	n/a
<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>	Every 1:6 run and quarterly	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	Bi-weekly verifications and quarterly audits
<b>one-point QC check (gaseous)</b>	n/a	n/a
<b>Last:</b>		
<b>annual performance evaluation (gaseous)</b>	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	03-08-11 06-15-11 09-14-11	12-21-11

\* 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 monitoring objectives follow those set forth by EPA for an NCore site.

<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 (2008-2010) (NDOT ATR 0310862 - Mill Street, 100 feet west of Holcomb Avenue)
<b>Groundcover:</b>	Paved
<b>Representative area:</b>	Reno-Sparks MSA

Figure 15  
Reno3 Monitoring Station

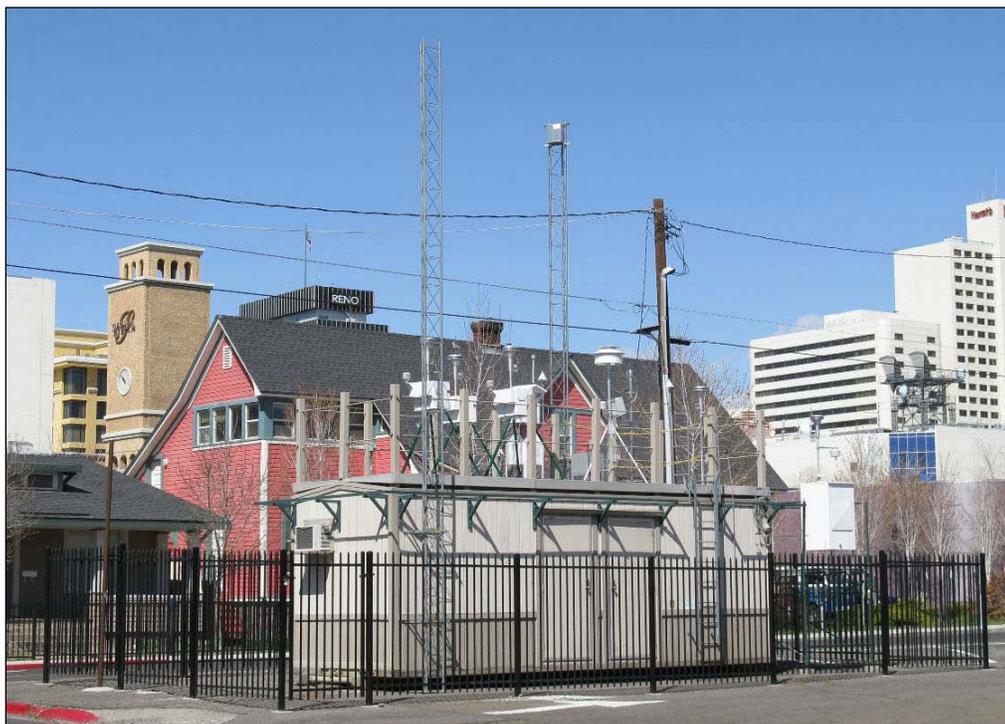
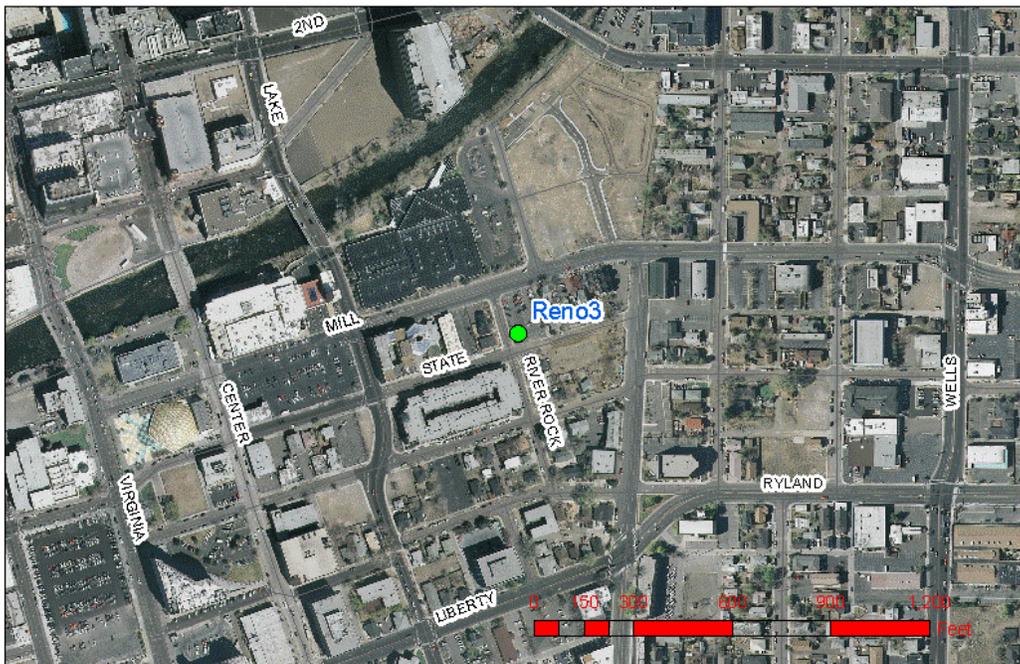


