Fairbanks North Star Borough Air Quality: Serious Implementation Plan (SIP)

Discussion with:
Greater Fairbanks Chamber of Commerce

Jason Brune, DEC Commissioner
May 14, 2019
Overview

- What is PM2.5 and Why Are We Here?
- Current Air Quality Trends
- When can the area attain?
- Key Goals and Elements of SIP
- Summary of Control Measures
- Public Review Timeline
- How to Comment
Particulate Matter: What is it?

A complex mixture of extremely small particles and liquid droplets.

Human Hair (70 µm diameter)

Hair cross section (70 µm)

PM$_{10}$ (10 µm)

PM$_{2.5}$ (2.5 µm)

Source: M. Lipsett, California Office of Environmental Health Hazard Assessment
Fine Particles Can Be Emitted Directly or Formed in the Air from Gases
Public Health Risks Are Significant

Particles are linked to:

- Premature death from heart and lung disease
- Aggravation of heart and lung diseases
  - Hospital admissions
  - Doctor and ER visits
  - Medication use
  - School and work absences
- And possibly to
  - Lung cancer deaths
  - Infant mortality
  - Developmental problems in children, such as low birth weight
- Some groups are more at risk:
  - People with heart or lung disease
  - Older adults
  - Children
Fairbanks North Star Borough PM2.5 Nonattainment
Where are we at?

- Serious nonattainment area
  - Public health concerns
    - Goal is to have healthy air to breathe
  - Federal planning requirements
    - Initial control plan is being implemented
    - Reclassification to Serious area means a new plan must be developed
    - Sanctions are imposed for state failure to act
  - Serious plan requires more controls to bring area into compliance
What Happens if We Don’t Take Action?

Do Not Submit A SIP

- EPA will file a “Failure to Submit”
- Sanction clock started
- 18 months later sanctions in effect
- Federal Implementation Plan start soon after

Federal Plan

Submit SIP

Incomplete/Inadequate

- EPA identifies inadequacies
- Sanction clock started
- 18 months to update Serious SIP for deficiencies

State Plan

Complete/Adequate

- EPA has 6 months to determine completeness
- EPA begins process to approve SIP
- Committed measures in SIP implemented
Progress is Being Made - Air Monitoring Trend

PM$_{2.5}$ 24-hr Design Values

Fairbanks State Office Building, Fairbanks NCORE & North Pole Hurst Road

- North Pole - Hurst Road
  (Monitoring Began in March 2012)

- 1997 24-hr NAAQS (65 ug/m$^3$)
  (NAAQS Changed from 65 to 35 ug/m$^3$ in 2006)

- 2006 NAAQS (35 ug/m$^3$)

- Monitoring Began in November 2009

Alaska Department of Environmental Conservation | Division of Air Quality | http://dec.alaska.gov/air/
**Current Air Quality**

- Air monitoring trends show great improvement
- More pollution reduction needed to reach a Design Value of 35 micrograms per cubic meter (ug/m³) across the entire area

<table>
<thead>
<tr>
<th>Air Monitoring Site</th>
<th>Year:</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Office Building</td>
<td>3-Year Design Value</td>
<td>46</td>
<td>41</td>
<td>40</td>
<td>35</td>
<td>37</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Ncore</td>
<td>3-Year Design Value</td>
<td>45</td>
<td>40</td>
<td>39</td>
<td>35</td>
<td>33</td>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>North Pole Hurst Rd</td>
<td>3-Year Design Value</td>
<td>139</td>
<td>124</td>
<td>106</td>
<td>85</td>
<td>65</td>
<td></td>
<td></td>
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</table>
When can the area attain the PM2.5 standard?

- Serious Plan cannot demonstrate attainment in 2019
- Plan shows that the area will realistically be able to reach attainment in the timeframe between 2024 and 2029.
Key Goals and Elements of the Serious SIP

- Show how the area can reach attainment
- Continue to allow the use of solid fuel fired devices
- Limit the impact on large industrial sources as they are not the main contributors of the problem
- Meet the EPA completeness criteria for a SIP (avoid sanction)
- Meet the Best Available Control Measure (BACM) and Best Available Control Technology (BACT) Requirements
  - Are proposed controls technically and economically feasible?
- Position the SIP and control measures for transition to a 5% Plan, the next SIP update needed
Summary of Control Measures

• Proposed control measures build off existing/continuing controls and Stakeholder recommendations
  • Required to look at measures from across the nation
  • Timing of proposed controls varies to allow time to prepare and plan
  • Seeking comment on controls including timing, technical and economic impacts

• Suite of updated requirements related to solid fuel heating devices
  • New stove standards (cleaner burning), change-out requirements, dry wood sales, stove registration for certain programs
  • 2-Stage solid fuel burning curtailments remain in place with new thresholds and an updated waiver program.
  • Retrofit Electrostatic Precipitators (ESPs) are not mandated but are included as a technology that needs more study
Summary of Control Measures (cont)

• Proposing a switch to Diesel #1 for space heating in the nonattainment area in 2020

• Small commercial sources
  • Charbroilers, incinerators, used oil burners – Will request information
  • Coffee roasters – Control or show technical/economic infeasibility within one year

• Individual BACT determinations for large industrial sources
## Proposed BACT Determination Highlights

### Highlights of BACT Controls by Pollutant

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Aurora</th>
<th>Fort Wainwright</th>
<th>GVEA North Pole</th>
<th>GVEA Zehnder</th>
<th>UAF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fine Particulate Matter (PM.25) – Direct</strong></td>
<td>Existing No new control</td>
<td>Existing No new control</td>
<td>Existing No new control</td>
<td>Existing No new control</td>
<td>Existing No new control</td>
</tr>
<tr>
<td><strong>Volatile Organic Compounds (VOC)s</strong></td>
<td>Existing No new control</td>
<td>Existing No new control</td>
<td>Existing No new control</td>
<td>Existing No new control</td>
<td>Existing No new control</td>
</tr>
<tr>
<td><strong>Nitrogen Oxides (NOx)</strong></td>
<td>No new control Precursor Determination</td>
<td>No new control Precursor Determination</td>
<td>No new control Precursor Determination</td>
<td>No new control Precursor Determination</td>
<td>No new control Precursor Determination</td>
</tr>
<tr>
<td><strong>Ammonia (NH3)</strong></td>
<td>No controls available</td>
<td>No controls available</td>
<td>No controls available</td>
<td>No controls available</td>
<td>No controls available</td>
</tr>
<tr>
<td><strong>Sulfur Dioxide (SO2)</strong></td>
<td>Economically infeasible</td>
<td>NEPA process to determine either SO2 control on existing facility or replace facility</td>
<td>Short-term: fuel switch to Diesel #1 during curtailments</td>
<td>Long-term: ULSD or Natural Gas once decision on utilization of Healy 1 &amp; Healy 2 finalized around 2022.</td>
<td>Economically infeasible, fuel switch to ULSD in emergency generators</td>
</tr>
</tbody>
</table>
Serious SIP Available for Public Review & Comment

- May 14 - Start public comment period
- May 16 - Presentation to FNSB Assembly
  - 5:30 PM
- June 25 - Open House at Westmark Hotel
  - 6-8 PM
- June 26 – Hearings at FNSB Assembly Chambers
  - 12- 1:30 PM and 5-8 PM
- July 26 – End comment period
How to Comment

- DEC wants your feedback
  - Comments are important to finalizing the plan
- Several ways to submit comments:
  - Electronically - online form
  - Email
  - Mail
  - Public Hearing
- Handout with details on how to comment is provided in the back of the room.
Questions?

Thank You!