

**ALASKA DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION**



**Amendments to:**

**State Air Quality Control Plan**

**Vol. II: III.D.7.2**

**Background and Overview of PM<sub>2.5</sub> Rule**

**Public Notice Draft**

May 10, 2019

**Michael J. Dunleavy, Governor**

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## 7.2. Background and Overview of PM<sub>2.5</sub> Rule

### 7.2.1 What is Particulate Matter?

Particulate pollution, also called particulate matter or PM, is a complex mixture of solid and liquid particles that are suspended in air. The components of particulate matter are a mixture of inorganic and organic chemicals, including carbon, sulfates, nitrates, metals, acids and volatile compounds. Man-made and natural sources emit particulate matter directly or indirectly by emitting other pollutants that react in the atmosphere to form PM. There are different sizes and shapes of particulate matter. Coarse particulate matter (PM<sub>10</sub>) is less than 10 micrometers in diameter. It primarily comes from road dust, agriculture dust, river beds, construction sites, mining operations and other similar activities. Fine particulate matter (PM<sub>2.5</sub>) is less than 2.5 micrometers in diameter. PM<sub>2.5</sub> is a product of combustion, primarily caused by burning fuels. Examples of sources include power plants, vehicles, wood burning stoves and wildland fires. The Environmental Protection Agency (EPA) regulates both coarse and fine particulate matter which can be inhaled thereby posing a risk to public health. Particulate pollution also affects the visibility in many national parks and wilderness areas, impacts the natural environment and the aesthetic values of our surroundings.

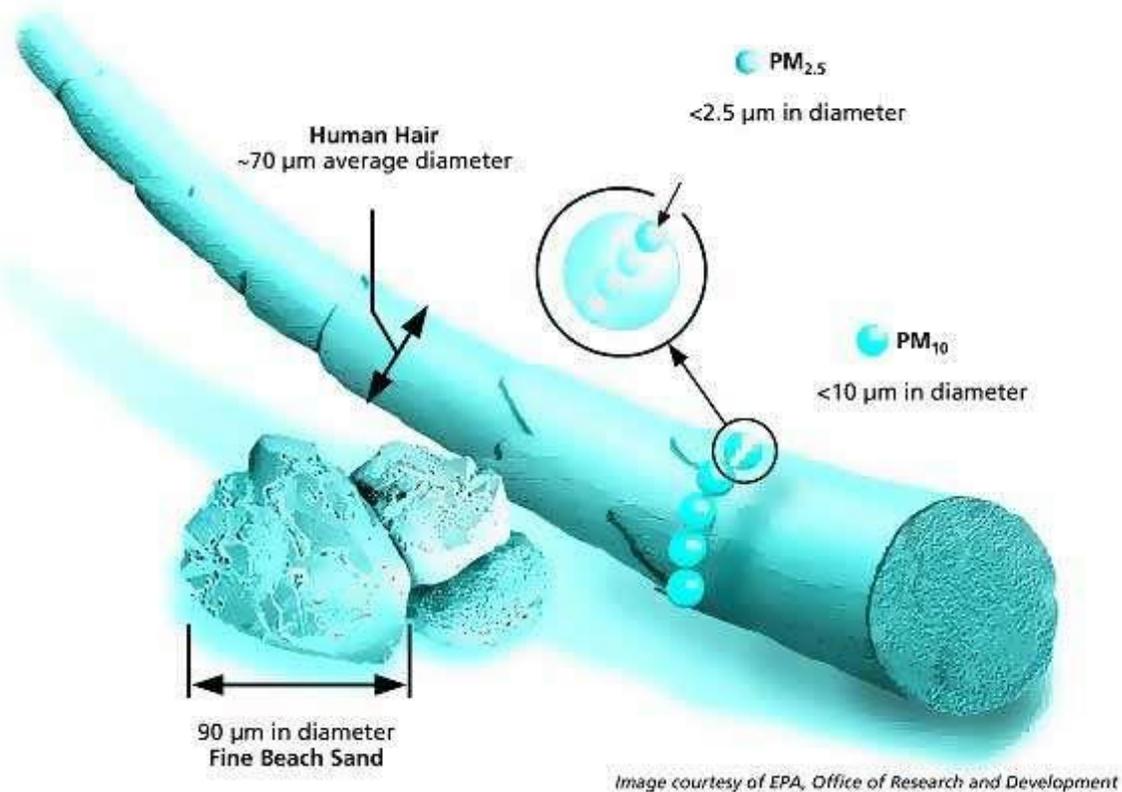


Figure 7.2-1. Particle Size Comparison

### 7.2.2 Health Effects:

Scientific and health research has reported associations between the levels of particulate matter in the air and adverse respiratory and cardiovascular effects in people. The size of the particles inhaled is directly linked to their potential in causing health problems. Both coarse and fine particles cause health problems when people are exposed to harmful concentrations. These particles are small enough to pass from our lungs to our bloodstream. PM can alter the body's defense systems against foreign materials, damage lung tissues, aggravate existing respiratory and cardiovascular disease, and can lead to cancer. In some cases, PM exposure can even lead to premature death. Adverse health effects have been associated with exposures to PM over both short periods (such as a day) and longer periods (a year or more).

