



New National Ambient Air Quality Standards for Particulate Matter



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Overview

- **On September 21, 2006 EPA completed its review of the National Ambient Air Quality Standards (NAAQS) for particulate matter.**
- **The final rule addresses two categories of particle pollution:**
 - *fine particles* (PM_{2.5}), which are 2.5 micrometers in diameter and smaller; and
 - *inhalable coarse particles*, which are larger than 2.5 micrometers and smaller than 10 micrometers in diameter.
- **In the final rule EPA :**
 - revised the fine particle standards to better protect public health and visibility, and
 - retained the 24-hour PM₁₀ standard to protect against exposure to inhalable coarse particles.
- **For more information go to <http://www.epa.gov/air/particles>**

PM Components: *fine and coarse*

Fine Particles

Combustion, gases to particles

Sulfates/acids
Nitrate
Ammonium
Organics
Carbon
Metals
Water



Sources:

Coal, oil, gasoline, diesel, wood combustion
Transformation of SO_x, NO_x, organic gases including biogenics
High temperature industrial processes (smelters, steel mills)
Forest fires



Exposure/Lifetime:

Lifetime days to weeks, regional distribution over urban scale to 1000s of km

Inhalable Coarse Particles

Crushing, grinding, dust

Resuspended dusts (soil, street dust)
Coal/oil fly ash
Aluminum, silica, iron-oxides
Tire and brake wear
Inhalable Biological Materials (e.g., from soils, plant fragments)



Sources:

Resuspension of dust tracked onto roads
Suspension from disturbed soil (farms, mines, unpaved roads)
Construction/demolition
Industrial fugitives
Biological sources

Exposure/Lifetime:

Coarse fraction (2.5-10) lifetime of hours to days, distribution up to 100s km

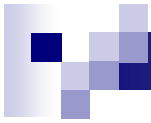


Health Effects of Particle Pollution

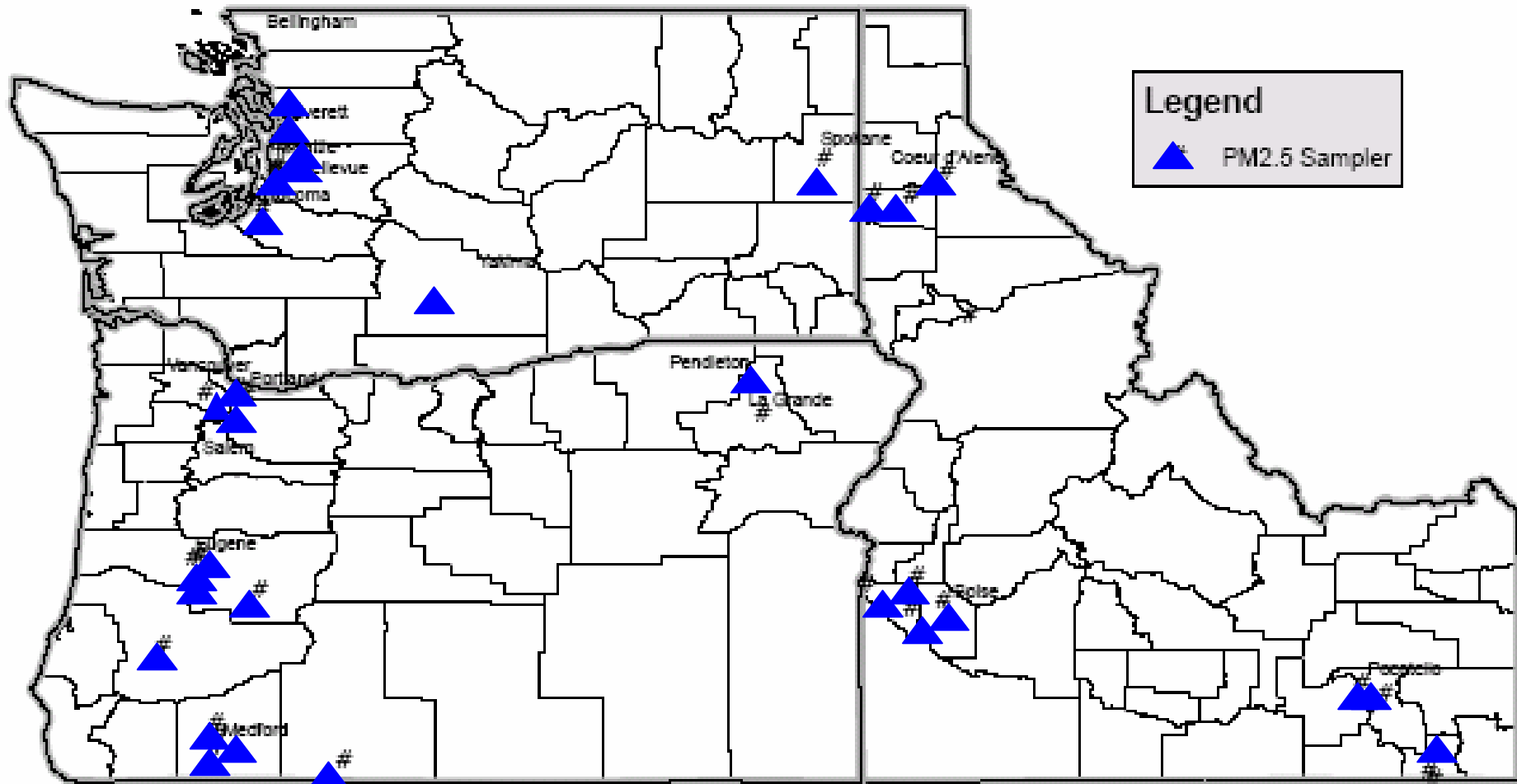
- n Many scientific studies have linked breathing particle pollution to a series of significant health problems, including:
 - Aggravated asthma
 - Increases in respiratory symptoms like coughing and difficult or painful breathing
 - Chronic bronchitis
 - Decreased lung function
 - Premature death in people with heart and lung disease

