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Reason for five year network plan

- **CFR Requirement - 40 CFR 58.10(e) 10/17/06**
“(e) The State, or where applicable local, agency shall perform and submit to the EPA Regional Administrator an assessment of the air quality surveillance system every 5 years to determine, at a minimum, if the network meets the monitoring objectives defined in appendix D to this part, whether new sites are needed, whether existing sites are no longer needed and an be terminated, and whether new technologies are appropriate for incorporation into the ambient air monitoring network.
- **Need to update network to accommodate rule and population changes**
- **Feedback (Staff, Public, Other Agencies)**



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Drivers for Changes to the Network

1. **CFR Changes**
 1. **NAAQS**
 2. **Monitoring Rules**
2. **Population Growth**
3. **New demographics (EJ)**
4. **AQ levels change**
5. **Budget**

Other Considerations

1. **Meteorology**
2. **Forecast/Woodstove Advisory**
3. **Funded by other agency**
4. **Sole monitor in airshed**
5. **EPA Required**
6. **Politically important**
7. **No change in EJ**
8. **Total Population (Pdx, Salem, Eugene)**

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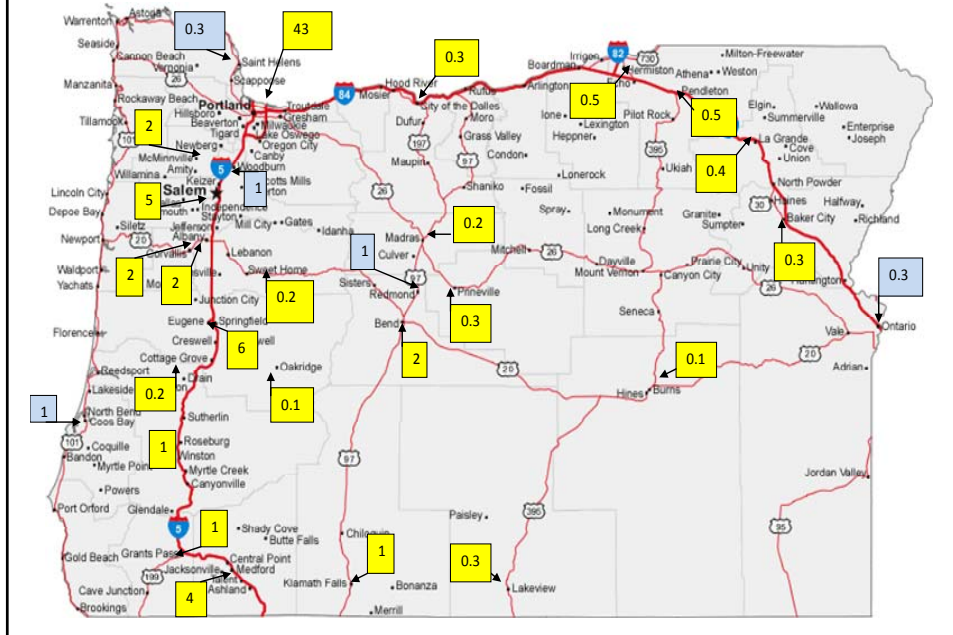
CFR changes

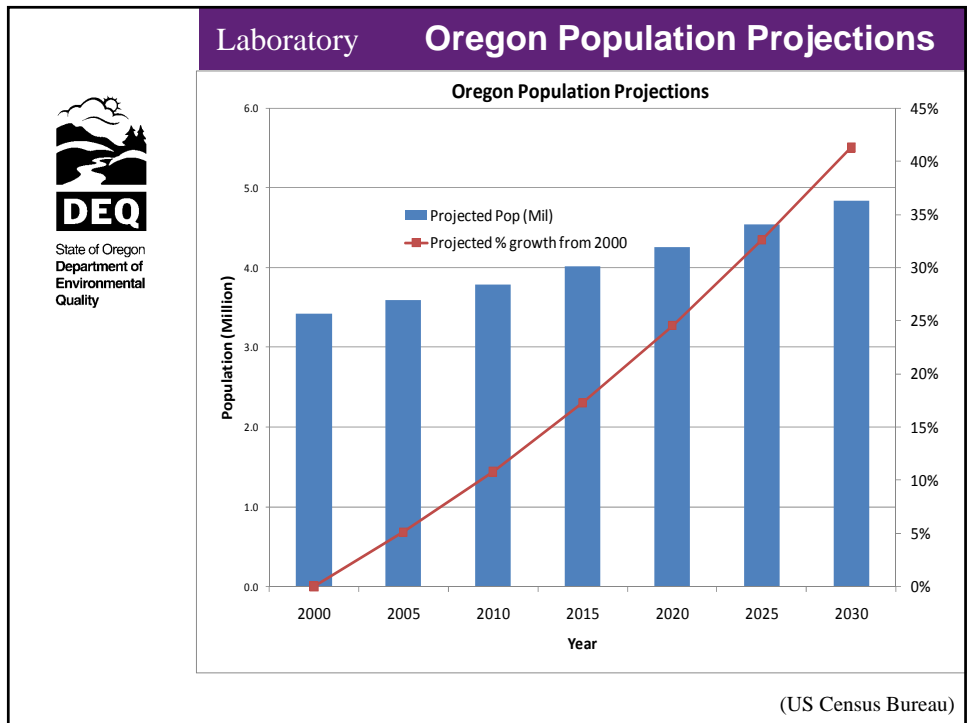
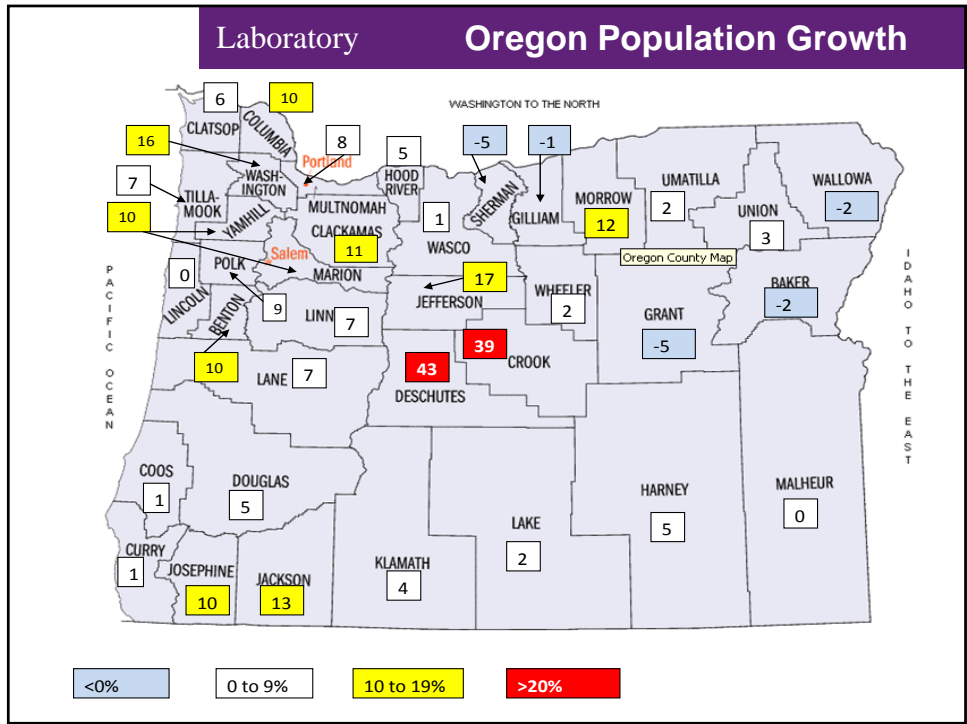
Milestone	Pollutant						
	Lead	NO ₂ Primary	SO ₂ Primary	Ozone Reconsideration	CO	PM	NO ₂ /SO ₂ Secondary
NPR		Jun 2009	Nov 2009	Jan 2010	Oct 2010	Feb 2011	July 2011
NFR	Oct 2008	Jan 2010	Jun 2010	Aug 2010	May 2011	Oct 2011	Mar 2012
New Rules	Max Siting. Sources	Max Siting Near Roadway	Max Siting	>50K, 10-20K, Ag or Forest			
Start Monitoring	Jan 2010	Jan 2013	Jan 2013	May 2012	?	?	?
Designation	Oct 2011	Jan 2012	Jun 2012	July 2011	?	?	?
SIP	2013	Next NAAQS Review Jan 2015	2014	Dec 2013	?	?	?