Figure 16  
Reno3 Monitoring Site Vicinity Map



Figure 17  
Reno3 Monitoring Site Vicinity Aerial



**Reno3 (continued)**

	<b>NO<sub>2</sub></b>	<b>Trace NO<sub>v</sub></b>
<b>Monitor objective</b>	Population Oriented	Population Oriented
<b>Monitor classification</b>	NCore	NCore
<b>Spatial scale</b>	Neighborhood	Neighborhood
<b>Sampling method</b>	Thermo 42C/TAPI 200EU	TAPI 200EU with 501
<b>Analysis method</b>	Chemiluminescent	Chemiluminescent
<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>Distance:</b>		
<b>from supporting structure</b>	1.8 meters	1.8 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from obstructions not on roof</b>	33 meters	33 meters
<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>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>	03-31-11 06-29-11 09-26-11 12-23-11	03-30-11 06-28-11 09-23-11 12-29-11
<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>Monitor objective</b>	Population Oriented	Population Oriented	Population Oriented
<b>Monitor classification</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>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>Distance:</b>			
<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 obstructions not on roof</b>	33 meters	33 meters	33 meters
<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>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>	03-29-11 06-27-11 09-26-11 12-22-11	03-29-11 06-27-11 09-26-11 12-22-11	03-29-11 06-27-11 09-26-11 12-22-11
<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>Monitor objective</b>	Population Oriented	Population Oriented	Population Oriented	Population Oriented
<b>Monitor classification</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>	Weighed by AQMD lab	Weighed by AQMD lab	Weighed by AQMD lab	Subtraction Method
<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>Distance:</b>				
<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 obstructions not on roof</b>	29 meters	28 meters	28 meters	28 meters
<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>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>	03-17-11 06-10-11 09-26-11 12-07-11	03-17-11 06-10-11 09-26-11 12-07-11	03-17-11 06-10-11 09-26-11 12-07-11	03-17-11 06-10-11 09-26-11 12-07-11

\* 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>Monitor objective</b>	Trends Network	Population Oriented	Population Oriented	Population Oriented
<b>Monitor classification</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>	Sent to RTI lab for analysis	Beta Attenuation	Beta Attenuation	Subtraction method
<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>Distance:</b>				
<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 obstructions not on roof</b>	30 meters	32 meters	32 meters	32 meters
<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>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>	03-29-11 06-30-11 08-17-11 12-07-11	3-24-11 5-26-11 9-14-11 12-19-11	3-24-11 5-26-11 9-14-11 12-19-11	3-24-11 5-26-11 9-14-11 12-19-11

## 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's monitoring objective is population oriented for CO, O<sub>3</sub> and PM<sub>10</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>	5,633 AADT (2008-2010) (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 18  
South Reno Monitoring Station