The people who are most at risk from PM exposure are those with asthma, influenza, lung, heart, or cardiovascular disease, the elderly, and children. Symptoms of exposure may include sore throat, persistent cough, burning eyes, wheezing, shortness of breath and chest pain, irregular heart beat and development of chronic bronchitis.<sup>1</sup>

### 7.2.3 Environmental Effects:

The main components of fine particulate matter (PM<sub>2.5</sub>) are soil-related particles, sulfur dioxide, nitrogen oxides and semi-volatile organic compounds. These components can combine in a variety of ways that noticeably affect urban, agricultural and natural systems. The effects of fine particulate matter can be seen in physical and chemical degradation of our surroundings from acid deposition and changes in visibility resulting in haze.

In the instance of acid deposition, the impacts are seen both on aesthetic appeal and physical damages to the surface of the structures, both of which may have serious economic consequences. Acid rain accelerates the decay of building materials and paints causing damages to the buildings, statues and sculptures resulting in excessive cost for the upkeep of these structures. Acid deposition affects aquatic and terrestrial ecosystems by changing the pH and can make a water body or soil either too acidic or basic for the survival of different organisms and plant life.<sup>2</sup>

Particulate matter absorbs and scatters the light thus affecting the visibility and causing haze. Light scattering efficiency differs considerably for fine and coarse particles. Larger light scattering efficiencies for fine particles have been observed when significant numbers of particles are in the 0.5 to 1.0 micrometer size range. The great majority of particle absorption is caused by elemental carbon, a product of smoke and fuel burning. Particulate matter pollution such as particulate sulfate found in the atmosphere by the conversion of SO<sub>2</sub> is responsible for 40-65% of the haze in parts of the United States.<sup>3</sup> Some haze causing particles are directly emitted to the air. Others are formed when gases emitted to the air combine into particles as they are carried many miles from the source of the pollutants.

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<sup>1</sup> <http://www.epa.gov/airquality/particlepollution/health.html>

<sup>2</sup> <http://www.epa.gov/acidrain/effects/index.html>

<sup>3</sup> <http://www.epa.gov/air/visibility/pdfs/introvis.pdf>

## 7.2.4 Annual and 24 hour National Ambient Air Quality Standards (NAAQS):

The Clean Air Act (CAA) requires EPA to set air quality standards (40 CFR Part 50) to protect the health and the welfare of the public and the environment. The law requires EPA to periodically review and update the standards to ensure that health and environmental protection are adequate based on the scientific justifications. EPA has set National Ambient Air Quality Standards (NAAQS) for six principal criteria pollutants and particulate matter is one of these. Particulate pollution includes a complex mixture of both solid particles and liquid droplets found in the air. These particles come in different sizes and shapes; particulates less than 10 micrometer pose health concerns because they can be inhaled and cause respiratory problems and particles less than 2.5 micrometer in size, also known as “fine particles” can lodge deeply into lungs and enter the bloodstream causing numerous health problems.

EPA first issued particulate matter standards in 1971 and revised the standards in 1987. In 1997, EPA established PM<sub>2.5</sub> annual and 24-hour standards for the first time, which were 15 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) and  $65\mu\text{g}/\text{m}^3$  respectively.<sup>4</sup> In September of 2006, the agency revised the 1997 PM<sub>2.5</sub> standards which tightened the 24-hour standard from  $65\mu\text{g}/\text{m}^3$  to  $35\mu\text{g}/\text{m}^3$ .<sup>5</sup> In December 2012, EPA further strengthened the annual PM<sub>2.5</sub> standard to  $12\mu\text{g}/\text{m}^3$ .<sup>6</sup> During this time, EPA retained the existing 24-hour PM<sub>10</sub> standard of  $150\mu\text{g}/\text{m}^3$  and revoked the annual PM<sub>10</sub> standard.