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Oregon Population - by Percent (2008)





2. Environmental justice



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Determination

- Percent of community in poverty
 - (> than statewide average)
- Population of community in poverty
 - (>10K)
- Percent minority population in community
 - (> than statewide average)
- Population of minority community
 - (>20K)

Environmental Justice Results by County



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Counties	EJ Number	Monitor
Marion	4	Yes
Jackson	3	Yes
Lane	3	Yes
Multnomah	3	Yes
Umatilla	3	Yes
Washington	3	Yes
Clackamas	2	Yes
Jefferson	2	Yes
Klamath	2	Yes
Malheur	2	No
Wasco	2	No

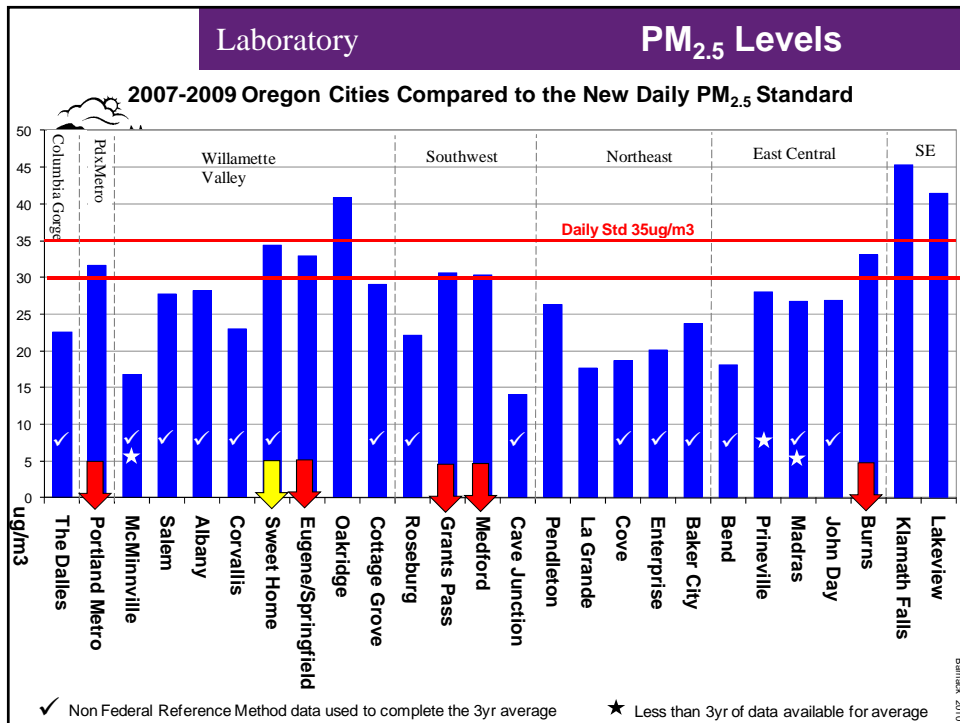
Based on 2008 estimates

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PM_{2.5}

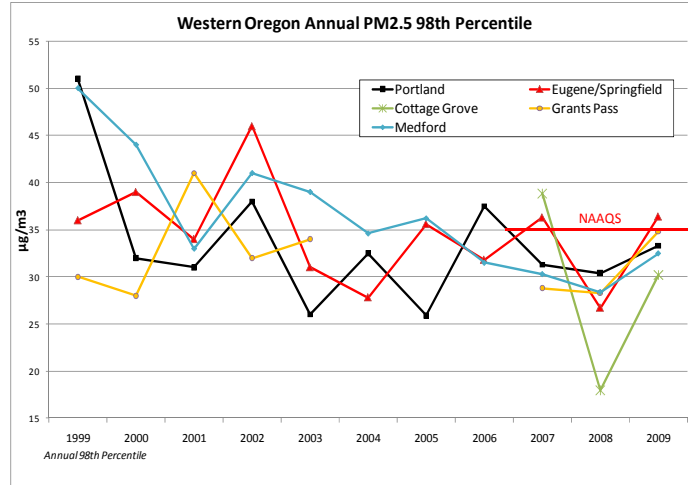


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Trends