Figure 19  
South Reno Monitoring Site Vicinity Map

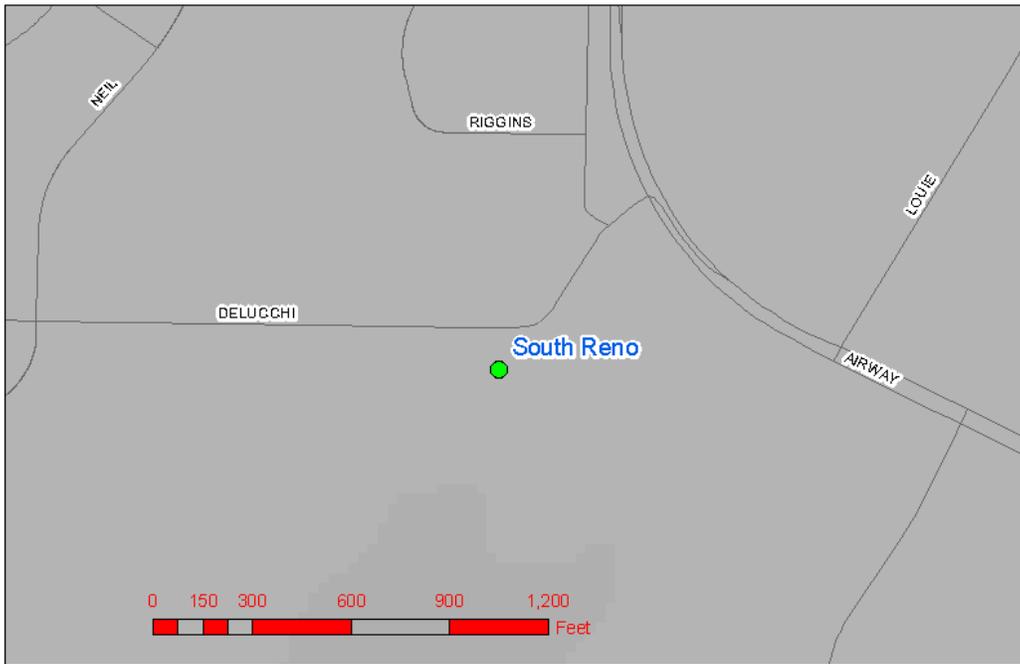
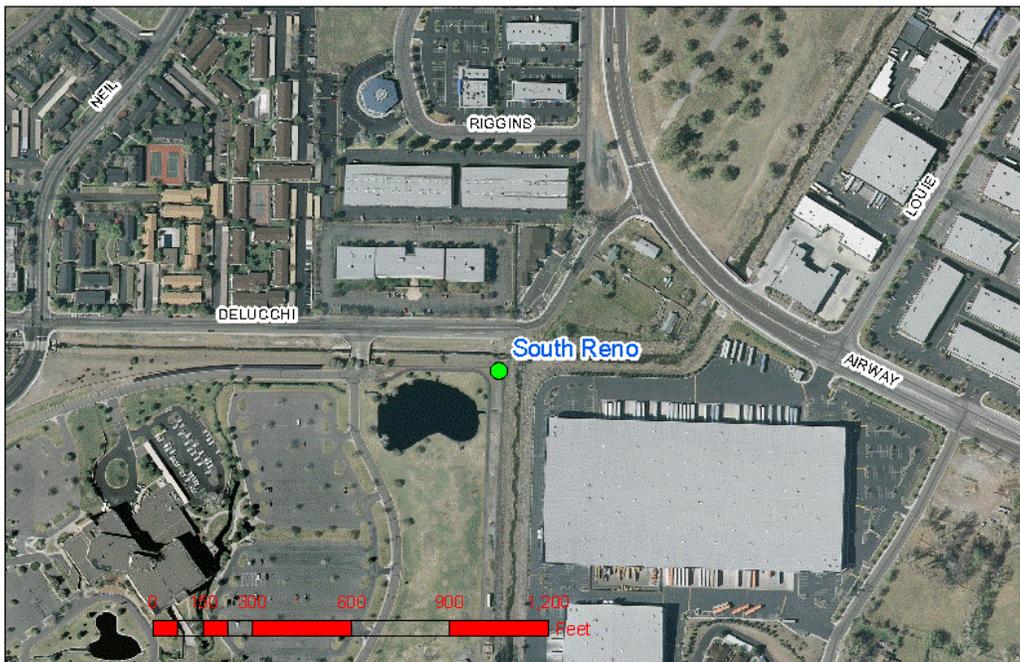


