

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.



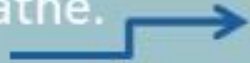
EPA's Role in Fairbanks

- ▶ 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 $PM_{2.5}$

HOW PARTICULATE MATTER ENTERS THE BODY

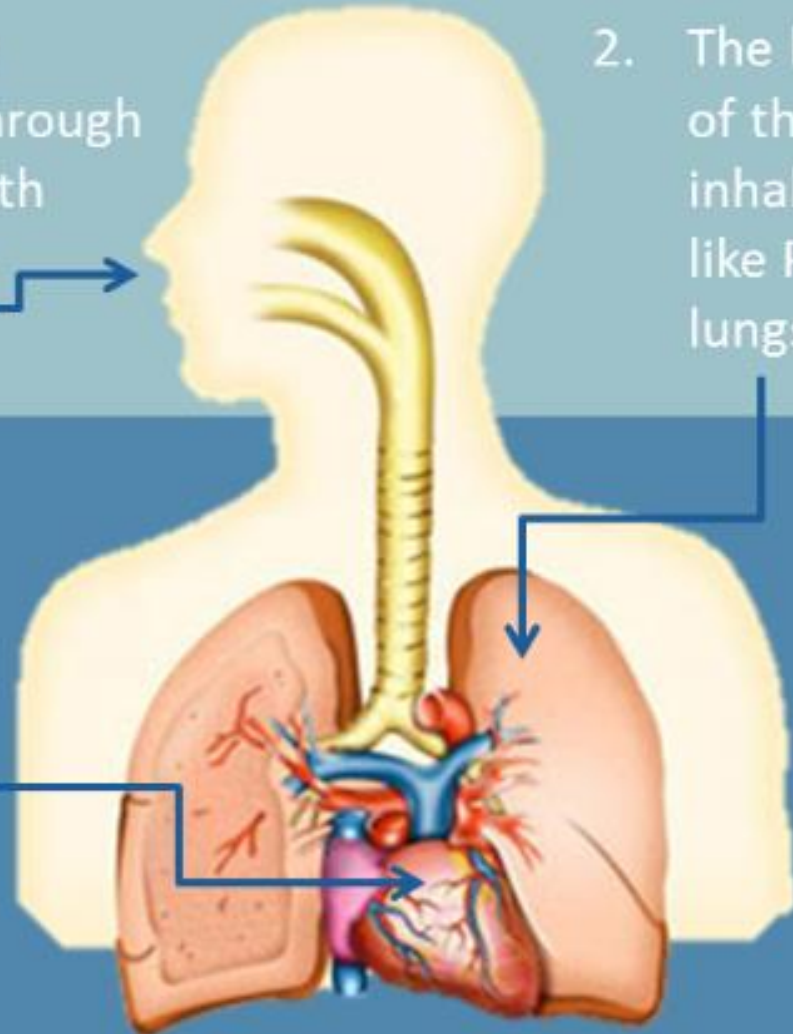
1. Particulate matter enters the body through the nose and mouth when we breathe.



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.



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.

