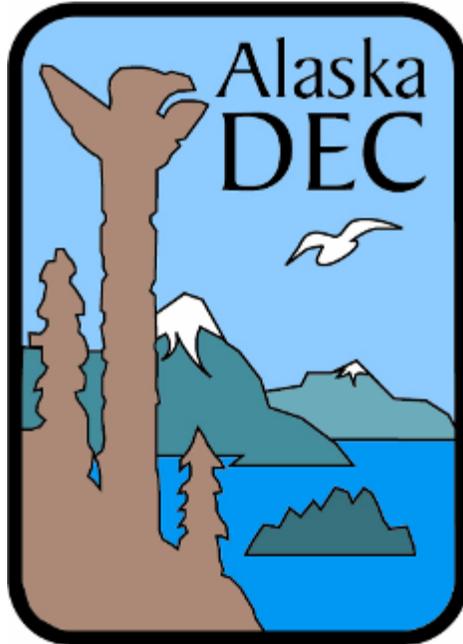


# Alaska's Air Monitoring 2010 Network Plan

## Chapter 5 - Juneau



**Prepared by:**

State of Alaska Department of Environmental Conservation  
Division of Air Quality  
Air Monitoring and Quality Assurance Section  
619 E. Ship Creek Ave. Suite 249  
Anchorage, AK 99501

## Table of Contents

<b>5</b>	<b><i>JUNEAU MONITORING SITES</i></b> .....	<b>5-1</b>
<b>5.1</b>	<b>General Information</b> .....	<b>5-1</b>
<b>5.2</b>	<b>FLOYD DRYDEN MIDDLE SCHOOL SITE - JUNEAU</b> .....	<b>5-3</b>
5.2.1	Site Information.....	5-3
5.2.2	Sources .....	5-3
5.2.3	Monitors .....	5-4
5.2.4	Siting .....	5-4
5.2.5	Traffic.....	5-4

## List of Figures

<i>Figure 5.1:1: Street map of Mendenhall Valley. Red circle indicates the monitoring site.</i> .....	5-2
<i>Figure 5.2:1: Map and satellite image of the Floyd Dryden monitoring site. The red circle indicates the monitoring site.</i> .....	5-3
<i>Figure 5.2:2: Pictures of the Floyd Dryden site.</i> .....	5-5

## 5 JUNEAU MONITORING SITES

### 5.1 *General Information*

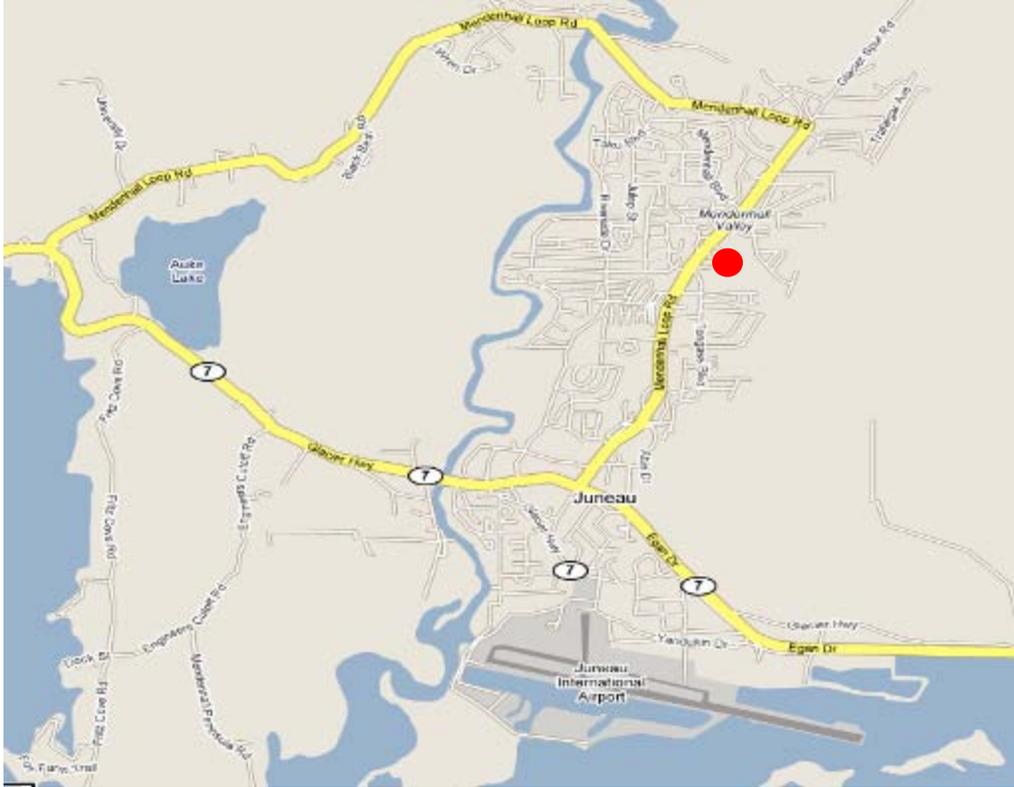
The City and Borough of Juneau is located in Southeast Alaska, on the mainland side of the Gastineau Channel and across from Douglas Island. The borough encompasses 2,594 square miles of land and 488 square miles of water. Juneau has a mild, maritime climate with average winter temperatures ranging from 25°F to 35°F; and summer temperatures ranging from 44°F to 65°F. Annual precipitation varies throughout the region with 92 inches in downtown Juneau and 54 inches at the airport ten miles to the west. Snowfall averages 101 inches at the airport. The population<sup>1</sup> of the Juneau-Douglas area is 30,700.