Figure 20  
South Reno Monitoring Site Vicinity Aerial



**South Reno (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>10</sub> BAM</b>
<b>Monitor objective</b>	Population Oriented	Population Oriented	Population Oriented	Population Oriented
<b>Monitor classification</b>	SLAMS	SLAMS	SLAMS	SLAMS
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	TAPI 400E	TAPI 300EU	Andersen 1200 Hi-Vol	Met One BAM 1020
<b>Analysis method</b>	UV Photometry	GFC	Weighed by AQMD lab	Beta Attenuation
<b>Start date</b>	January 1988	January 1988	January 1988	October 2011
<b>Operation schedule</b>	Continuous	Continuous	1:6	Continuous
<b>Sampling season</b>	All year	All year	All year	All year
<b>Probe height</b>	4.0 meters	4.0 meters	3.4 meters	4.3 meters
<b>Distance:</b>				
<b>from supporting structure</b>	1.2 meters	1.2 meters	1.5 meters	1.5 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a	n/a
<b>from obstructions not on roof</b>	68 meters	68 meters	68 meters	32 meters
<b>from trees</b>	29 meters	29 meters	29 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>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon	n/a	n/a
<b>Residence time</b>	9 seconds	9 seconds	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>	n/a	n/a	n/a	n/a
<b>Frequency of:</b>				
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	Every 1:6 run and quarterly	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	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	n/a
<b>Last:</b>				
<b>annual performance evaluation (gaseous)</b>	03-04-111 06-22-11 09149-11 12-20-11	03-04-111 06-22-11 09149-11 12-20-11	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	03-08-11 06-16-11 09-13-11	12-19-11

## 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 has a population oriented monitoring objective for the monitoring of O<sub>3</sub> and PM<sub>10</sub> and highest concentration for CO.

<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>	15,667 AADT (2008-2010) (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 21  
Sparks Monitoring Station



Figure 22  
Sparks Monitoring Site Vicinity Map



Figure 23  
Sparks Monitoring Site Vicinity Aerial



**Sparks (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>
<b>Monitor objective</b>	Population Oriented	Highest Concentration
<b>Monitor classification</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>Start date</b>	January 1979	January 1980
<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>Distance:</b>		
<b>from supporting structure</b>	1.7 meters	1.7 meters
<b>from obstructions on roof</b>	n/a	n/a
<b>from obstructions not on roof</b>	29 meters	29 meters
<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>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>	03-02-11 06-21-11 09-15-11 12-16-11	03-02-11 06-21-11 09-15-11 12-16-11
<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>10</sub> BAM</b>	<b>PM<sub>2.5</sub> BAM</b>	<b>PM<sub>10</sub> BAM</b>
<b>Monitor objective</b>	Population Oriented	Population Oriented	Population Oriented	Population Oriented	Population Oriented
<b>Monitor classification</b>	SLAMS	SLAMS	SPM	SPM	SPM
<b>Spatial scale</b>	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
<b>Sampling method</b>	Andersen 1200 Hi-Vol	Andersen 1200 Hi-Vol	Sibata BAM-102	Met One BAM 1020	Met One BAM 1020
<b>Analysis method</b>	Weighed by AQMD lab	Weighed by AQMD lab	Beta attenuation	Beta Attenuation	Beta Attenuation
<b>Start date</b>	April 1988	April 1988	November 1988	July 2011	July 2011
<b>Operation schedule</b>	1:6	1:6	Continuous	Continuous	Continuous
<b>Sampling season</b>	All year	All year	All year	All year	All year
<b>Probe height</b>	4.4 meters	3.5 meters	5.0 meters	4.3 meters	4.5 meters
<b>Distance:</b>					
<b>from supporting structure</b>	1.5 meters	1.5 meters	2.1 meters	1.5 meters	1.4 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a	n/a	n/a
<b>from obstructions not on roof</b>	27 meters	27 meters	29 meters	29 meters	29 meters
<b>from trees</b>	28 meters	26 meters	26 meters	26 meters	26 meters
<b>to furnace or incinerator flue</b>	n/a	n/a	n/a	n/a	n/a
<b>between collocated monitors</b>	2.7 meters	2.7 meters	n/a	n/a	n/a
<b>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	n/a	n/a	n/a	n/a	n/a
<b>Residence time</b>	n/a	n/a	n/a	n/a	n/a
<b>Proposed modifications within the next 18 months?</b>	none	none	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	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	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	Bi-weekly and quarterly audits
<b>one-point QC check (gaseous)</b>	n/a	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	n/a
<b>two semi-annual flow rate audits (PM)</b>	03-08-11 06-15-11 09-15-11 12-27-11	03-08-11 06-15-11 09-15-11 12-27-11	Instrument offline 02-15-11	09-22-11 12-21-11	09-22-11 12-21-11

## 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 and PM<sub>10</sub> from the roadways and highest concentrations of O<sub>3</sub>.