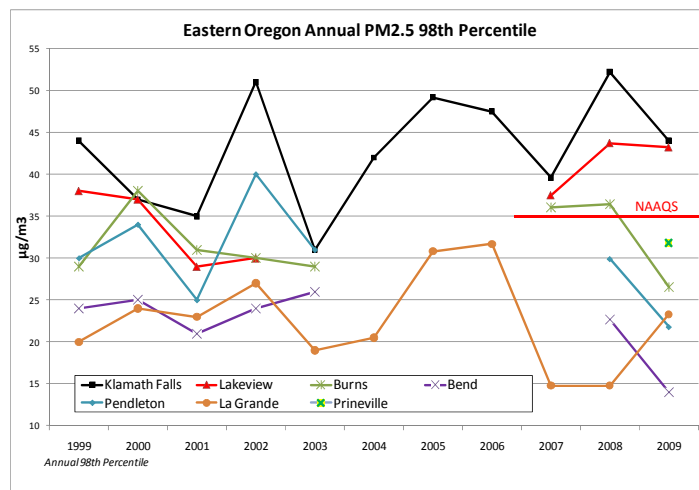


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Trends

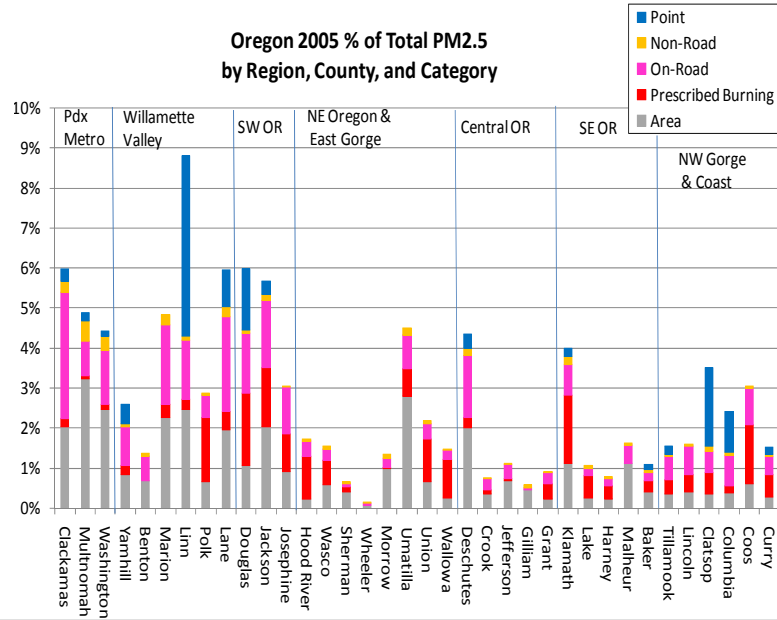


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Emission Inventory



Oregon 2005 % of Total PM2.5 by Region, County, and Category

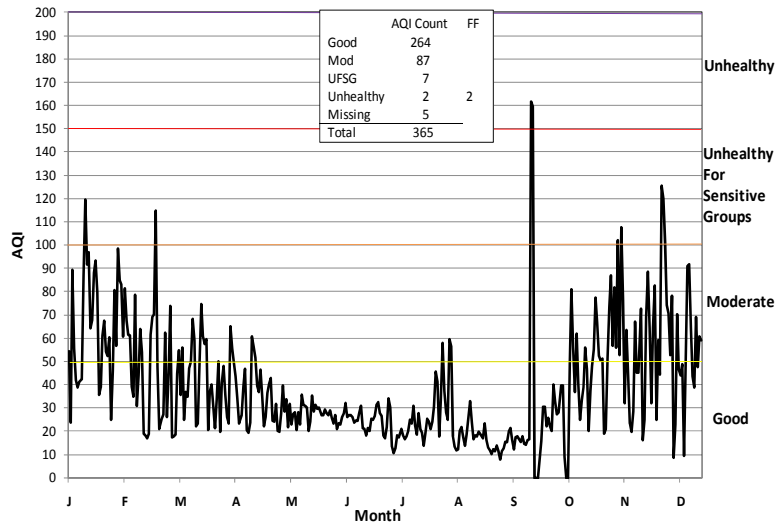


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Time of Year



2009 Klamath Falls Air Quality Index Based on PM2.5

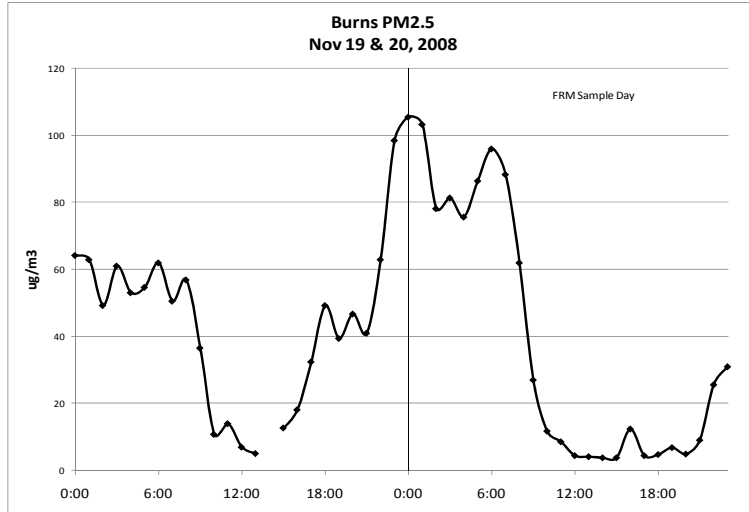


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Time of Day



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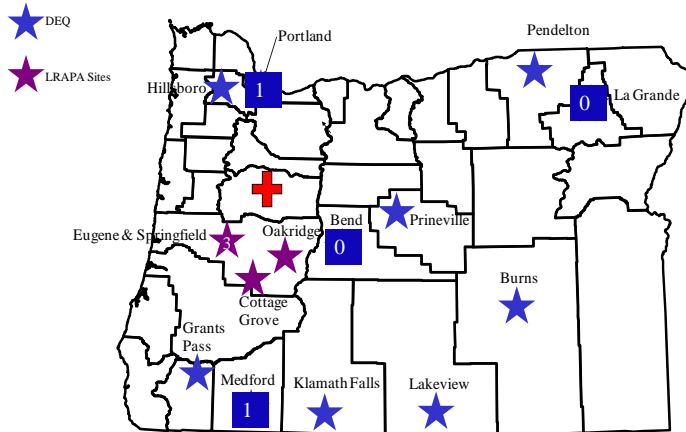
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PM_{2.5} Network



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2010 Oregon PM_{2.5} NAAQS Compliance Surveillance Network



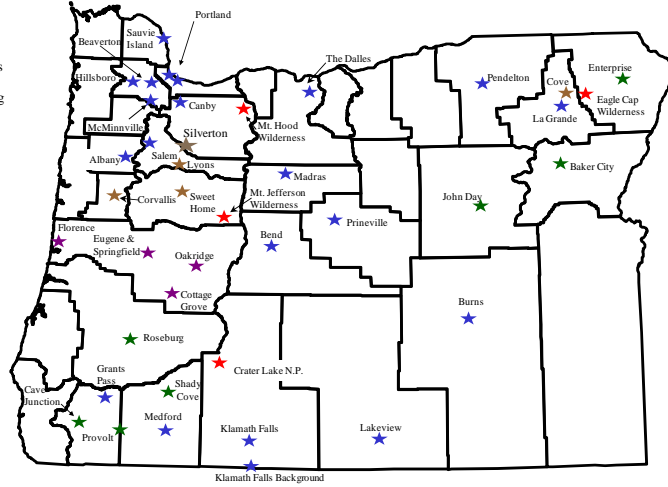
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PM_{2.5} Network



