Fairbanks Fine Particulate Matter Air Quality: Developing a Community Air Quality Plan

Discussion with: Fairbanks North Star Borough Air Pollution Control Commission

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Purpose of presentation

- Overview of SIP planning process
  - Background and requirements
  - Outcomes of last year's proposed regulations
- Overview of the proposed state regulations
- Overview of proposed air quality plan
- Next steps

Requirements for a Complete Moderate Area SIP

- A moderate area designation must meet all Federal Clean Air Act requirements
  - Must have enforceable measures not just voluntary compliance
  - Must have contingency measures
  - Must have an episode plan
  - Must either demonstrate attainment by 12/31/2015 or demonstrate why it is **impracticable** to attain by the attainment date
  - Must show that all reasonable measures both at stationary sources and within community are being used
  - Must meet all technical requirements (modeling)
  - Must be submitted by 12/31/2014

Impracticable SIP

- Plan out for public review does not demonstrate attainment by 2015
  - Plan shows attainment is possible by 2019

- Federal Rules allow submittal of an 'impracticable' SIP – but must provide reasons why community cannot meet 2015
  - Time needed to get natural gas into community
  - Challenging meteorological conditions (inversion strength, length, extremely cold temperatures)
  - Locally unacceptable control measures (burn bans)
    - Economic, safety and social concerns

Options and Consequences

Submit "Impracticable" SIP

Incomplete/Inadequate

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

Complete/Adequate

- EPA has 6 months to determine completeness
- EPA begins process to approve SIP
- Committed measurers in SIP implemented

Status and Outcomes of Last Year's Proposal

- Regulations Adopted
- Status of Adopted Regulations
- Regulations Not Adopted

2013 Proposed Regulations – Where are they now?

- DEC adopted only a subset of the proposed regulations:
  - wood fired heating device standards for new wood stoves with grandfathering of existing devices
    - **no requirement to change out an existing stove**
  - clarified roles of local air programs in calling air quality alerts and episodes
    - local program may only prescribe actions if they have ordinances allowing them to do so.
- Adopted regulations are currently in final legal review
- Must be filed by Lieutenant Governor before them become final and effective

2013 Proposed Regulations – Where are they now?

- DEC did not adopt:
  - Winter outdoor open burn restriction
  - Fuel requirements for solid fuel-fired heaters
  - Revision to operation of wood-fired heaters during air episodes
  - PM2.5 air quality episode levels as proposed

- DEC has re-proposed several regulations for additional review along with other new proposals