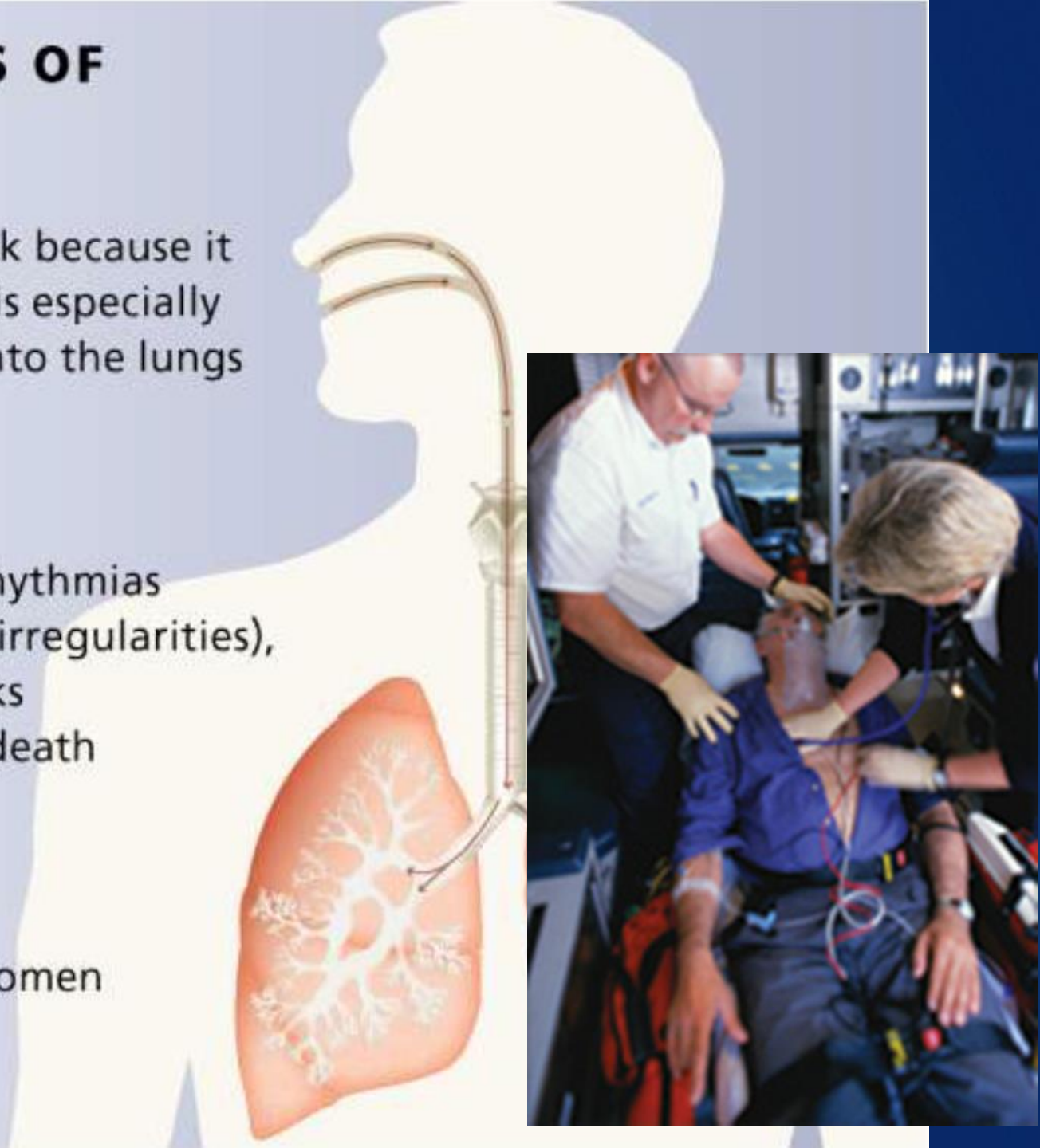
HEALTH EFFECTS

- » 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
- » Older adults
- » Children
- » Pregnant women

Source: www.epa.gov



Magnitude of Fairbanks Air quality problem: $PM_{2.5}$ Design Values in $\mu\text{g}/\text{m}^3$

Top $PM_{2.5}$ Nonattainment Areas in US	24-hr $PM_{2.5}$ Design Value (2015-17) $\mu\text{g}/\text{m}^3$
Fairbanks / North Pole, AK	85
San Joaquin Valley, CA	72
Oakridge, OR*	46
Los Angeles-South Coast, CA	39
Liberty-Clairton, PA	37
Salt Lake City, UT	37

Fairbanks/North Pole 24-hr $PM_{2.5}$ DVs are decreasing:

2015 - 124 $\mu\text{g}/\text{m}^3$



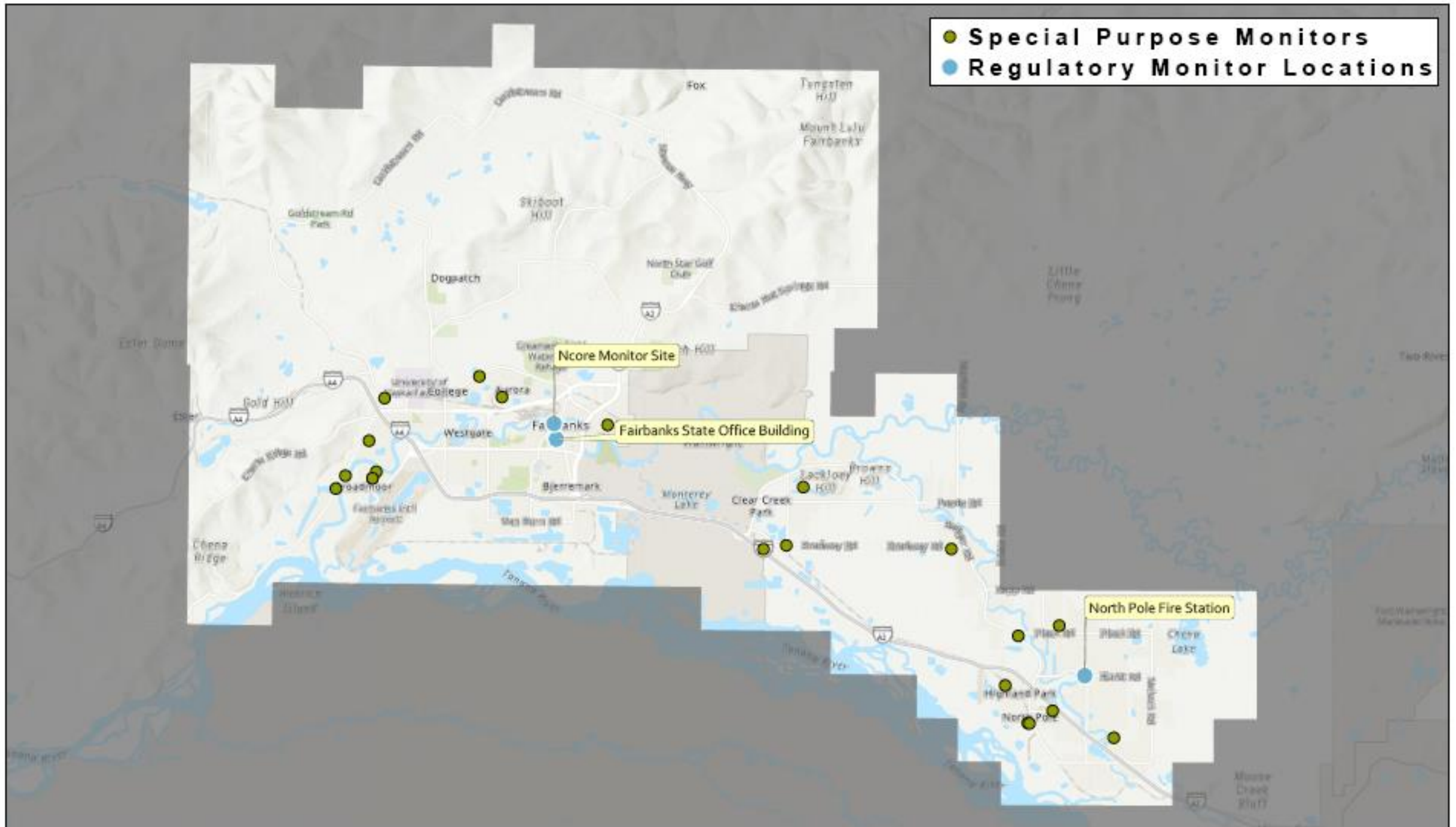
2017 - 85 $\mu\text{g}/\text{m}^3$

Needs meet 35 $\mu\text{g}/\text{m}^3$ standard by December 2019!

* The Oakridge area experienced extensive wildfires in 2017

Monitors in Fairbanks

- Special Purpose Monitors
- Regulatory Monitor Locations





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.

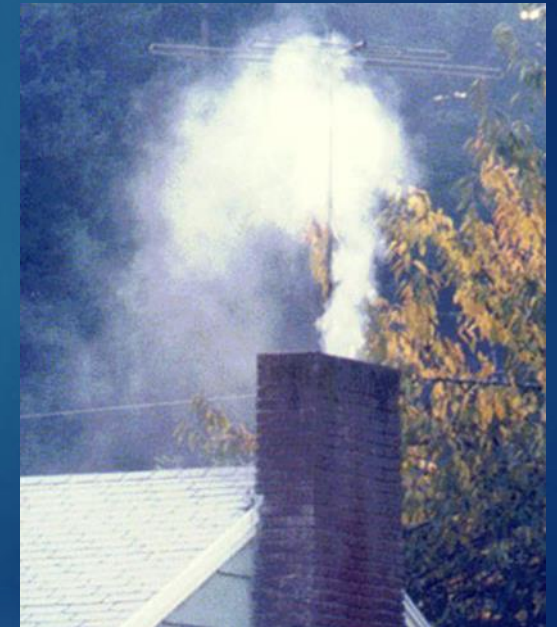
What control measures work best

- ▶ 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.

Region 10 PM _{2.5} Nonattainment / Maintenance Areas	Mandatory Curtailment Program
Tacoma, WA	Yes
Oakridge, OR	Yes
Klamath Falls, OR	Yes
Cache Valley, ID	Yes
Fairbanks, AK	Yes
Salt Lake City / Provo, UT	Yes
Logan, UT	Yes

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 ~\$2.5million 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?

Designation as a moderate nonattainment area and failure to attain

- 
- 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)

Serious Area Planning

June 9,
2017



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

Sep-Oct,
2017



ADEC notified EPA of its intent to apply for an extension of the December 31, 2019 attainment date.

Dec 9,
2018



Serious SIP is due with Best Available Control Measures (BACM); Extension Request too—along with additional “Most Stringent Measures.” (MSM)

Future (best case – approval) Scenario

Calendar
Year 2019



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

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.

Calendar
Year 202X



Ideally the area attains the standard no later than 2024, the maximum allowable extension date.

Future (worst case – disapproval) Scenario

Calendar
Year 2019



EPA does not receive SIP in time or disapproves the SIP.

2019 +
18 months



18-months later, sanctions automatically begin requiring emission offsets of 2:1 for new or modified sources under new source review.

2019 +
24 months



24-months later, highway funding sanctions begin, cutting off federal highway dollars for the nonattainment area.

In addition, EPA is obligated to promulgate a federal implementation plan (FIP).

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.”



Closing Thoughts

- ▶ 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.