- ★ DEQ
- ★ USFS/DEQ
- ★ LRAPA Sites
- ★ Field Burning
- ★ Visibility

2010 Oregon Real Time Neph PM Air Quality Surveillance Network



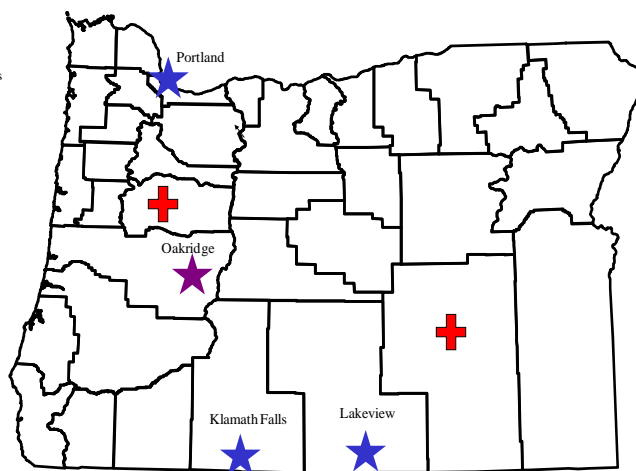
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PM_{2.5} Network



- ★ DEQ
- ★ LRAPA Sites

2010 Oregon PM_{2.5} Speciation Surveillance Network





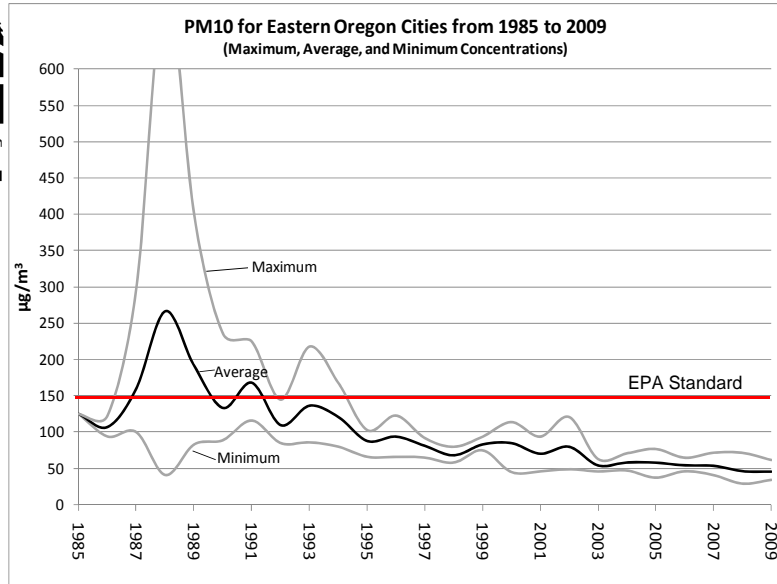
Conclusions:

- PM_{2.5} network doesn't have many holes.
 - Fast growing cities with no PM info (Redmond)
 - Tribes are monitoring in Coos Bay and Warm Springs.
- Reduce PM_{2.5} sampling in Medford, Bend, La Grande, and Portland.
- If NAAQS lowered to 30, then more speciation samplers
- FEM continuous monitoring will save \$ but may raise PM_{2.5} by ~2ug/m³. Now own 1, LRAPA 3.

PM₁₀

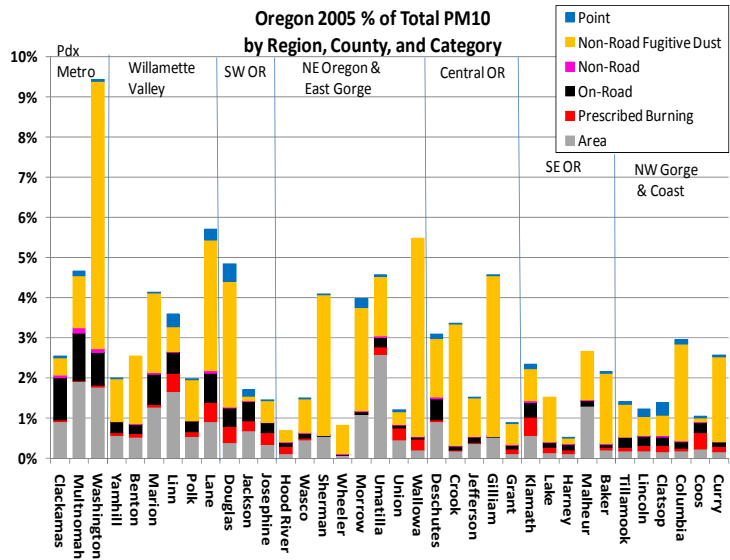
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PM₁₀ Trends



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PM₁₀ Emission Inventory

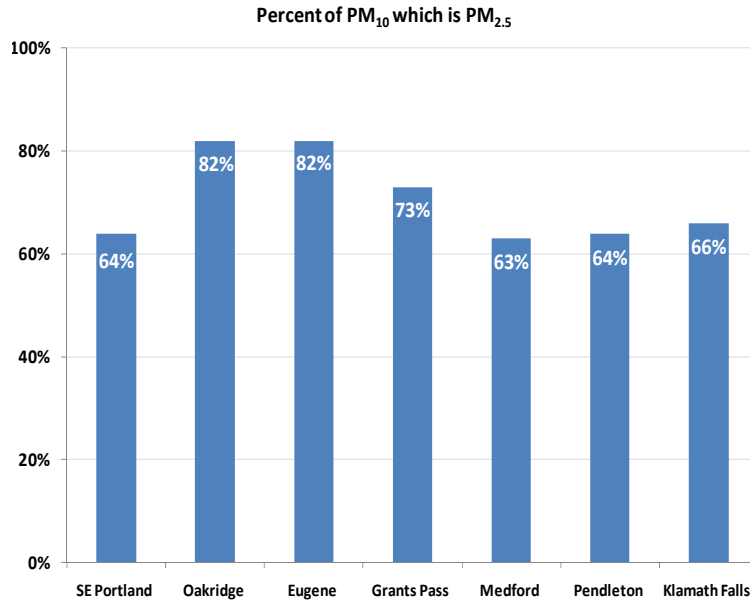


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PM₁₀ Composition



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PM₁₀ Network



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2010 Oregon PM₁₀ NAAQS Compliance Surveillance Network

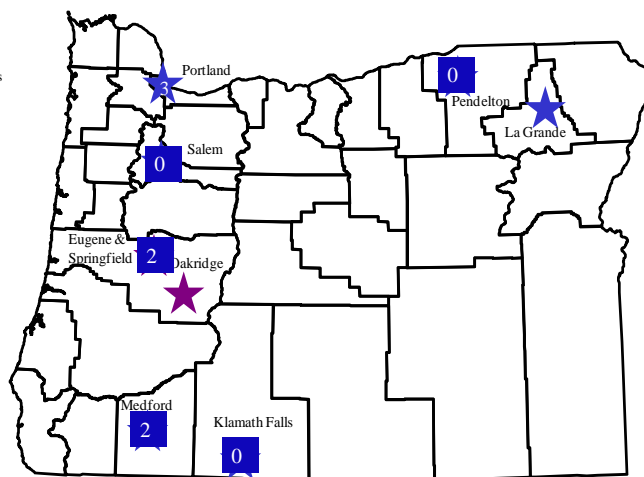


DEQ



LRAPA Sites

Air Toxics PM₁₀ :
1 in Portland
1 in Medford
1 in Eugene
1 in La Grande
1 in Salem





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PM₁₀ Conclusion

Conclusions:

-PM₁₀ usually <50% of NAAQS.