**Table 7.2-1**

Year	EPA Fine Particulate Matter NAAQS Revisions	
	Averaging Period	
	24-Hour, $\mu\text{g}/\text{m}^3$	Annual, $\mu\text{g}/\text{m}^3$
1997	65	15
2006	35	15
2012	35	12

EPA continues to review all NAAQS pollutants every five years to determine if the existing levels should be retained or revised. EPA’s review is based on extensive research of thousands of peer-reviewed scientific studies about the effects of each criteria pollutant on public health and welfare.<sup>7</sup>

## 7.2.5 Non-Attainment Designation

### 7.2.5.1 Clean Air Act and Alaska Air Quality

The CAA was promulgated on December 31, 1970 and by 1972, Alaska submitted their first air quality control State Implementation Plan (SIP). Carbon monoxide, sulfur dioxide and particulate matter were addressed in the SIP from the beginning. Coarse particulate matter was

<sup>4</sup> Federal Register, Volume 62, No.138, Friday, July 18, 1997, pages 38652-38760

<sup>5</sup> Federal Register, Volume 71, No.200, Tuesday, October 17, 2006, pages 61144-61233

<sup>6</sup> Federal Register, Volume 78, No.10, Tuesday, January 15, 2013, pages 3086-3287

<sup>7</sup> See EPA web site at: [http://www.epa.gov/ttn/naaqs/standards/pm/s\\_pm\\_index.html](http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_index.html)

of concern because of the existence of point sources, unpaved roads and wood smoke which were prevalent in many communities all around Alaska. Historically Eagle River and Juneau have violated the CAA air quality requirements for coarse particulate matter PM<sub>10</sub>, though both of the areas are now attaining the PM<sub>10</sub> NAAQS and in maintenance status.

Alaska had been in compliance with the PM<sub>2.5</sub> standard since 1997 until the EPA revised its standard in 2006. The more stringent 2006 standard showed areas of the Fairbanks North Star Borough (FNSB), exceeding the PM<sub>2.5</sub> standard and the Mendenhall Valley in Juneau coming very close to violating the standard. A monitoring site in the Fairbanks North Star Borough was consistently exceeding the level of the 24-hour PM<sub>2.5</sub> NAAQS and therefore determined to be in violation. This triggered the requirement for the state to identify and designate an appropriate area surrounding Fairbanks Alaska to be in non-attainment status. A non-attainment area is any area that does not meet the NAAQS for any of the CAA criteria pollutants; particulate matter in this instance.

Once formally designated, the State and the Fairbanks North Star Borough (FNSB) began studies and additional monitoring to identify the causes of the PM<sub>2.5</sub> pollution so that this air quality plan could be developed to control and reduce particulate matter emissions.

#### 7.2.6 Fairbanks PM<sub>2.5</sub> Non-Attainment Designation

In developing non-attainment area recommendations for the 2006 PM<sub>2.5</sub> NAAQS, the Alaska Department of Environmental Conservation (DEC) evaluated three years of air quality data for four areas of Alaska: Anchorage, Fairbanks, the Mendenhall Valley in Juneau, and the Butte area in the Matanuska-Susitna Borough. Only one of the communities showed that it was consistently exceeding the health-based 24-hour standard of 35µg/m<sup>3</sup>. The three year calculated average (2006-2008) for Fairbanks was 43µg/m<sup>3</sup> and the Mendenhall Valley in Juneau was exactly at 35µg/m<sup>3</sup>. Fairbanks exceeds the standard during winter months. All of the communities showed attainment for the annual exposure limit of 15µg/m<sup>3</sup>. DEC in consultation with local governments followed the nine factor analysis approach set out in EPA guidance and developed a proposed boundary for the PM<sub>2.5</sub> non-attainment area in Juneau and Fairbanks.

On December 14, 2007, DEC submitted a letter to EPA recommending that the City of Fairbanks and areas surrounding it within the Fairbanks North Star Borough, be designated as non-attainment for the 2006, 24-hour PM<sub>2.5</sub> NAAQS. The letter was an initial designation recommendation by the State of Alaska in accordance with the requirements of CAA Section 107(d)(A).

The non-attainment boundary proposed by DEC was meant to encompass the portion of the Fairbanks North Star Borough air shed likely to be violating the fine particulate matter health standard. No monitoring data for the outlying areas and City of North Pole existed at that time, therefore, these areas were excluded from the initial non-attainment boundary recommendation. DEC noted that if new monitoring data for these areas exceeded the PM<sub>2.5</sub> standard, then a revision to the proposed boundary would be warranted.

