Moving Forward
the challenges to attaining clean air

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Outline

- There’s No Easy Path
  - EPA’s role
  - Health effects
  - Magnitude of the Fairbanks Problem

- Local Solutions Preferred
  - Cleaner Sources of heat
  - Curtailment Programs

- It’s (past) time to get serious.
EPA’s Role in Fairbanks

- EPA’s role in general:
  - Set health-based standards: the National Ambient Air Quality Standards
  - Assure those standards are attained
- EPA’s role in Fairbanks is no different.
- EPA’s approach: support the community, Borough and the State in achieving clean air:
  - Sharing Successes
  - Technical Support
  - Funding Support
Health Effects of PM$_{2.5}$
1. Particulate matter enters the body through the nose and mouth when we breathe.

2. The body eliminates most of the larger particles we inhale. Smaller particles like PM2.5 continue to the lungs.

3. PM2.5 can penetrate deep into the lungs, having serious health consequences for the lungs and heart.

Source: Utah Department of Health
http://www.health.utah.gov/utahair/pollutants/PM/
WHAT ARE THE HEALTH RISKS OF PARTICULATE MATTER?

Particulate matter poses a serious health risk because it can travel into the respiratory tract. PM2.5 is especially dangerous because it can penetrate deep into the lungs and sometimes even into the bloodstream.

HEALTH EFFECTS

» Decreased lung function
» Chronic bronchitis
» Increased respiratory symptoms
» Cardiac arrhythmias (heartbeat irregularities)
» Heart attacks
» Premature death

GROUPS SENSITIVE TO PM2.5

» People with heart or lung disease
» Children
» Pregnant women
» Older adults

Source: www.epa.gov
Magnitude of Fairbanks Air quality problem: PM$_{2.5}$ Design Values in μg/m$^3$

<table>
<thead>
<tr>
<th>Top PM$_{2.5}$ Nonattainment Areas in US</th>
<th>24-hr PM$_{2.5}$ Design Value (2015-17) μg/m$^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairbanks / North Pole, AK</td>
<td>85</td>
</tr>
<tr>
<td>San Joaquin Valley, CA</td>
<td>72</td>
</tr>
<tr>
<td>Oakridge, OR*</td>
<td>46</td>
</tr>
<tr>
<td>Los Angeles-South Coast, CA</td>
<td>39</td>
</tr>
<tr>
<td>Liberty-Clairton, PA</td>
<td>37</td>
</tr>
<tr>
<td>Salt Lake City, UT</td>
<td>37</td>
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</tbody>
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Fairbanks/North Pole 24-hr PM$_{2.5}$ DVs are decreasing:

2015 - 124 μg/m$^3$
2017 - 85 μg/m$^3$

Needs meet 35 μg/m$^3$ standard by December 2019!

* The Oakridge area experienced extensive wildfires in 2017
Magnitude of the Problem, Hot Spots
How do we Solve the Air Quality Problem?
Local solutions work best

- What works: local stakeholders working with the local government and engaging the entire community.

- This approach has been successful before:
  - Tacoma, Washington
  - Klamath Falls and Oakridge, Oregon
  - West Silver Valley, Idaho

- The Clean Air Act requires a plan that shows how this community will attain the PM$_{2.5}$ standard.

- The plan must address how to reduce emissions from all sources. These are known as control measures.
What control measures work best

- This depends on the sources of pollution contributing to violations of the standard.

- How do we learn which sources contribute the most pollution?
  - Emission Inventories
  - Speciation Source Apportionment

- Assessing all available information, wood smoke contributes about 75% (range of 65-85%) of the Borough’s PM$_{2.5}$. 
Existing Wood-smoke Control Measures

- Wood smoke is the primary nonattainment driver and measures to reduce wood smoke must be adopted.

- The Borough has adopted and is implementing a Curtailment Program that is an important part of the solution.

- Because Fairbanks have moved from moderate to serious nonattainment, more stringent control measures are now required.
Curtailment Programs

...an essential tool for achieving attainment.