-PM₁₀ >60% PM_{2.5}.

- Will petition EPA to release ODEQ from Monitoring requirements in Grants Pass, Klamath Falls, and Medford maintenance areas. Also Pendleton.

-Eugene and Oakridge don't have Maintenance Plans but are far below NAAQS.



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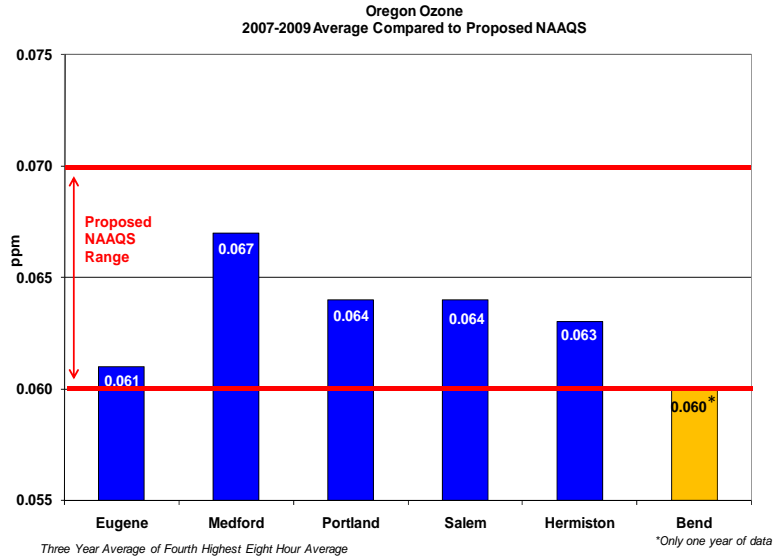
Ozone

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Current Ozone Levels



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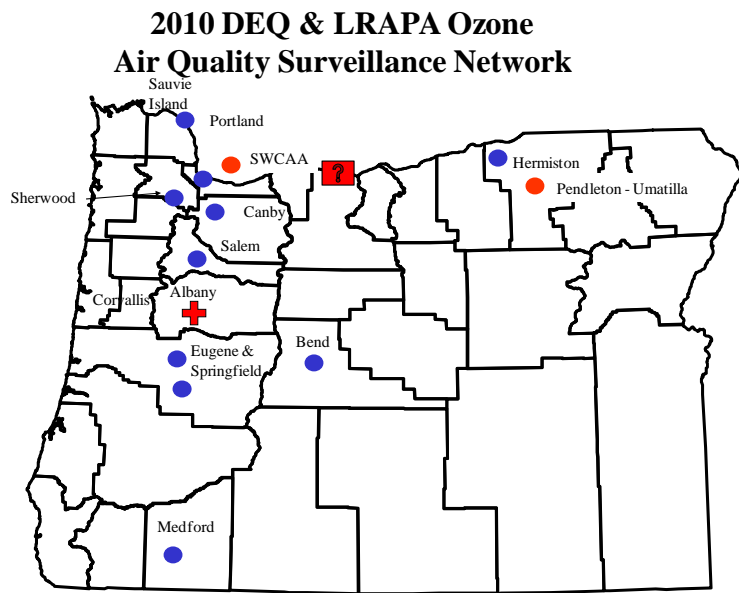


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Ozone Network



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Ozone NO₂ Satellite Measurements



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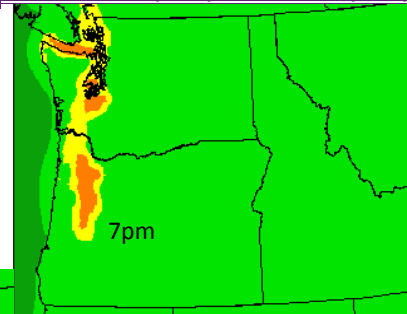
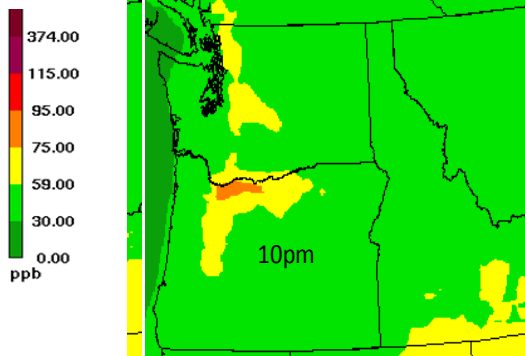
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Ozone Modeling



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Two high Ozone
days in 2009

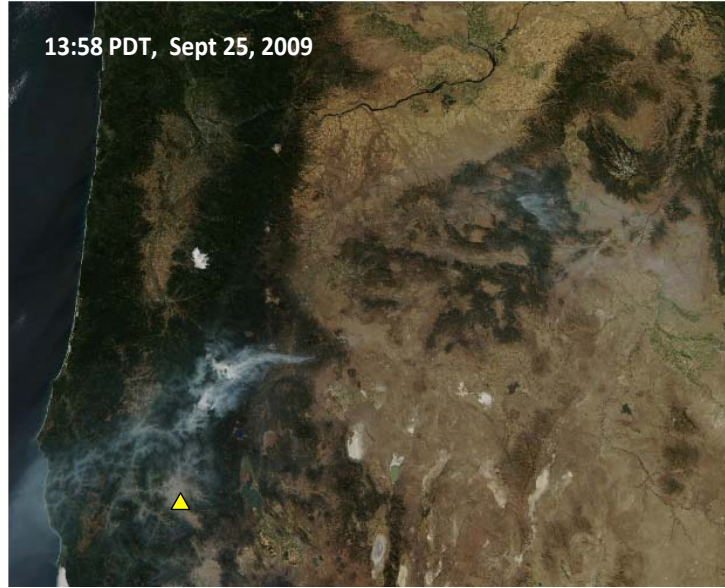


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Ozone – Medford



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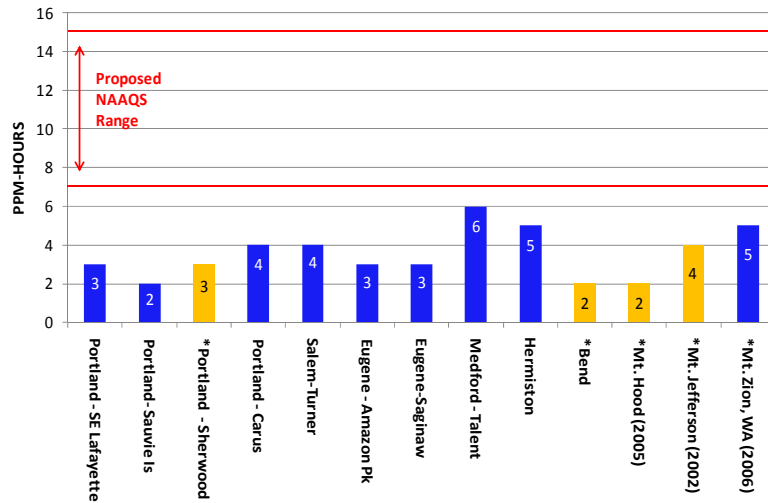
3. Pollutants

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Ozone Secondary Standard



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*W-126 uses three year average but only one year was available.