In August of 2008, EPA notified the State of Alaska of its intent to designate Fairbanks and the Mendenhall Valley in Juneau as non-attainment and the remaining boroughs in the state as attainment/unclassified. In proposing non-attainment area boundaries, EPA expanded upon the

areas recommended by the state to include a much larger area and allowed the state until October 20, 2008 to submit additional information to be considered towards the non-attainment area designation process.

After reviewing EPA's proposed designation of the non-attainment boundaries for Fairbanks and Juneau, the State of Alaska submitted a revised non-attainment boundary for Fairbanks. The state proposed to include an area larger than the initial proposal, but smaller than the area proposed by EPA, for the Fairbanks non-attainment area. Regarding Juneau, the state asked EPA to revisit certain assumptions underlying EPA's technical analysis and to include Juneau's 2008 monitoring data before making final decisions on the non-attainment designation boundary.

In a letter dated October 20, 2008, DEC provided extensive supporting documents from the local communities and military bases, demonstrating to EPA that smaller non-attainment area boundaries were appropriate in both Fairbanks and Juneau. This letter and its attachments may be found at: <http://dec.alaska.gov/air/pm2-5-nonattainment/>.

On November 13, 2009 portions of the Fairbanks North Star Borough were officially designated as being in "non-attainment" for PM<sub>2.5</sub> by the EPA. The federal register publication (74 FR 58690) dated November 13, 2009, however, excluded the Mendenhall Valley in Juneau from classification as a non-attainment area.

EPA reviewed and revised the PM<sub>2.5</sub> NAAQS again in 2012, strengthening the annual standard from 15 to 12 µg/m<sup>3</sup>. Subsequently in 2013, DEC evaluated the most recent air monitoring data within the state to determine compliance with the revised annual PM<sub>2.5</sub> NAAQS and recommended to EPA that all areas of the state be designated as in attainment. On December 18, 2014, the EPA issued the final area designation for the 2012 annual national air quality standard for the fine particulate matter (PM<sub>2.5</sub>). In the action, the EPA designated the entire state of Alaska as "unclassifiable/attainment," consistent with the recommendation from the State of Alaska.

### 7.2.7 State Implementation Plan (SIP) Requirements and Compliance with Clean Air Act

For the Fairbanks Moderate area plan, the Fairbanks North Star Borough (FNSB) was delegated as the air quality planning authority. The citizen initiative (Prop 4) that was passed by the FNSB voters on October 2, 2018, removed the authority of the borough to regulate wood stoves and other wood and coal heating devices. On October 25, 2018, Alaska Department of Environmental Conservation formally took the responsibility of calling curtailment alerts, communicating alerts, and enforcing compliance in the FNSB nonattainment area. This also means that DEC is responsible to develop any new controls for heating devices for the Serious PM<sub>2.5</sub> SIP.

This Serious PM<sub>2.5</sub> SIP describes how the State of Alaska will meet the PM<sub>2.5</sub> Implementation Rule for a Serious area classification. The plan contains the selected control strategies executed or planned by the State to achieve lower emissions of fine particulate matter (PM<sub>2.5</sub>) as well as those of its precursors: nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), volatile organic compounds

(VOCs) and ammonia (NH<sub>3</sub>). The plan also describes how the State will work to educate the community on using safer and more efficient home heating units.

### 7.2.8 State Implementation Plan (SIP) Deadline

The CAA generally requires states to submit a SIP within three years following a designation of non-attainment. In April 2007 EPA promulgated a detailed implementation rule for PM<sub>2.5</sub> non-attainment areas and in March 2012 issued additional guidance. Both the 2007 rule and 2012 guidance identified the Clean Air Act Section 110(a)(1) and Part D, Subpart 1 (Sections 171-179) as the relevant sections to follow in developing a PM<sub>2.5</sub> SIP. Alaska's effective date of designation as a non-attainment area was December 14, 2009. Alaska's original due date for the SIP under Subpart 1 was December 14, 2012.

Alaska did not meet this date and was finalizing a number of SIP technical documents when on January 4, 2013 the DC Circuit Court ruled that the Clean Air Act requires implementation of the PM<sub>2.5</sub> NAAQS under Clean Air Act Part D, Subpart 4 (Sections 188-190) rather than implementation under Subpart 1. Shortly after being notified of the court decision, Alaska began adjusting and reworking its development of the PM<sub>2.5</sub> SIP to meet the additional and differing requirements of Subpart 4.

