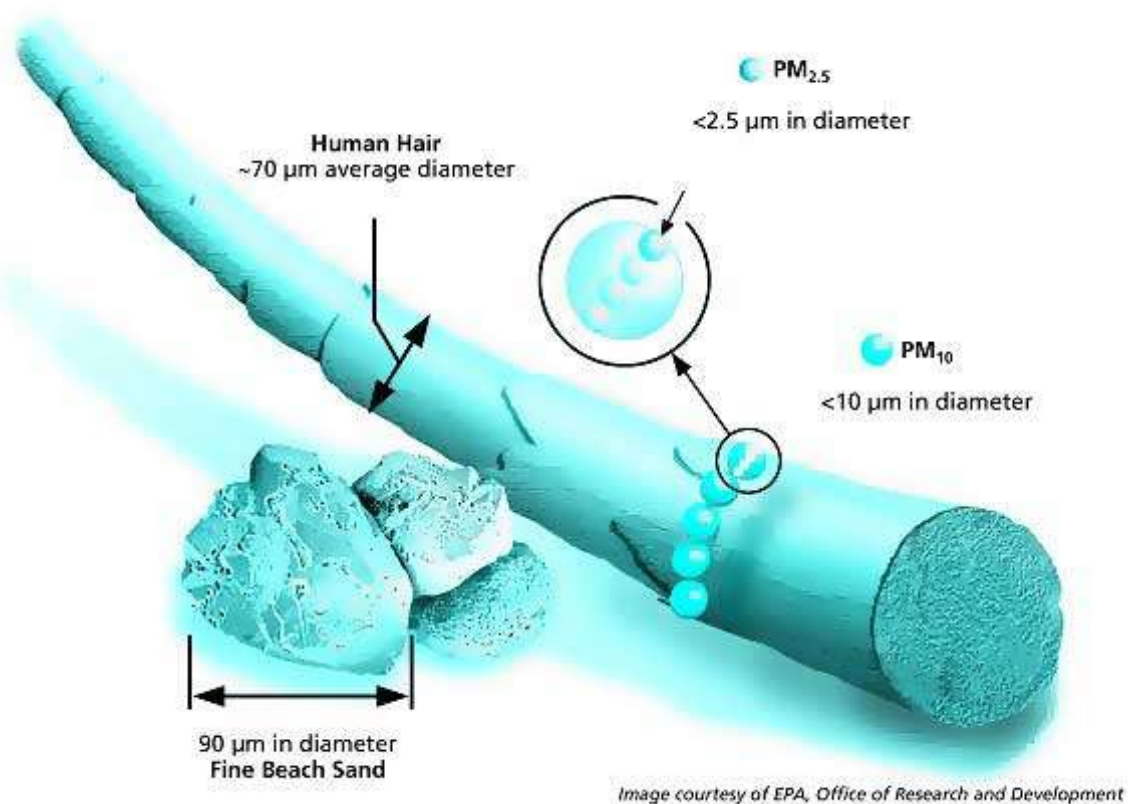


## 5.2. Background and Overview of PM<sub>2.5</sub> Rule

### 5.2.1 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 5.2.-1. Particle Size Comparison**

### 5.2.2 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>

### 5.2.3 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>

## 5.2.4 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 5.2.-1**

EPA Fine Particulate Matter NAAQS Revisions		
Year	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>

## 5.2.5 Non-Attainment Designation

### 5.2.5.1 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 Clean Air Act air quality requirements for coarse particulate matter  $PM_{10}$ , though both of the areas are now attaining the  $PM_{10}$  NAAQS and in maintenance status.

Alaska had been in compliance with the  $PM_{2.5}$  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  $PM_{2.5}$  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  $PM_{2.5}$  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 Clean Air Act 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  $PM_{2.5}$  pollution so that this air quality plan could be developed to control and reduce particulate matter emissions.