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Ozone W-126 monitoring



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Ozone Network & Conclusion

- Albany/Corvallis will need a monitor. (>50K)
- W126 monitor may be needed in farming area, forest, or Gorge.
- Site in city with 10 – 20k population. Stay in Hermiston .
- Transport site. Regional wide monitoring. Upwind sites? Holes in network filled in?

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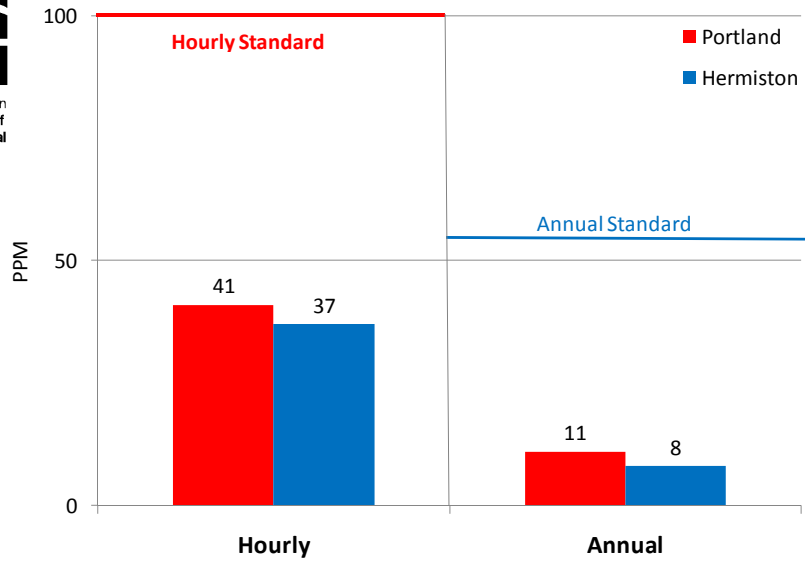
NO₂

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NO₂ Design Values





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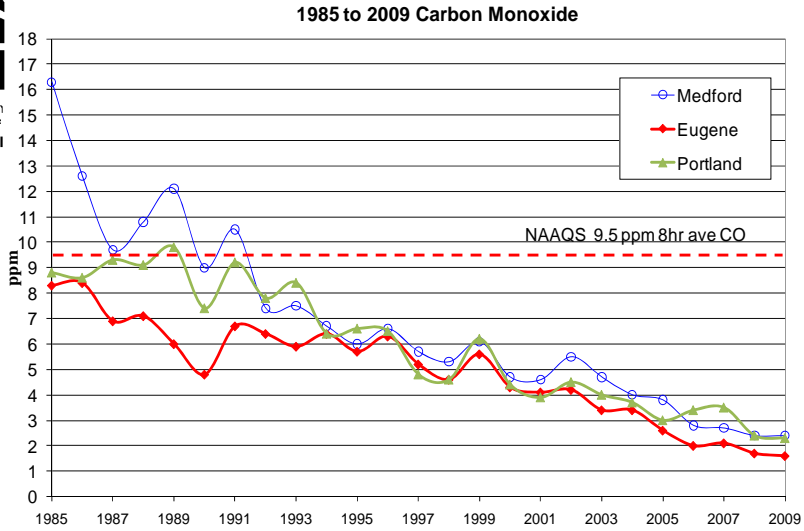
NO₂ – Conclusion

- NO₂ is below the NAAQS currently but... roadway site?
- NO₂ mostly from mobile sources and Boardman.
EPA's 2007 Highway rule expected to reduce 2.6 tpy.
Boardman controls in 2011 and 2017?
- New Rule requires roadway monitoring and community monitoring.

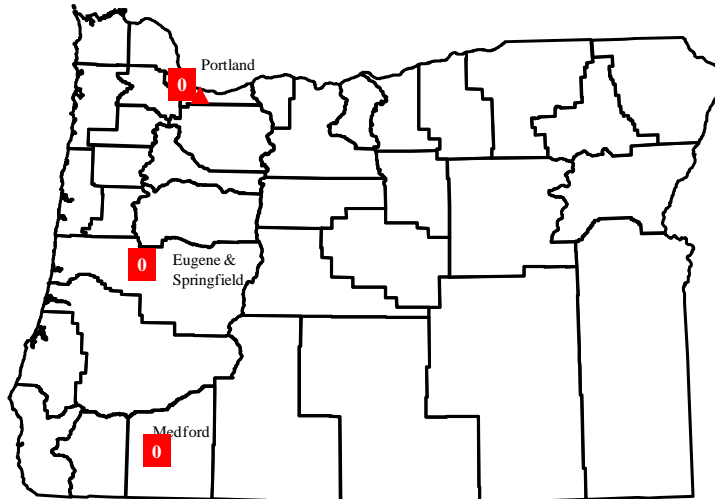


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CO



2010 DEQ & LRAPA Carbon Monoxide Air Quality Surveillance Network





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CO Conclusions

- CO is far below the NAAQS and getting lower
- EPA has released the states from CO monitoring required in maintenance plans.
- Cut Portland urban site and Medford Mall site.
- LRAPA to drop site at Eugene.



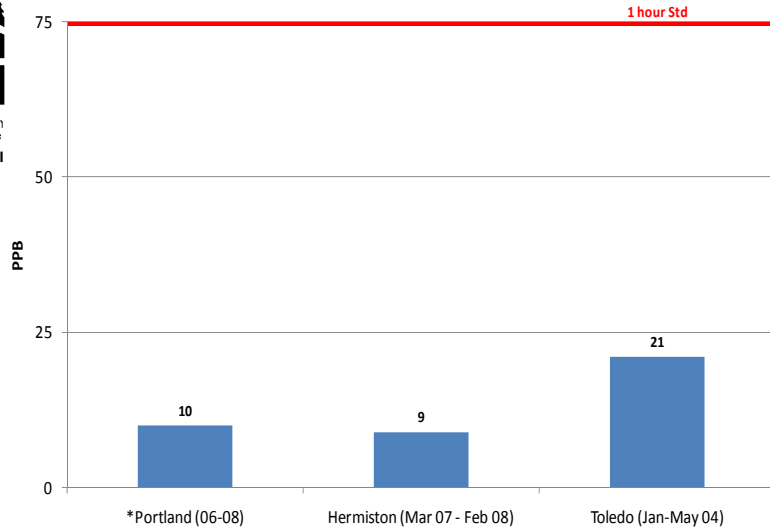
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SO₂



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Oregon on hour Maximum SO₂



**3 year average of the annual 99th percentile of the daily maximum 1 hour average*



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SO₂ Conclusion

- One new monitor in Portland/Vancouver area
- Should be in attainment based on monitoring data
- New rule may require modeling around Boardman.