Currently, there is one particulate matter monitoring site in Juneau which is operated by Alaska DEC staff. The AQS ID number for the site is 02-110-0004, Floyd Dryden Middle School (PM<sub>10</sub> and PM<sub>2.5</sub>). Figure 5.1:1 below indicates the location of the site.

Juneau was designated non-attainment for PM<sub>10</sub> on November 15, 1990. The two primary sources of PM<sub>10</sub> required the community to develop two separate action plans to minimize the exceedance of the standard. The first was to start paving roads to minimize the impact of dust and the second was to issue notices when people could use their woodstoves to reduce the impact from smoke. The City and Borough of Juneau and the Alaska DEC are currently in the process to re-designate Juneau as a PM<sub>10</sub> maintenance area with the US EPA. Definitions of designations and siting criteria can be found in Appendix A

---

<sup>1</sup> Population data 2005 U.S. Census.



**Figure 5.1:1:** Street map of Mendenhall Valley. Red circle indicates the monitoring site.

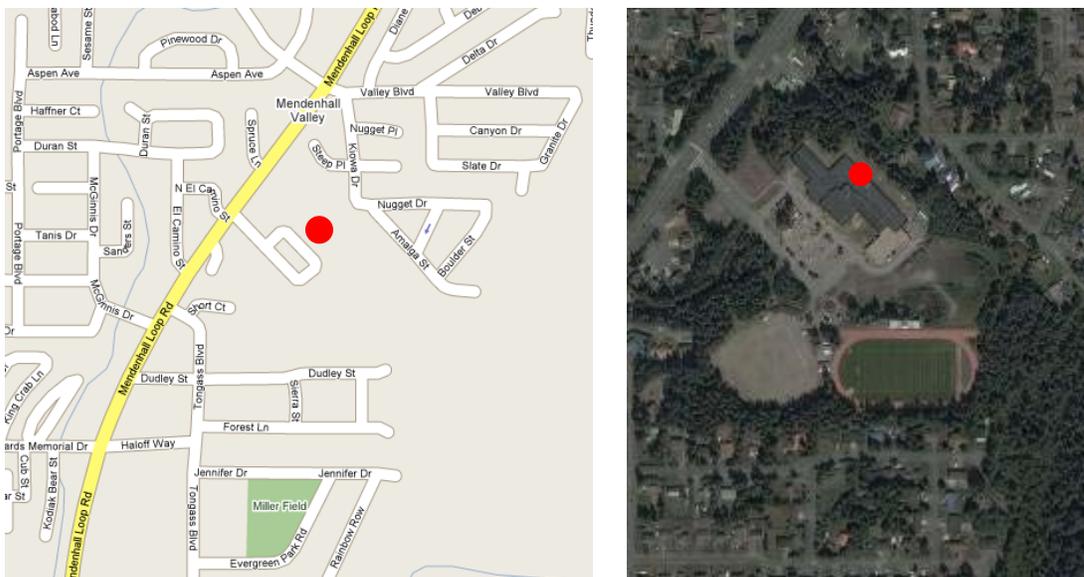
## 5.2 FLOYD DRYDEN MIDDLE SCHOOL SITE - JUNEAU

3800 Mendenhall Loop Road  
Parameters: PM<sub>2.5</sub>, PM<sub>10</sub>

AQS ID 02-110-0004  
Established: January 1, 1980

### 5.2.1 Site Information

The Juneau site is located on the roof of the Floyd Dryden Middle School in the Mendenhall Valley, off of Mendenhall Loop Road between North El Camino Street and Spruce Lane. The latitude is 58° 23'30", longitude is -134 °33'30", and the site is located 45 meters (143 feet) above sea level. Figure 5.2:1 is a satellite image of the site and map of the surrounding area. The site is located in the middle of a residential area. Floyd Dryden is a neighborhood-scale, population-oriented site.



**Figure 5.2:1: Map and satellite image of the Floyd Dryden monitoring site. The red circle indicates the monitoring site.**

### 5.2.2 Sources

The Mendenhall Valley is located northwest of Juneau and separated from the Lemon Creek Valley by the north-south oriented Heintzelman Ridge. With the exception of wildfire smoke from Canada, pollution sources outside the valley are not expected to impact the monitoring site at Floyd Dryden Middle School. The sources of particulate matter within the Mendenhall Valley include: residential wood smoke, dust from ball fields and playgrounds, automobile exhaust, fugitive dust from construction/land clearing and smoke from open burning.