### 5.2.6 Fairbanks $PM_{2.5}$ Non-Attainment Designation

In developing non-attainment area recommendations for the 2006  $PM_{2.5}$  NAAQS, the Alaska Department of Environment 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  $35\mu\text{g}/\text{m}^3$ . The three year calculated average (2006-2008) for Fairbanks was  $43\mu\text{g}/\text{m}^3$  and the Mendenhall Valley in Juneau was exactly at  $35\mu\text{g}/\text{m}^3$ . Fairbanks exceeds the standard during winter months. All of the communities showed attainment for the annual exposure limit of  $15\mu\text{g}/\text{m}^3$ . DEC in consultation with local governments followed the nine factor analysis approach set out in EPA guidance and developed a proposed boundary for the  $PM_{2.5}$  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  $PM_{2.5}$  NAAQS. The letter was an initial designation recommendation by the State of Alaska in accordance with the requirements of Section 107(d)(A) of Clean Air Act.

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  $PM_{2.5}$  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\\_AK.htm](http://dec.alaska.gov/air/PM2-5_AK.htm).

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.

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

The SIP is developed and implemented by states in accordance with the CAA, which is enforced through the EPA. The SIP contains narrative overviews, background information, control strategies, technical data, data analyses and implementation plans for complying with CAA requirements. Alaska's Air Quality Control Plan consists of required SIPs for Alaska which is incorporated by reference into state regulations at 18 AAC 50.030.

For Fairbanks, the Fairbanks North Star Borough (FNSB) is delegated air quality planning authority. The Borough develops and submits their local air quality plans to the DEC for adoption and inclusion in the SIP. This PM<sub>2.5</sub> plan describes how the State of Alaska in collaboration with other agencies will meet the federal requirements to control and reduce PM<sub>2.5</sub> pollution in the FNSB non-attainment area. This plan contains the selected control strategies executed or planned by the state and the FNSB. The PM<sub>2.5</sub> plan describes how the State of Alaska will identify and implement air pollution control measures to achieve lower emissions of fine particulate matter (PM<sub>2.5</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), volatile organic compounds (VOCs) and ammonia (NH<sub>3</sub>) which also can contribute to the PM<sub>2.5</sub> pollution. The

plan also describes how the State and FNSB will work to educate the community on using safer and more efficient home heating units.

### 5.2.8 State Implementation Plan (SIP) Due Date

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 is due to the EPA by December 31, 2014. Under the new subpart 4 'Moderate' area designation, the SIP must demonstrate using air quality modeling that attainment is possible or impracticable by December 31<sup>st</sup>, 2015.

### 5.2.9 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 area is December 31, 2015.

If the area does not attain the NAAQS by 2015, the area's nonattainment classification will change from 'Moderate' to 'Serious' by operation of law.<sup>8</sup> For serious areas, under Subpart 4

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<sup>8</sup> Clean Air Act Section 188(b)(2)

provisions, an attainment date shall be no later than 10 years from the original designation date. A new ‘Serious’ SIP must be developed to demonstrate attainment by December 3, 2019.<sup>9</sup>

### 5.10 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 CAAA (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.” 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.

### 5.11 Fairbanks Metropolitan Area Transportation Systems 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. The FMATS is an ongoing cooperative and comprehensive planning effort between the ADEC, FNSB, Cities of Fairbanks and North Pole and ADOT/PF. It is responsible for developing three primary planning or programming activities which include the FMATS Metropolitan Transportation Plan, Transportation Improvement Program and FMATS Unified Planning work Program. The FMATS structure consists of two-tiered committee system that reviews all transportation planning efforts within the area. FMATS 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 FMATS 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;

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

- 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 FMATS Technical Committee and member support staff analyze transportation and land use issues and develop draft recommendations for the policy committee. Voting members include the following.