<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>	15,333 AADT (2008-2010) (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 24  
Toll Monitoring Station



Figure 25  
Toll Monitoring Site Vicinity Map

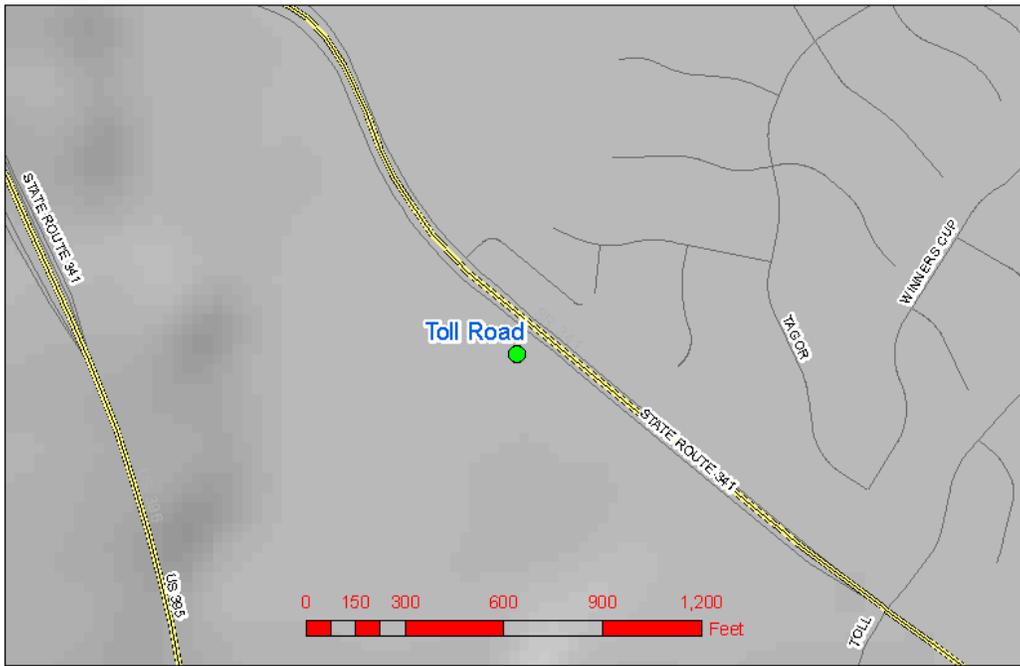


Figure 26  
Toll Monitoring Site Vicinity Aerial



**Toll (continued)**

	<b>O<sub>3</sub></b>	<b>CO</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>10</sub> BAM</b>
<b>Monitor objective</b>	Highest Concentration	Source Impact	Source Impact	Source Impact
<b>Monitor classification</b>	SLAMS	SLAMS	SLAMS	SLAMS
<b>Spatial scale</b>	Middle	Middle	Middle	Middle
<b>Sampling method</b>	API 400A / TAPI 400E	API 300	Andersen 1200 Hi-Vol	Met One BAM 1020
<b>Analysis method</b>	UV Photometry	GFC	Weighed by AQMD lab	Beta Attenuation
<b>Start date</b>	March 1996	March 1996	March 1996	July 2011
<b>Operation schedule</b>	Continuous	Continuous	1:6	Continuous
<b>Sampling season</b>	All year	All year	All year	All year
<b>Probe height</b>	4.0 meters	4.0 meters	4.2 meters	4.4 meters
<b>Distance:</b>				
<b>from supporting structure</b>	1.2 meters	1.2 meters	1.5 meters	1.5 meters
<b>from obstructions on roof</b>	n/a	n/a	n/a	n/a
<b>from obstructions not on roof</b>	17.4 meters	17.4 meters	17.4 meters	29 meters
<b>from trees</b>	12.5 meters*	12.5 meters*	12.5 meters*	26 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>Unrestricted airflow</b>	360 degrees	360 degrees	360 degrees	360 degrees
<b>Probe material</b>	Teflon	Teflon	n/a	n/a
<b>Residence time</b>	8 seconds	8 seconds	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>	n/a	n/a	n/a	n/a
<b>Frequency of:</b>				
<b>flow rate verification for manual samplers audit (PM)</b>	n/a	n/a	Every 1:6 run and quarterly	n/a
<b>flow rate verification for automated analyzers audit (PM)</b>	n/a	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	n/a
<b>Last:</b>				
<b>annual performance evaluation (gaseous)</b>	03-17-11 06-24-11 09-13-11 12-20-11	03-17-11 06-24-11 09-13-11 12-20-11	n/a	n/a
<b>two semi-annual flow rate audits (PM)</b>	n/a	n/a	03-08-11 06-16-11 09-13-11	12-19-11

\* 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.