

Oregon Air Quality Monitoring Annual Report: 2020

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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.



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Glossary of Air Quality Terms used in this report:

| | |
|------------------------|---|
| AQI – | Air Quality Index – standardized EPA method of reporting air quality |
| BScat – | Beta Scattering - a light scattering unit used for visibility |
| CO – | Carbon monoxide – An odorless, colorless gaseous pollutant |
| CO ₂ – | Carbon dioxide – Primary greenhouse gas |
| CO ₂ e - | Carbon dioxide equivalent – A unit linking GHG to CO ₂ |
| WF - | Wildfire |
| GHG – | Greenhouse Gas |
| HAPs – | Hazardous Air Pollutant as defined in Title III of the Clean Air Act |
| MMTCO ₂ e - | Million metric tons of carbon dioxide equivalent |
| NAAQS – | National Ambient Air Quality Standards – federal air quality standards |
| NO – | Nitrogen oxide |
| NO ₂ – | Nitrogen dioxide - a reddish-brown gaseous pollutant. |
| NO _x – | Nitrogen oxides – reddish brown gaseous pollutant - mainly NO and NO ₂ |
| O ₃ – | Ozone – a gaseous pollutant and a component of smog at ground level |
| PM _{2.5} – | Particulate Matter 2.5 micrometers in diameter and smaller |
| PM ₁₀ - | Particulate Matter 10 micrometers in diameter and smaller |
| ppm – | Parts per million - air pollutant concentration. |
| ppb – | Parts per billion - air pollutant concentration. |
| SO ₂ – | Sulfur dioxide - a colorless, pungent gaseous pollutant. |
| TSP - | Total Suspended Particulates |
| USG – | Unhealthy for Sensitive Groups – an AQI air quality category |
| µg/m ³ – | Microgram per meters cubed - air pollutant concentration |
| VOC – | Volatile Organic Compounds |

Standard Exceedance – Occur when the NAAQS is surpassed.

Standard Violation – The NAAQS provides a cushion which allows for a few exceedances every year. (e.g. the ozone NAAQS is compared to the 4th highest day of the year. So a city can have three exceedances without a violation.)

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Air Quality Annual Report

DEQ's Mission Statement

The Department of Environmental Quality's (DEQ) mission is to be a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

Each year DEQ updates the annual report including the most recent year. The air pollutants of greatest concern in Oregon are:

- Fine particulate matter (mostly from combustion sources) known as **PM2.5** (2.5 micrometers and smaller diameter)
- **Air Toxics** - pollutants that cause or may cause cancer or other serious health effects
- Ground-level **ozone**, a component of smog
- **Greenhouse gas** (GHG) emissions and global climate change are also concerns in Oregon. Oregon state agencies track GHG emissions from a wide variety of products, services, utilities, and fuel providers. These emissions data are available on DEQ's web site under Air Quality/AQ Programs / Greenhouse Gas Reporting Home. <http://www.oregon.gov/DEQ/AQ/Pages/Greenhouse-Gas-Inventory-Report>

There is much more information about climate change on the Oregon Global Warming Commission's web page <http://www.keeporegoncool.org/>

Oregon's 2020 Ambient Air Quality in Summary:

- **PM2.5**

Many areas experienced Unhealthy for Sensitive Groups or worse air quality conditions from wildfire smoke. Southern Oregon was impacted the most with over five weeks impacted by wildfire smoke.

Air toxics

Some air toxics such as benzene and acetaldehyde, remain near or above ambient benchmark concentrations. *Ambient benchmark concentrations are levels at which, if exposed over a lifetime, an individual's risk of getting cancer is increased by one in a million, or non-cancer health effects could occur.*

- **ozone** (smog)

The ozone concentrations had three days above the standard in Portland. The rest of the days were below the National Ambient Air Quality Standard in these cities and in the rest of the state.

- **Carbon monoxide, nitrogen dioxide, sulfur dioxide and PM10**

Carbon monoxide was above the standard in the Portland Metro area for three days during the wildfire impacts. For the rest of the year CO and the other criteria pollutant federal health standard. These pollutants have been trending mostly downward for most locations over the last ten years.

Air Quality Index

The Air Quality Index (AQI) converts ambient air pollutant concentrations into categories of health concern. The AQI uses index numbers, levels of health risk, and colors to communicate six categories of health concern (Table 1), and identifies air quality levels that range from good to hazardous.