On June 2, 2014, EPA published in the Federal Register (Vol. 79, No. 105, p. 31566-31782) a new rule that identified those States in nonattainment for PM<sub>2.5</sub> as 'Moderate' areas and proposed a new due date for submittal of moderate nonattainment area Subpart 4 SIPs to EPA. Under the 2014 rule, the PM<sub>2.5</sub> SIP for the moderate nonattainment area in the Fairbanks North Star Borough was due to the EPA by December 31, 2014. Under the new subpart 4 'Moderate' area designation, the SIP was expected to demonstrate using air quality modeling that attainment was possible or impracticable by December 31, 2015.

On July 29, 2016, EPA also promulgated the PM<sub>2.5</sub> Implementation Rule which interprets the statutory requirements that apply to PM<sub>2.5</sub> NAAQS nonattainment areas under subparts 1 and 4 of the nonattainment provisions of the CAA. These requirements govern both attainment plans and nonattainment new source review (NNSR) permitting programs and specify planning requirements that include:

- plan due dates, attainment dates and attainment date extension criteria;
- the process for determining control strategies, including Reasonably Available Control Measures/Reasonably Available Control Technology (RACM/RACT) for Moderate areas; and Best Available Control Measures/Best Available Control Technology (BACM/BACT) and Most Stringent Measures (MSM) for Serious areas;
- guidelines for attainment demonstrations for areas that can attain by the statutory attainment date, and "impracticability" demonstrations for areas that cannot practicably attain by the statutory attainment date;
- RFP and quantitative milestones for demonstrating RFP;
- contingency measures for areas that fail to meet RFP or fail to attain the NAAQS by the attainment date.

On September 8, 2017, EPA approved the Fairbanks PM<sub>2.5</sub> Moderate Area SIP, which was originally submitted on December 31, 2014, for meeting all statutory and regulatory requirements but reclassified the area as a Serious Nonattainment area with an effective date of June 9, 2017, for failing to demonstrate attainment by December 31, 2015. For serious areas, under the statutory requirements laid out in Title I, Part D of the Clean Air Act or 40 C.F.R. Part 51, Subpart Z, Section 51.1004 provisions, an attainment date shall be no later than 10 years from the original designation date.<sup>8</sup> Consequently, a new ‘Serious’ SIP must be developed to demonstrate attainment by December 30, 2019 or request an extension of the attainment date.

### 7.2.9 Attainment Dates

The January 4, 2013 litigation described above has impacted the date on which the SIP must be submitted, and the date the State is required to demonstrate attainment. A significant requirement of the SIP is an attainment demonstration using controls that will be adopted and their effectiveness through modeling analyses. Originally under the Subpart 1 requirements the attainment date was determined to be no later than five years from the date the area was designated nonattainment. Five years from the December 14, 2009 nonattainment designation, under Subpart 1, established an original attainment date of December 14, 2014.

Under Subpart 4 provisions of the Clean Air Act, an attainment date shall be no later than six years from the date an area was designated nonattainment. Therefore, the attainment date for the FNSB PM<sub>2.5</sub> nonattainment Moderate area was December 31, 2015.

Since the area did not attain the NAAQS by 2015, the area’s nonattainment classification was changed from ‘Moderate’ to ‘Serious’ by operation of law.<sup>9</sup> For serious areas, under the statutory requirement laid out in Title I, Part D of the Clean Air Act or 40 C.F.R. Part 51, Subpart Z, Section 51.1004 provisions, an attainment date shall be no later than 10 years from the original designation date.<sup>10</sup> Consequently, EPA requires the State to develop a new ‘Serious’ SIP which must be developed to demonstrate attainment by December 31, 2019 or request an extension.

### 7.2.10 Consultation and Planning Process for SIP

There are several requirements for coordination and consultation in the development of a SIP or SIP amendment. Provisions of sections 110(a)(M) and 174 of the CAA (42 U.S.C. 7410(a)(2)(m) and 42 U.S.C 7504) require the consultation and participation by local political subdivisions and local elected officials affected by the plan. Under section 174 (42 U.S.C 7504), a plan submitted to EPA as a formal SIP or SIP amendment must be prepared by “an organization certified by the State, in consultation with elected officials of local governments.”

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<sup>8</sup> Clean Air Act Part 51, Subpart Z, Section 51.1004(a)((2)

<sup>9</sup> Clean Air Act Section 188(b)(2)

<sup>10</sup> Clean Air Act Part 51, Subpart Z, Section 51.1004(a)((2)

Such an organization is required to include local elected officials and representatives of the following organizations:

- the state air quality planning agency (i.e., DEC);
- the state transportation planning agency (i.e., Alaska Department of Transportation & Public Facilities (ADOT/PF)); and
- the metropolitan planning organization (MPO) responsible for Continuing, Cooperative and Comprehensive (3C) transportation planning process for the affected area (FMATS).