- Response to comments may be found on DEC website

Overview of Proposed Regulations

Proposed Regulations - Highlights

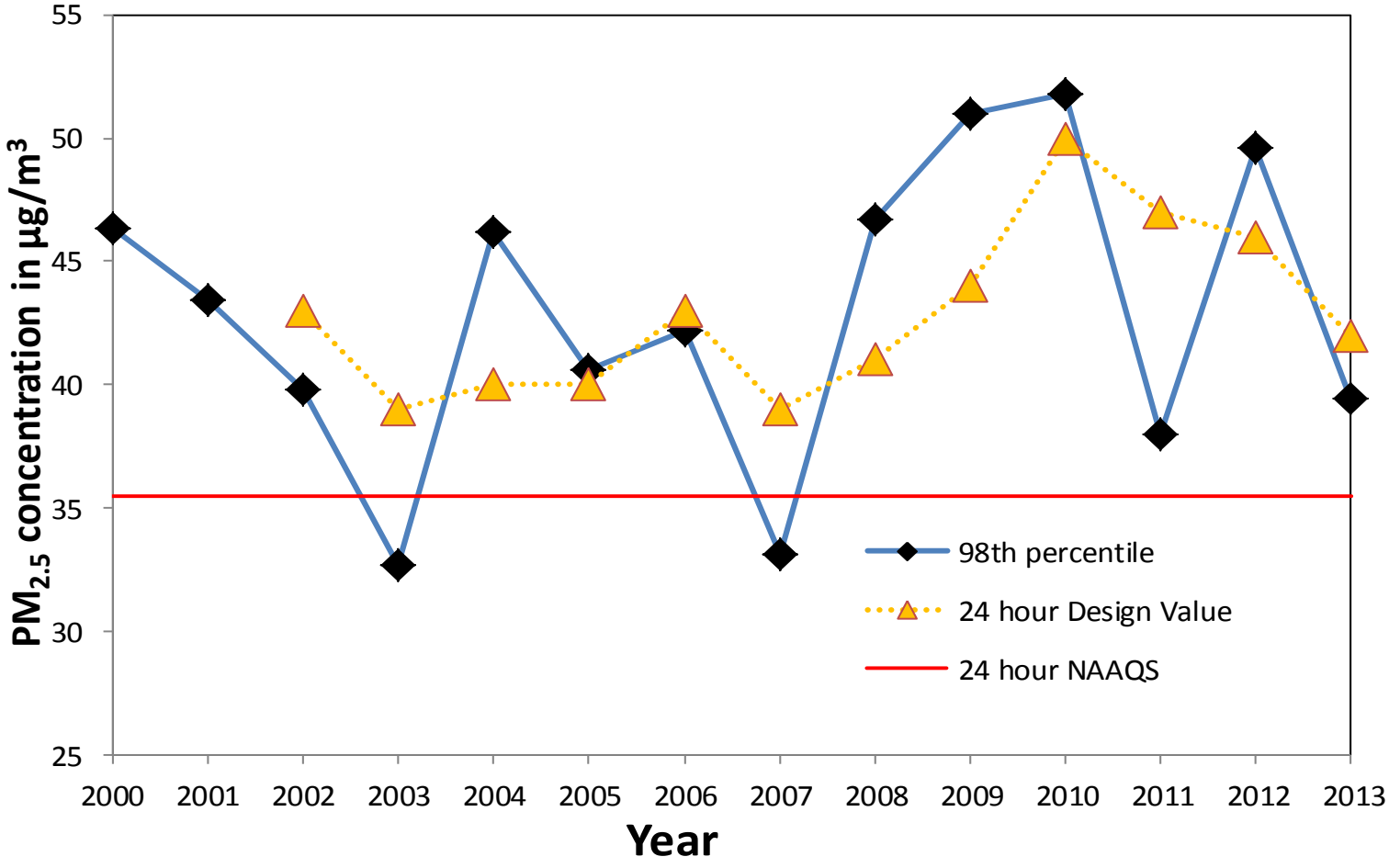
- Winter outdoor open burning restriction is revised to add some flexibility
- Visible emission requirements expanded to include all solid fuel-fired heaters (wood and coal)
- Clarify types of fuel that can be used and not used in wood and coal heating devices
- Added two contingency measures only implemented if the area fails to meet air quality standards by December 31, 2015
  - Commercial wood seller registration – moisture content disclosure
  - Changes to grandfathering of some wood-fired heating devices when homes are sold

Visible Emissions (Opacity) and Dry Wood

- Proposes requirements during PM2.5 air quality episodes
  - allow continue use of wood and coal heaters, but must meet visible emission limits
  - Emission limits are detailed in the PM2.5 SIP for the area
  - Opacity levels are tighter as air quality conditions worsen
  - Visible Emissions (opacity) to identify those individuals needing additional assistance
  - Provides for a waiver if unreasonably expensive, technically not feasible, unreasonable burden
- Requirement to use dry wood – starting October 1, 2015
  - Alternative to dry wood is mix of wet wood with 'Energy Logs', provided operations meet visibility requirements

Overview of Air Quality Plan (SIP)

State Office Building Historical Design Value and 98th% Percentile, 24-hr PM2.5 Concentrations