Table 1 Air Quality Index Health Category Descriptors.

| Air Quality | AQI | Health Advisory |
|--------------------------------|---------|--|
| Good | 0-50 | No health impacts expected . |
| Moderate | 51-100 | Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion. |
| Unhealthy for Sensitive Groups | 101-150 | People with heart disease, respiratory disease (such as asthma), older adults, and children should reduce prolonged or heavy exertion. Active healthy adults should also limit prolong outdoor exertion. |
| Unhealthy | 151-200 | People with heart disease, respiratory disease (such as asthma), older adults, and children should avoid prolonged or heavy outdoor exertion. Everyone else should reduce prolonged or heavy outdoor exertion. |
| Very Unhealthy (Alert) | 201-300 | People with heart disease, respiratory disease (such as asthma), older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion. |

How the AQI is computed

The AQI is computed for PM_{2.5}, PM₁₀, ozone, nitrogen dioxide, sulfur dioxide, and carbon monoxide but the PM_{2.5} and ozone AQI's are typically the highest in Oregon and usually drive the health category. EPA provides all states with the AQI equation for national uniformity. See EPA's AIRNow web site for more detail about the AQI.

Table 2. Air Quality Index Ranges and Episode Stages for PM_{2.5} and ozone.

| Air Quality Rating | Air Quality Index (AQI) | PM _{2.5} 24-hour Average (µg/m ³) | Ozone 8-hour Average (ppm) |
|--------------------------------|-------------------------|--|----------------------------|
| GOOD | 0 - 50 | 0.0 - 12.0 | 0.000 - 0.054 |
| MODERATE | 51 - 100 | 12.1 - 35.4 | 0.055 - 0.070 |
| UNHEALTHY FOR SENSITIVE GROUPS | 101 - 150 | 35.5 - 55.4 | 0.071 - 0.085 |
| UNHEALTHY | 151 - 200 | 55.5 - 150.4 | 0.086 - 0.105 |
| VERY UNHEALTHY | 201 - 300 | 150.5 - 250.4 | 0.106 - 0.200 |
| HAZARDOUS | >300 | >250.5 | >0.200 |

2020 Oregon Air Quality Index by City

The AQI provides a review of the health levels over the past year. The Figures below display the AQI health levels over the past year for all the areas where DEQ and LRAPA monitor air quality. **Note: A summary of all the AQI days are shown in Appendix G.**

Table 3. Figure Key for 2020 Air Quality Index.

| Figure | City or Area | Figure | City or Area | Figure | City or Area |
|--------|------------------|--------|--------------------|--------|---------------------|
| 1 | Albany | 18 | Eugene/Springfield | 35 | Mt. Hood Wilderness |
| 2 | Applegate Valley | 19 | Florence | 36 | Oakridge |
| 3 | Ashland | 20 | Forest Grove | 37 | Ontario |
| 4 | Baker City | 21 | Grants Pass | 38 | Pendleton |
| 5 | Beaverton | 22 | Gresham | 39 | Portland |
| 6 | Bend | 23 | Hermiston | 40 | Prineville |
| 7 | Brookings | 24 | Hillsboro | 41 | Redmond |
| 8 | Burns | 25 | Hood River | 42 | Roseburg |
| 9 | Cave Junction | 26 | John Day | 43 | Salem |
| 10 | Chiloquin | 27 | Klamath Falls | 44 | Sauvie Island |
| 11 | Coos Bay | 28 | La Grande | 45 | Shady Cove |
| 12 | Corvallis | 29 | Lakeview | 46 | Silverton |
| 13 | Cottage Grove | 30 | La Pine | 47 | Sisters |
| 14 | Cove | 31 | Lyons | 48 | Sweet Home |
| 15 | Crater Lake | 32 | Madras | 49 | The Dalles |
| 16 | Detroit Lake | 33 | Medford | 50 | Tillamook |
| 17 | Enterprise | 34 | Mill City | 51 | Tualatin at I-5 |