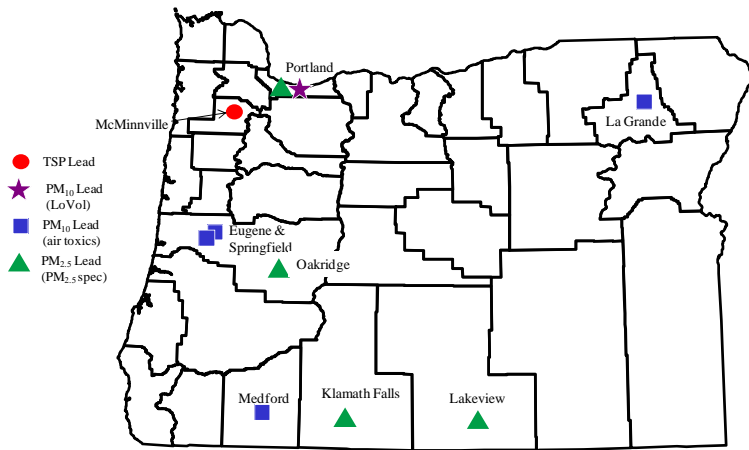
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Lead



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2010 DEQ & LRAPA Lead Air Quality Surveillance Network



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Conclusions:

One additional Lead site in 2011 – Portland

Petition EPA to discontinue EI mandated site after three (?) years of data if values are <50% NAAQS

Might be required to monitor near Hillsboro Airport.

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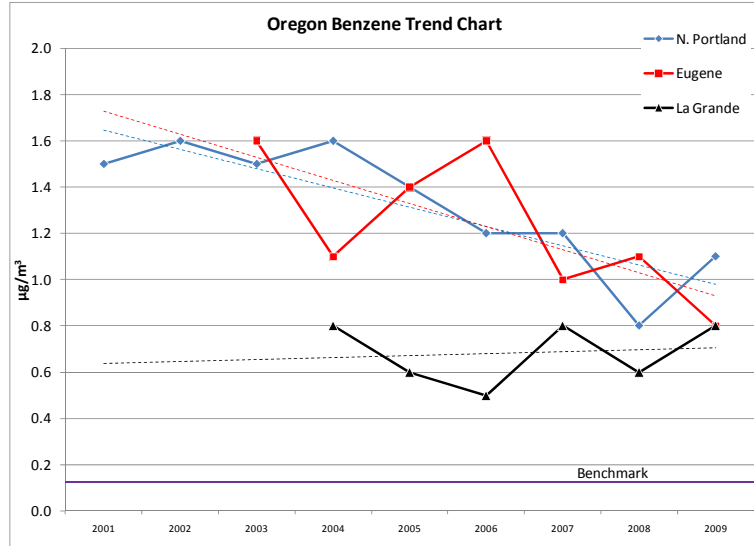
Air Toxics

19 Air Toxics of Concern

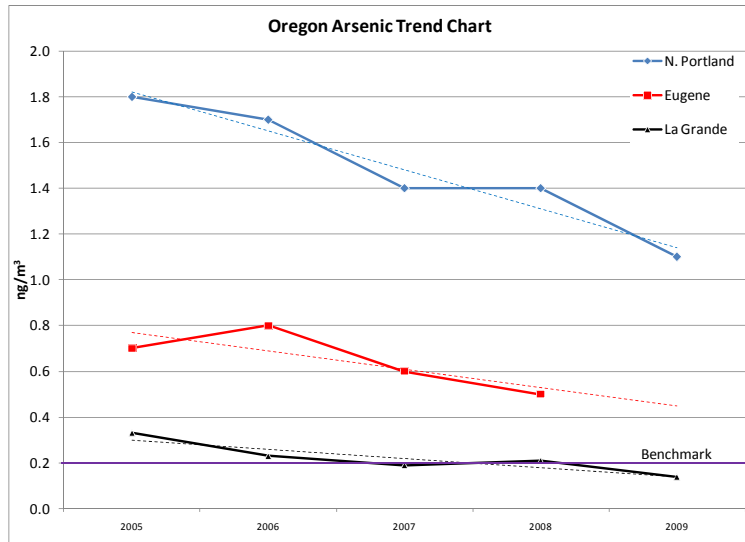
Volatle Organic Carbons	Carbonyls	Metals	PAH	Other
1,3-Butadiene	Acetaldehyde	Arsenic	15 PAH	Diesel PM
Benzene	Acrolein	Cadmium	Naphthalene	
1,4-Dichlorobenzene	Formaldehyde	Cr +6		
Ethylbenzene		Lead		
Methylene chloride		Manganese		
Perchloroethylene		Nickel		
Trichloroethylene				