- City of Fairbanks Engineer;
- City of Fairbanks Public Works Director;
- City of North Pole Public Works Director;
- FNSB Planning Director;
- FNSB Transit Director;
- FNSB Planning Commission;
- ADOT/PF Planning Manager;
- DEC Air Quality;
- Fort Wainwright;
- University of Alaska Fairbanks;
- Fairbanks International Airport;
- Freight Carriers;
- Alaska Railroad;
- Tanana Chiefs Conference.

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 FMATS 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.

#### Fairbanks North Star Borough Organization and Authority

The FNSB has been designated by the State as the local air quality planning agency and takes the lead in developing air quality plans for the local area. FNSB is the planning agency that coordinates transportation related air quality planning with the MPO and FHWA, and development of the air quality plan with the DEC and EPA.

The FNSB has operated a local air pollution control program since 1972, first through its Environmental Services Division/Department and now through the Department of Transportation. Much of the FNSB's early efforts were concerned with establishing an ambient air monitoring network and enforcing its regulations concerning open burning, visible emissions, and dust control. FNSB past air quality efforts were centered on air quality planning and finding



ways to reduce ambient carbon monoxide (CO) concentrations. The Borough has historically relied on DEC to control large stationary emission sources within the FNSB. In January 2010, the FNSB and DEC signed an updated Memorandum of Understanding that allowed the Borough to take the lead for developing a SIP to address PM<sub>2.5</sub> air pollution, which has resulted in the development of this attainment plan.

The FNSB has an Air Pollution Control Commission that provides recommendations to the assembly regarding air quality issues. This Commission was established by Borough ordinance under Chapter 2.48 to develop comprehensive plans for the prevention, abatement, and control of air pollution in the borough. The commission consists of seven voting members and is up for reauthorization every six years, by ordinance. This commission was reauthorized in 2012.

The legal authority for establishing local air pollution control programs is found in Alaska Statutes 46.14.400, Local Air Pollution Control Programs (see Appendix to Section II). The FNSB air pollution control regulations are contained in Chapter 8 of the Code of Ordinances. A copy of these regulations may be found in Appendix III.D.5.12.

## 5.12 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 reasonable and cost effective. 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.
  - Develop regulations and ordinances to ensure permanent reductions.
  - Consider voluntary measures that can assist in mitigating pollution.
  - Draft the local air quality plan and have it reviewed by the public and Borough Assembly.
- Adopting the local plan into state regulations and transmitting it to EPA for approval.
  - The state incorporates the local plan into the SIP through regulation providing 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 insure 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.

### 5.13 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 the Borough Assembly for approval.

## 5.14 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.

Briefings were held with FMATS members during the Policy and Technical Committees' regularly scheduled meetings, and input was solicited regarding the suggested content of the plan, particularly with respect to transportation related measures and the motor vehicle emission budget. All FMATS meetings are public meetings and advertised in the local daily newspaper. Local citizens are invited to attend and participate in discussions during the meetings. Staff thus attempted to involve local residents well in advance of actual plan development, to ensure that public input was incorporated into the air quality planning process in a timely manner.

Regular briefings were held with the FNSB Air Pollution Control Commission during the plan development. The Commission's meetings are open to the public and advertised to the community. Regular briefings were also held at FNSB Assembly Committee of the Whole work sessions to brief the Assembly members on the development of the plan and discuss control options. There is an opportunity for public participation in the air quality planning process at the FNSB Assembly level, during public testimony on air quality regulatory changes (i.e., revisions to the solid fuel change-out program). By allowing public testimony prior to Assembly debate, this process ensures that citizens have a chance to comment directly to locally elected officials prior to their consideration of regulatory changes. A similar process was available to the public to comment on changes incorporated into this plan. All FNSB Assembly briefings were posted on the DEC website for easy reference and were available during the SIP development and public review process.

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 November 17, 2014 through December 19, 2014 including public hearings in Fairbanks, Anchorage, and Juneau on December 3, 2014 and December 17, 2014. 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.