40 CFR 93.105(a)(1) of the conformity rule requires consultation with state and local air agencies, State and federal DOTs (ADOT/PF and the Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) within the Department of Transportation(DOT)), Environmental Protection Agency (EPA), and MPOs in developing applicable implementation plans.

### 7.2.11 Fairbanks Area Surface Transportation Planning and Authority

In April of 2003, the Fairbanks Metropolitan Area Transportation Systems (FMATS) Policy Committee was designated as the Metropolitan Planning Organization (MPO) and cooperative decision making body for the urbanized area of Fairbanks and North Pole. In 2018 FMATS established a Non-profit Corporation, known as Fairbanks Area Surface Transportation Planning (FAST Planning), to replace FMATS and fulfill the functions and responsibilities of the MPO, and the Governor officially re-designated the MPO as FAST Planning on April 5, 2019. FAST Planning is an ongoing cooperative and comprehensive planning effort between the DEC, FNSB, Cities of Fairbanks and North Pole and ADOT/PF. It is responsible for developing three primary planning or programming activities which include the Metropolitan Transportation Plan, Transportation Improvement Program and Unified Planning work Program. FAST Planning's structure consists of two-tiered committee system that reviews all transportation planning efforts within the area. FAST Planning also develops air quality conformity determinations for transportation plans and participates in interagency consultation for the mobile source emission budgets included in this SIP.

The Policy Committee provides guidance and control over studies and recommendations developed by support staff. Voting members of the policy committee are listed below.

- FNSB Mayor;
- City of Fairbanks Mayor;
- City of North Pole Mayor;
- ADOT/PF Northern Region Director;
- FNSB Assembly representative;
- City of Fairbanks Council representative;
- DEC Director of Air Quality.

The Technical Committee and member support staff analyze transportation and land use issues and develop draft recommendations for the policy committee. Voting members include the representatives from the following agencies, organizations, and groups.

- City of Fairbanks (Engineering) (x2)
- City of North Pole
- Fairbanks North Star Borough (Planning)
- Fairbanks North Star Borough (Transportation)
- Fairbanks North Star Borough Planning Commission
- State of Alaska Department of Transportation & Public Facilities (Planning)
- State of Alaska Department of Transportation & Public Facilities (Preconstruction)
- State of Alaska Department of Environmental Conservation (Air Quality)
- Fort Wainwright (Planning)
- University of Alaska Fairbanks (Design and Construction)
- Fairbanks International Airport
- Freight Industry
- Alaska Railroad Corporation
- Tribal Group

Successful planning and implementation regarding some components of this plan requires coordination between air quality and transportation planning agencies in the community and outside the community. This coordination was ensured through consultation with the FAST Planning Technical and Policy Committees, as well as monthly status meetings with FHWA and EPA, during plan development. Future planning and implementation will continue with coordination between air quality and transportation planning agencies.

### 7.2.12 Plan Development Process

#### Overview

Developing an air quality plan to address fine particulate matter is a multi-step process. The goal is to develop a plan that addresses the problem, reflects the local situation, and has controls that are the best available control measures and best available control technology in accordance with the PM<sub>2.5</sub> Implementation Rule for a Serious area classification. Planning steps include:

- Characterizing the air pollution problem using technical tools and analyzing data. This step includes:
  - Monitoring Studies
  - Assessing Emissions
  - Modeling Impacts
- Evaluating options to reduce air pollution and develop the plan. The Clean Air Act requires emission reductions that are permanent and enforceable.
  - Identify and evaluate programs that can reduce pollutant emissions
  - Adopt BACM and BACT
  - Model attainment demonstration, show RFP and QMs
  - Develop regulations to ensure permanent reductions.

- Develop contingency measures that will be triggered if the nonattainment area fails to meet the RFP requirement, the QM in the plan or attainment of the PM<sub>2.5</sub> by attainment date
- Adopting the local plan into state regulations and transmitting it to EPA for approval.
  - The state writes the regulations and provides additional opportunities for public notice, comment, and hearing
  - Once the state regulatory process is complete, DEC transmits the plan to EPA for approval
- EPA taking action on the plan to make it federally enforceable.
  - EPA reviews the plan to ensure it is complete and meets all requirements of the Clean Air Act
  - EPA issues a federal register notice of their action, takes public comment, and finalizes their decision

DEC, FNSB, and EPA Region 10 worked cooperatively on the SIP for the nonattainment area to address the CAA requirements. The objective of this early and ongoing dialogue was to help ensure the development of a SIP that meets federal requirements and can be processed efficiently by EPA. Early consultation and coordination assists in identifying and addressing issues that could result in delays or deficiencies later in the SIP development and EPA approval process.