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<tr>
<th>Region 10 PM$_{2.5}$ Nonattainment / Maintenance Areas</th>
<th>Mandatory Curtailment Program</th>
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<tbody>
<tr>
<td>Tacoma, WA</td>
<td>Yes</td>
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<tr>
<td>Oakridge, OR</td>
<td>Yes</td>
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<tr>
<td>Klamath Falls, OR</td>
<td>Yes</td>
</tr>
<tr>
<td>Cache Valley, ID</td>
<td>Yes</td>
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<tr>
<td>Fairbanks, AK</td>
<td>Yes</td>
</tr>
<tr>
<td>Salt Lake City / Provo, UT</td>
<td>Yes</td>
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<tr>
<td>Logan, UT</td>
<td>Yes</td>
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</table>
Curtailment Programs are challenging, but they are instrumental in achieving Clean Air.

- Like many other state and local agencies, the ADEC and the FNSB depend on successful implementation of a curtailment program to achieve attainment.
- The EPA approved the FNSB curtailment program is part of the moderate area SIP and the EPA is obligated to ensure its successful implementation.
EPA is committed to local success, and we have funding to assist

- Ongoing “105” EPA grant funding (~$1.4 million to ADEC annually)
- Targeted Air Shed grant.
  - FY2016 – Awarded ~$2.5 million for woodstove changeouts and conversions
  - FY2017 – Awarded ~$4 million for conversions to liquid fuel
  - FY2018 – RFA for $40 million, Fairbanks eligible to apply for up to $10 million
- Special Purpose
  - FY16 PM$_{2.5}$ air quality monitoring grant funding
  - FY16 multipurpose air grant funding.
How did we get here?

Where are we headed?
Dec 14, 2009
Fairbanks is designated a “Moderate Nonattainment Area.”

Dec 31, 2015
Fairbanks moderate nonattainment area attainment date

Dec 16, 2016
EPA proposes to determine that Fairbanks, AK failed to attain the 2006 24-hour PM$_{2.5}$ NAAQS by the moderate area attainment date. (81 FR 91088)

Sept 8, 2017
EPA Region 10 finalizes approval of AK moderate area attainment plan. (82 FR 42457)
ADEC notified EPA of its intent to apply for an extension of the December 31, 2019 attainment date.

Fairbanks reclassified to “Serious Nonattainment Area” triggering the requirement of State Implementation Plan (SIP) that includes the best controls.

Serious SIP is due with Best Available Control Measures (BACM); Extension Request too—along with additional “Most Stringent Measures.” (MSM)
Ideally the area attains the standard no later than 2024, the maximum allowable extension date.

ADEC and the Borough will need to successfully implement and enforce the SIP, including the curtailment program, and demonstrate reasonable further progress toward meeting the standard.

EPA anticipates that it will receive and review Serious SIP and extension request in 2019.

Future (best case – approval) Scenario

Calendar Year 2019

Calendar Year 202X
<table>
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<tr>
<th>Future (worst case – disapproval) Scenario</th>
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<tr>
<td><strong>Calendar Year 2019</strong></td>
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<tr>
<td>EPA does not receive SIP in time or disapproves the SIP.</td>
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<td><strong>2019 + 18 months</strong></td>
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<td>18-months later, sanctions automatically begin requiring emission offsets of 2:1 for new or modified sources under new source review.</td>
</tr>
<tr>
<td><strong>2019 + 24 months</strong></td>
</tr>
<tr>
<td>24-months later, highway funding sanctions begin, cutting off federal highway dollars for the nonattainment area.</td>
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<td>In addition, EPA is obligated to promulgate a federal implementation plan (FIP).</td>
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Where are we Now?

- **Serious Area Attainment Plan**
  - The plan—formally known as the State Implementation Plan—is due at the end of the year, along with an extension request.

- The Clean Air Act now requires the “best available control measures.”

- And the Extension Request requires the “most stringent measures.”
EPA is committed to supporting the Borough and the State.

There is no easy path.

Progress continues and it’s time to pick up the pace.

Local and State decisions made the next few months will affect the next 10 years.