Juneau International Airport (average of 1050 passengers daily) is two miles away at the south end of Mendenhall Valley, and may affect the Floyd Dryden site when winds are from the south. Within five miles are a gravel pit and the Mendenhall Glacier, both of

which may cause crustal material to be re-entrained during particular meteorological conditions. On occasion, wildfire smoke, carried by long range transport from Western Canada, has been known to impact the Mendenhall Valley.

### **5.2.3 Monitors**

The Floyd Dryden Site is currently equipped with:

- PM<sub>2.5</sub> (SLAMS) – Four Thermo Electron (formerly Rupprecht and Patashnick) Partisol 2000 samplers. On April 1, 2008 the sampling schedule changed from 1-in-3 day to a 1-in-1 day schedule.
- PM<sub>10</sub> (SPM) – One General Metal Works High-Volume sampler. Running on a 1-in-6 day sampling schedule.
- PM<sub>2.5</sub> (SPM) – A single Thermo Electron TEOM 1400a continuous monitor was installed to provide information in real time for evaluating the Air Quality Index.

### **5.2.4 Siting**

The samplers are installed on the roof of Floyd Dryden Middle School, approximately six meters (19 feet) above the ground. There is a furnace flue approximately 20 meters (64 feet) to the East of the sampler roof location. There is also a nearby dryer vent coming out of the building on the ground level directly below the current sampler location. The school has a penthouse which is approximately four meters above the roof and 6 meters (19 feet) to the South of the closest monitor.

The samplers are installed approximately 65 meters (207 feet) from the nearest traffic lane. A row of 15 meter (48 feet) tall trees are within 25 meters (80 feet) on the northern side of the site. Airflow is generally uninterrupted with the exception of the trees to the north-northeast. These trees are not considered to be a barrier because most elevated PM concentrations occur during winter inversions and/or during times when the wind is less than five mph. Under these conditions, the particulate concentrations are thought to have homogeneous dispersion. The monitors are on the north side of the school and away from the parking lot.

### **5.2.5 Traffic**

The Floyd Dryden site is approximately 65 meters east of Mendenhall Loop Road (the main roadway into the valley; 12,770 vehicles per day). The roads are paved and, in the winter, sanded for traction.

**Figure 5.2:2: Pictures of the Floyd Dryden site.**