### 7.2.13 Air Quality Goals and Objectives

Important to any air quality planning effort are overarching goals and objectives. The goals and objectives provide not only the basis on which the plan is developed, but also direction for future policy decisions that may affect local air quality. The goals and objectives must reflect the intent of the CAA but should also reflect the values, views, and desires of Fairbanks' citizens and elected officials. The goals and objectives need to integrate land use, air quality, energy and transportation planning concerns to provide meaningful future air quality benefits for Fairbanks' citizens. Initially the air quality goals and objectives were borrowed from the carbon monoxide air quality plan for consistency and then, where applicable, adjusted specifically for PM<sub>2.5</sub>.

#### Primary Goals and Objectives

Primary goals and objectives are defined as those related to the attainment and maintenance of NAAQS throughout the Borough. Primary goals include the following:

- Attaining the PM<sub>2.5</sub> NAAQS within the entire Fairbanks North Star Borough.
- Prevention of any significant deterioration of air quality within the portions of the Fairbanks North Star Borough that are designated as attainment.

Primary objectives are as follows:

- Development and implementation of long-term control measures that will lead to continued attainment of the NAAQS for PM<sub>2.5</sub> in Fairbanks.

### Community Goals and Objectives

In addition to the primary goals, there are community goals that must be considered and striven for during development and implementation of the air quality plan. These goals include the following:

- Protecting the health of all FNSB citizens from the harmful effects of elevated ambient concentrations of PM<sub>2.5</sub>.
- Establishing an effective public information and comment program to ensure that FNSB citizens have the opportunity to take an active role in the development of the plan.
- Minimizing the negative regulatory and economic impact of air pollution control measures on FNSB citizens and businesses.
- Achieving both healthy winter air and affordable heating for local homes and businesses.
- Supporting the maintenance of an efficient local transportation system that accommodates public needs, has a variety of transportation modes, and aids in the achievement of the goals and objectives of the air quality plan.

In order to address the community goals listed above, the following efforts were undertaken to support the development of the air quality plan:

- Technical studies and assessments to characterize the extent of the PM<sub>2.5</sub> pollution and the sources contributing to degraded air quality.
- An assessment of benefits that would result from each control measure considered.
- An assessment of how each control measure would integrate with other potential control measures.
- An active outreach program to ensure that local citizens are provided with information on the air pollution problem, how the plan was developed, what control measures are contained in the plan, and how the measures will affect them. The outreach program also ensured that citizens had the opportunity to provide comments on the plan prior to its submittal to EPA.

#### 7.2.14 Public Participation Process

Section 110(a) of the CAA requires that a state provide reasonable notice and public hearings of SIP revisions prior to their adoption and transmittal to EPA. To ensure that the public had adequate opportunity to comment on the revisions to the Fairbanks air quality attainment plan, a multi-phase process for ensuring public involvement was used.

On March 22, 2018, preliminary drafts of the following documents were released for public review along with a request for additional information; Draft Baseline Emission Inventory, Draft Technical Analysis Protocol, Draft Precursor Demonstrations, Draft Best Available Control Technology (BACT) Analysis – Stationary Sources, and Draft Best Available Control Measure (BACM) Analysis. These documents were posted online along with summaries. A press release was also issued to assist in notifying the public. Any additional information, to assist in finalizing the documents, were requested to be submitted by May 23, 2018. On April 3, 2018 a public presentation was given on the draft documents to a joint meeting of the Fairbanks North

Star Borough Assembly, City Councils of the City of Fairbanks and the City of North Pole, including their mayors, military leadership, and the FNSB Air Pollution Control Commission. This presentation was also posted with the preliminary draft documents.

An outcome of the release of the preliminary draft documents was the formation of the Air Quality Stakeholder Group. On May 9, 2018, a joint press release from, Fairbanks Economic Development Corporation (FEDC), FNSB, Downtown Association-Fairbanks, City of Fairbanks, North Pole Community Chamber of Commerce, City of North Pole, and Explore Fairbanks Alaska announced the formation of the Stakeholder group with a call for nominations. The 33 designated seats represented a broad cross-section of the community. Categories of Stakeholder seats included: community members, military representatives, point source representatives, solid fuel suppliers, industry representatives, and Non-Governmental Organizations (NGOs). A complete list of Stakeholder seats and selected stakeholders can be found in the final report which is provided in Appendix III.D.7.2.