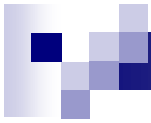
EPA's PM Standards: Old and New

	Previous Standards		2006 Standards	
	Annual	24-hour	Annual	24-hour
PM_{2.5} (Fine Particles)	15 µg/m³ Annual arithmetic mean, averaged over 3 years (established in 1997)	65 µg/m³ 24- hour average, 98 th percentile, averaged over 3 years (established in 1997)	15 µg/m³ Annual arithmetic mean, averaged over 3 years	35 µg/m³ 24- hour average, 98 th percentile, averaged over 3 years
PM₁₀ (Coarse Particles)	50 µg/m³ Annual average (established in 1987)	150 µg/m³ 24-hr average, not to be exceeded more than once per year on average over a three year period (Revoked	150 µg/m³ 24-hr average, not to be exceeded more than once per year on average over a three year period



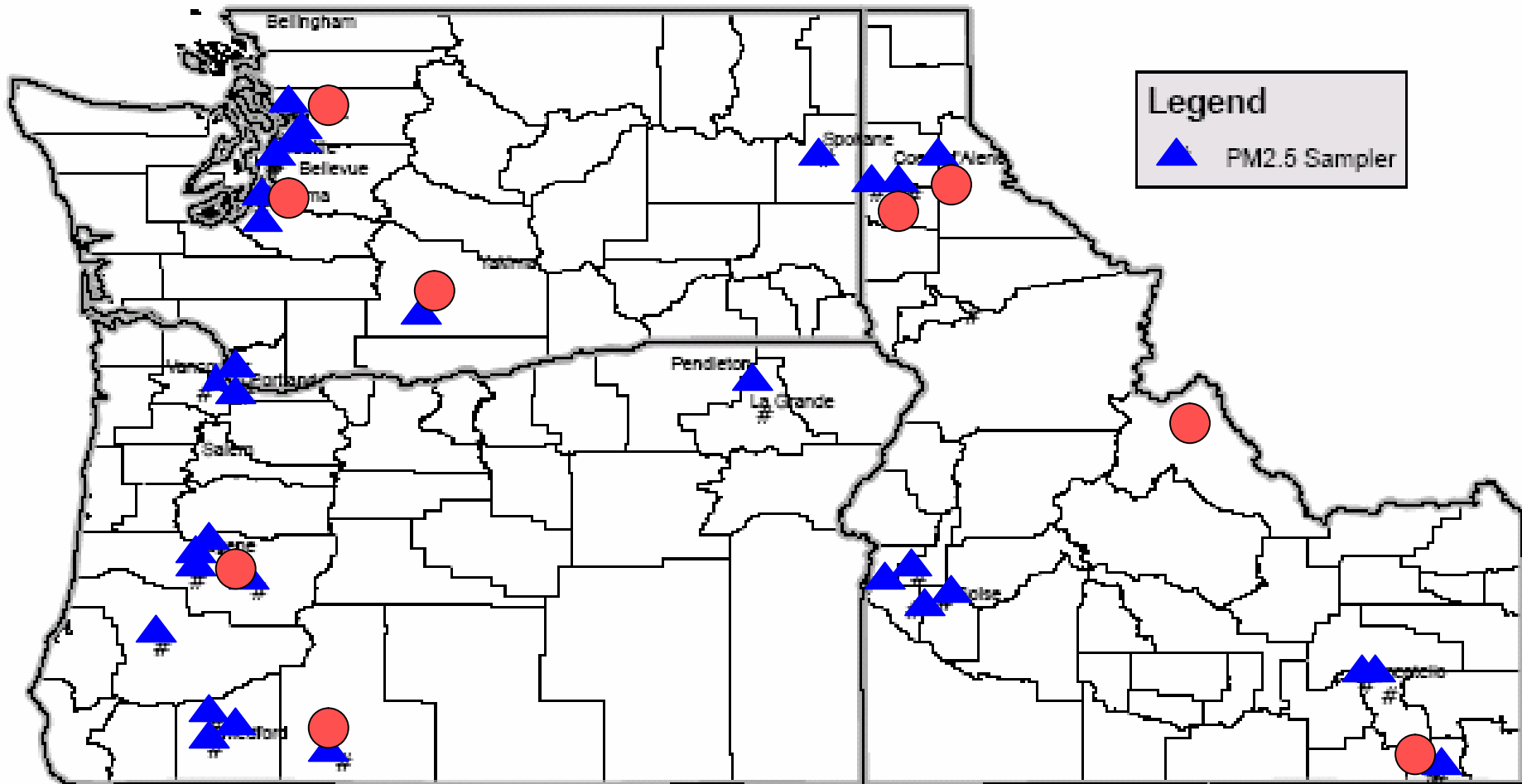
2006 PM2.5 Sampler Network (Reference Samplers Only)





2006 PM2.5 Sampler Network ▲ (Reference Samplers Only)

Expected nonattainment areas ● 24 hour standard



Legend
▲ PM2.5 Sampler



Expected Timeline for Revised PM_{2.5} NAAQS

Milestone	2006 PM_{2.5} Primary NAAQS
Promulgation of Standard	Sept. 2006
State Recommendations to EPA	Dec. 2007 (based on 2004-2006 monitoring data)
Final Designations Signature	Dec. 2009
Effective Date of Designations	April 2010
SIPs Due	April 2013
Attainment Date	April 2015 (based on 2012-2014 monitoring data)
Attainment Date with Extension	April 2020