Air Toxics Trends

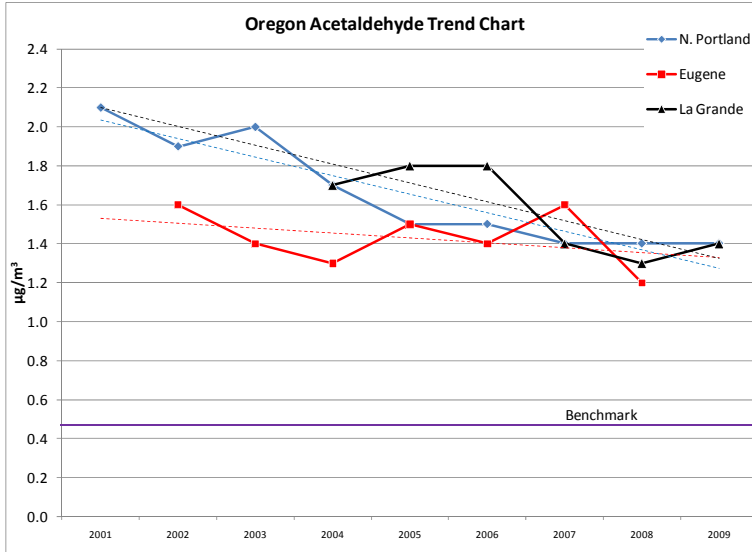


Air Toxics Trends

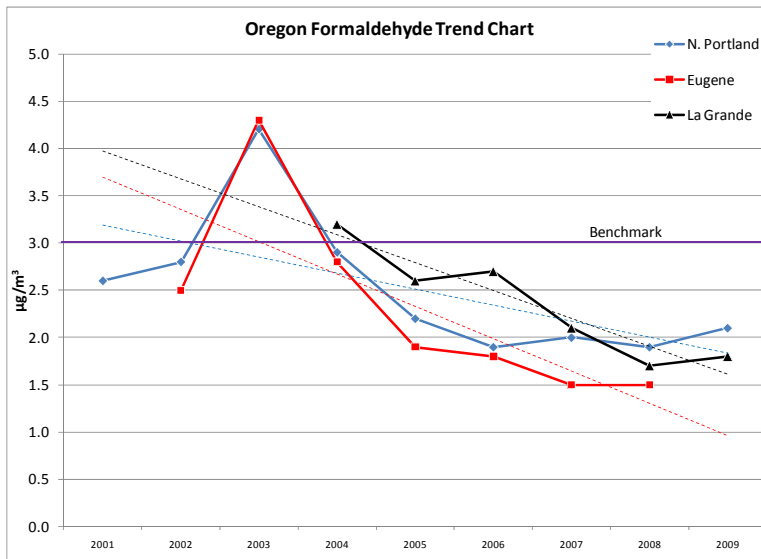




Air Toxics Trends



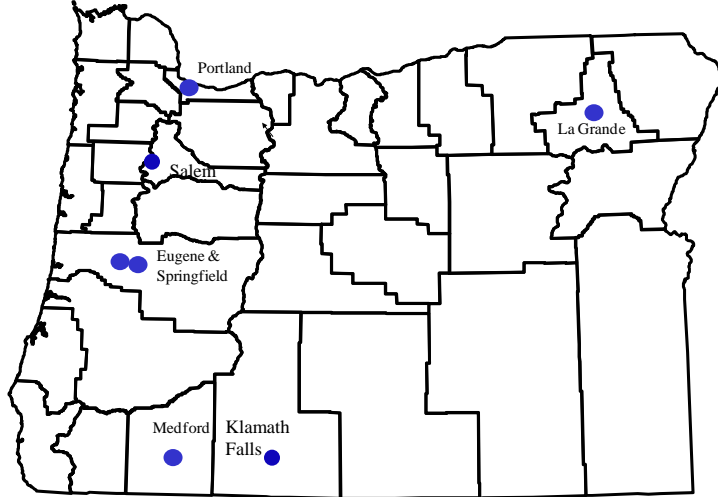
Air Toxics Trends





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2010 DEQ & LRAPA Air Toxics Air Quality Surveillance Network



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Decision Matrix

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Drivers for Changes to the Network

1. CFR Changes
 1. NAAQS
 2. Monitoring Rules
2. Population Growth
3. New demographics (EJ)
4. AQ levels change
5. Budget

Other Considerations

1. Meteorology
2. Forecast/Woodstove Advisory
3. Funded by other agency
4. Sole monitor in airshed
5. EPA Required
6. Politically important
7. No change in EJ
8. Total Population (Pdx, Salem, Eugene)

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Decision Matrix Top 25

Rank		City	Total ¹⁷	Network Parameter	Comment
1	SEL	Portland	825.5	Ozone	NCORE
2	SPR	Portland	671.6	Ozone	SE
3	KFP	Klamath Falls	515.9	PM2.5FRM	NAAQS
4	SLR	Portland	454.7	Ozone	SW
5	SIS	Portland	405.8	Ozone	Upwind
6	MGB	Medford	399.3	PM2.5FRM	NAAQS
7	SEL	Portland	350.5	PM2.5FRM	NCORE
8	HHF	Hillsboro	315.1	PM2.5FRM	High Pdx site
9	SAG	Eugene	289.5	Ozone	Downwind
10	EAP	Eugene	284.7	Ozone	Urban
11	CJH	Salem	237.7	Ozone	Salem
12	TAL	Medford	216.3	Ozone	Medford
13	BRD	Bend	209.0	Ozone	Bend
14	EAP	Eugene	208.3	PM2.5FRM	population - NAAQS
15	SSH	Salem	188.6	PM2.5Est	population
16	GPP	Grants Pass	143.2	PM2.5FRM	NAAQS
17	EKB	Eugene	76.3	PM2.5FRM	Redundant with EAP
18	LCM	Portland	55.9	PM2.5FRM	NAAQS
19	Central Point	MGB	54.3	PM2.5Est	Pop & NAAQS - No current monitor
20	Corvallis5	Corvallis5	53.9	Ozone	Population
21	PDP	Prineville	51.8	PM2.5FRM	NAAQS
22	Albany5	Albany	47.7	Ozone	Population
23	ACS	Albany	39.6	PM2.5Est	Population
24	CCB	Lakeview	36.7	PM2.5Est	Population

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Communication - Feedback

Internal involvement

- Feedback from:
LRAPA, PMT, EMT, Regional & Planning Staff.
- Plan Approved by AQ Planning and Lab Managers.

External involvement

- Public comment (post on website, email survey to e-list).
- Get feedback from external agencies ODOA, USFS, ODF, SWCAA.

EPA involvement

- Submit to EPA for approval

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Web resources:

Real Time Data Sites:

ODEQ Air Quality Index (with LRAPA, SWCAA, and Idaho links) (1-800-961-6313)
<http://www.deq.state.or.us/aqi/index.aspx>

ODEQ Wildfire Air Quality Rating:
<http://www.deq.state.or.us/aqi/wildfire/index.htm>

ODF light scattering graphs using data from ODEQ and LRAPA.
http://www.odf.state.or.us/DIVISIONS/protection/fire_protection/Daily/air_quality_monitoring/nephelometer_menu.htm

EPA AIRNow using data from ODEQ and Lane County Regional Air Protection Agency.
<http://www.airnow.gov/>

Forecasting Sites:

ODEQ <http://www.deq.state.or.us/wsadvisory/index.htm>

UW Met forecast <http://www.atmos.washington.edu/mm5rt/>

WSU AQ forecast <http://lar.wsu.edu/airpact-3/>

National Weather Service - AQ Forecast
<http://www.weather.gov/aq/sectors/oregon.php?period=2#tabs>

National Weather Service - Weather Forecast
<http://www.weather.gov/>

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Web resources (cont.):

Wildfire information sites:

NOAA Smoke forecast:

<http://www.weather.gov/aq/sectors/pacnorthwest.php?period=3#tabs>

USFS Info Site:

<http://activefiremaps.fs.fed.us/imagery.php?op=fire&fireID=or-000&day=2006233&time=top>

NWCC site:

<http://www.nwccweb.us/information/firemap.asp#top>

USFS Site:

<http://marlin.airfire.org/>

Data:

Data clearing house site:

<http://www.deq.state.or.us/aq/advisories/faq.htm#compare>

ODEQ, past 30 days AQI

<http://www.deq.state.or.us/aqi/aqi30Day.aspx>

ODEQ past 7 days raw data

<http://www.deq.state.or.us/lab/aqm/rt/rtHourlyConc.aspx>