A public call for applications was open from May 9, 2018 through May 16, 2018. FNSB, DEC, and EPA employees directly involved with any aspect of the air quality program were precluded from participating in a voting capacity, as were elected officials and members of FNSB's Air Pollution Control Commission (APCC). Criteria for each Stakeholder seat was identified to ensure broad representation. Full details regarding the Stakeholder selection process can be found in the stakeholder selection process document provided in Appendix III.D.7.2, and the criteria for each individual seat can be found in the Stakeholders Group list of available seats document provided in Appendix III.D.7.2. Applicants for each individual Stakeholder seat were first screened to determine if they met applicable criteria for the specific seat being sought. After screening applicants were selected by a panel, which consisted of Jim Dodson (FEDC), Mayor Kassel (FNSB), Mayor Matherly (City of Fairbanks) and Mayor Ward (City of North Pole). A total of three press releases were issued in an effort to fill all the seats. The press releases may be found in the Appendix for this section.

The first Stakeholders meeting was held in June 2018 during which the group adopted the following mission statement:

*The Stakeholder Group's objective is to identify, evaluate and recommend community-based solutions to bring the area into compliance with federal air quality standards for fine particulates (PM<sub>2.5</sub>).*

The Fairbanks AQ Stakeholder Group met five additional times through November of 2018 for a total of six meetings. Full group meetings typically lasted eight hours. Additionally, eight smaller working groups were created to delve into further detail on issues and make recommendations to the full group. All meetings of the Stakeholder Group and Work Groups were publically noticed and teleconferenced or web streamed. The final report provided in Appendix III.D.7.2 gives a brief summary of each monthly meeting. Full meeting summaries are provided in Appendix III.D.7.2. Copies of meeting summaries, work group notes, presentations and background material are available on the FNSB Air Quality website at:

<http://fnsb.us/transportation/Pages/stakeholders.aspx>

Each individual control measure identified in the preliminary draft document was first reviewed in smaller working groups where a majority vote was required to bring the control measure in front of the whole Stakeholder group. Stakeholders were also encouraged to develop new control measures that could meet the SIP requirement of being enforceable, not voluntary, and leading to permanent emission reductions. Once in front of the entire group a control measure required a two thirds majority to be included in the final recommendation package. During the September, October, and November meetings two iterations of recommendations were identified. For each iteration the emission reductions were quantified and modeled to gauge progress toward attainment of the standard.

Voting for the final recommendation package occurred during the November meeting with a goal of reaching consensus, defined as the total number of individual voting stakeholders in attendance minus one. In the event the Stakeholders Group could not reach consensus, a two thirds majority of Stakeholders in attendance was required and a dissenting opinion would be noted and included as part of the final recommendations. Consensus on the final recommendation package was not reached. The final recommendations passed by 93 percent of those present and voted. A dissenting opinion was not received. The final report is provided in Appendix III.D.7.2. The final report contains a list of control measures that were rejected by the Stakeholders Group, as well as the recommendations.

The final report was provided to EPA, DEC, and FNSB. On January 3, 2019 John Davies (Stakeholders Group spokesman), Jana Pierce (Stakeholders Group facilitator), and Nick Czarnecki (FNSB Air Quality Manager) presented the group's final recommendations to a joint meeting of the FNSB Assembly and the APCC.

During development of the control strategies DEC relied on the final stakeholder report, incorporating recommendations and making adjustments when needed and appropriate to reflect State authorities, capacity, and resources. Some recommendations were not included because they were not regulatory in nature, and therefore not permanent and enforceable. DEC also lacked the capability to implement other recommendations. It should be noted that the proposed recommendations by the Stakeholder group did not include enough reductions to be able to model attainment in the area. Therefore, DEC was required to add additional measures, including measures that the Stakeholder group did not have in their final recommendation. A discussion of the proposed control measures along with a summary and crosswalk table are provided in Section III.D.7.7.4.4.

During the development of the Serious SIP, regular interagency teleconferences occurred with EPA. FHWA and FTA were also invited and participated periodically especially when discussions focused on the Motor Vehicle Emissions Budget (MVEB) and conformity. FAST Planning and the Alaska Department of Transportation were also invited to participate in the MVEB and conformity discussions. The last interagency consultation on the MVEB was on April 11, 2019.

[This section will be updated with additional description of the public participation process after close of public comment]

The final opportunity for public involvement occurs at the state administrative level. Prior to regulatory adoption of these SIP revisions, DEC held a public comment period on the revisions from [insert date] through [insert date] including public hearings in Fairbanks on [insert date] and [insert date]. This provided another forum for the public to comment on the air quality plan prior to its adoption at the state level and submission to EPA.