Key Components of the Air Quality Plan

- Promote the installation of cleaner burning wood heaters
  - Local change out program
  - State emission standards for new devices
- Use best burning practices and seasoned, dry wood
  - Balance economically heating homes and healthy air
  - Save money
  - Make it easy for consumer to burn cleanly & efficiently
  - Proposed state requirement to burn dry wood in winter
- Expand the availability of natural gas in the area
  - Progress is being made

Other SIP Measures

- Public Education
- Winter season outdoor open burning requirements
- Plugging in vehicles in cold temperatures
- Mass transit and vanpooling
- Anti-idling projects to reduce diesel emissions from public fleets
- AHFC energy programs
- State permit program
- Federal emission control programs

Contingency Measures

- Required element of a SIP
- A number of programs and measures are planned to continue or come into effect after 2015 generating additional benefits
  - Change out program
  - Expanded natural gas availability and use
  - Expanding motor vehicle plug-in infrastructure
  - Continuation of AHFC energy programs
- State proposed regulatory contingency measures
  - Wood seller registration – moisture content disclosure
    - Enhance dry wood compliance
    - Starting as voluntary program now
  - Replacement of older, inefficient wood heaters when properties are sold
    - Remove and/or replace devices that do not meet state and EPA emission standards
- Other contingencies that could be considered
  - Program to encourage use of "energy logs"
  - Expansion of DOT/DEC diesel anti-idling pilot program

Projected Benefits of Control Measures

Impact of Fairbanks SIP Control Measures on $PM_{2.5}$ Concentrations at the State Office Building (2015 and 2019)		
Control Measure	**Concentrations (µg/m3)**	
	2015	**2019**
Present (2008) Design Value	**44.7**	**44.7**
Voluntary Measures	-0.54	-0.54
Natural Turnover	-1.00	-0.80
ARA Outdoor Hydronic Heater Retrofits	-0.04	-0.03
Wood Stove Change Out	-3.06	-5.50
State Standards	-	-0.30
Dry Wood	-	-0.60
Natural Gas Expansion	-	-3.40
Total Reduction	**-4.6**	**-11.2**
Final Design Value	**40.1**	**33.5**
24-Hour $PM_{2.5}$ Standard	**35**	

Public Review Process

- Proposed regulations and air quality plan released for public comment November 17, 2014
- Public Comment period closes December 19, 2014
- Two hearing dates to take oral testimony
  - December 3 and December 17
  - Afternoon and evening hearings on each day

Public Review Process

- Several different ways to comment
  - Written comments can be submitted online, by email, fax, or mail
  - Oral comments can be made at public hearings
- Seeking resolution of support for SIP by FNSB Assembly
  - APCC has a role in making recommendations to the Borough
- DEC will review and consider the comments received, make adjustments if necessary, then adopt and transmit the plan to EPA

What Comes Next?

Future Considerations

- SIP does not show attainment in 2015
  - Need to continue making progress to improve air quality
- Area may be re-classified as a "Serious" area by operation of law in June 2016 (at the latest)
  - Air quality not necessarily "worse" – just need more time
  - New attainment year 2019
  - "Serious" SIP due 18 months after reclassification
  - Required to identify and analyze additional control measures
- FNSB has been a "Serious" area before with carbon monoxide (CO)

Ideas and Feedback for Future

- Success will be dependent on Community's acceptance and implementation of any plan
- Planning is an iterative process – can amend the plan over time
- What other ideas could be considered?
  - Enhance education efforts – what else can be done here?
  - Consider reinstating local outdoor open burn ordinances
  - Continue and enhance voluntary programs – change outs, voluntary cessation program, fuel switching
  - Enhance dry firewood options – energy logs

Dry Wood and Energy Logs

- Education/Burn Wise Alaska
  - Knowledgeable buyers of wood (identify and use reputable wood sellers)
  - Knowledgeable users of wood (best burn practices)/save money
- Energy Logs
  - Preliminary tests indicate reduction of particulates when mixed with wet wood/dry wood
  - Alternative to using wet wood - as supplement not replacement

Thank You!

For more information: dec.alaska.gov/air