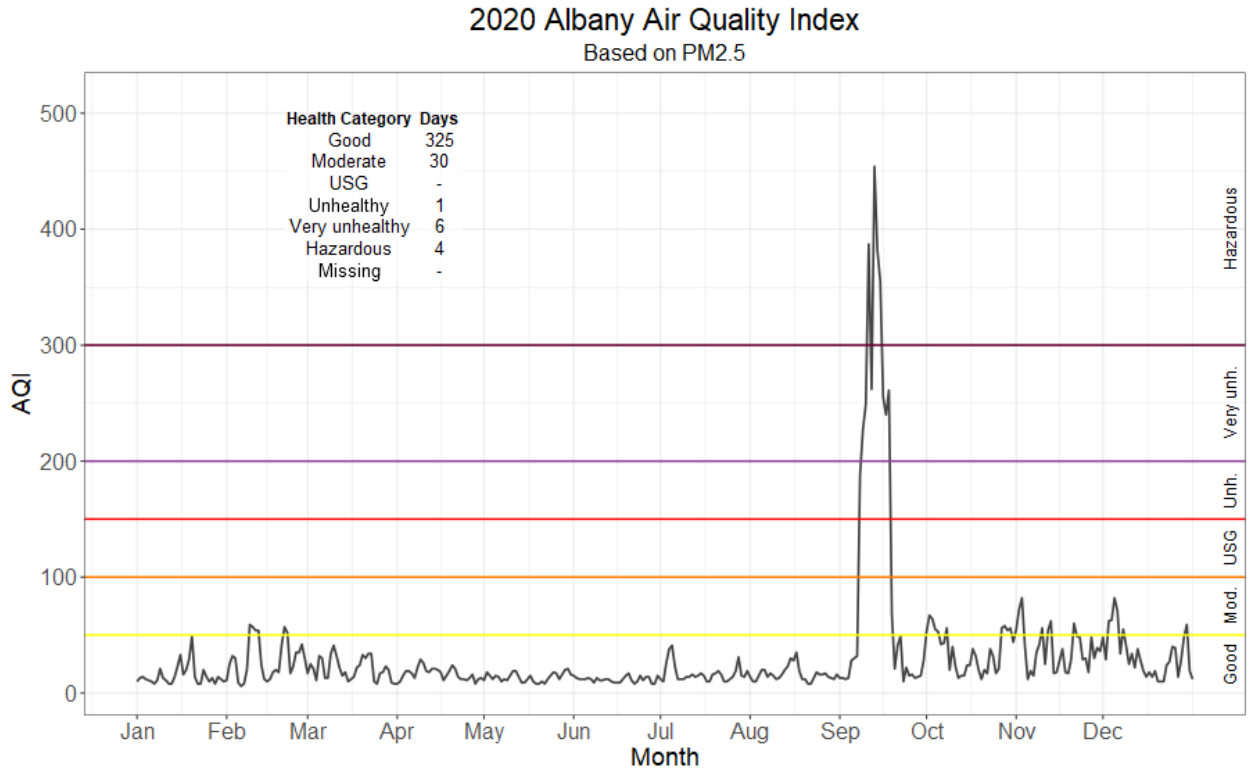


Figure 1. 2020 Albany Air Quality Index Summary.

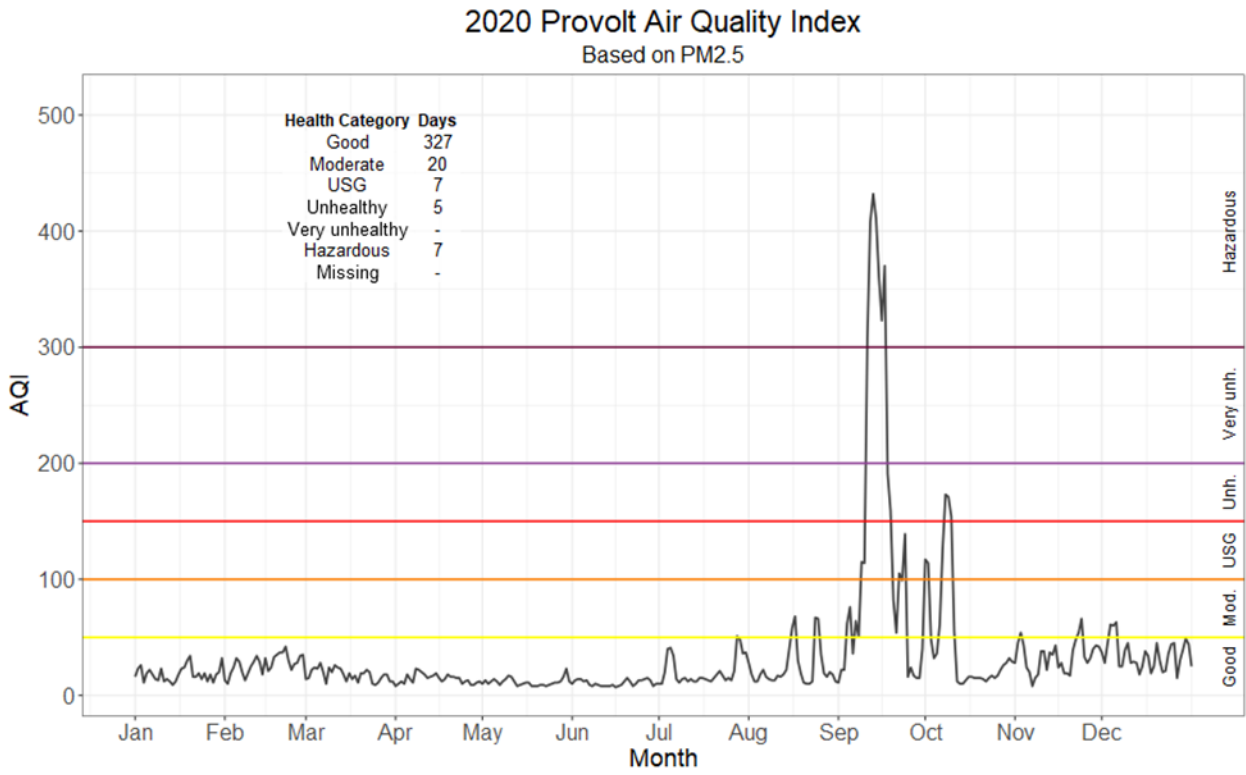


Figure 2. 2020 Applegate Valley Air Quality Summary.

2020 Ashland Air Quality Index

Based on PM2.5

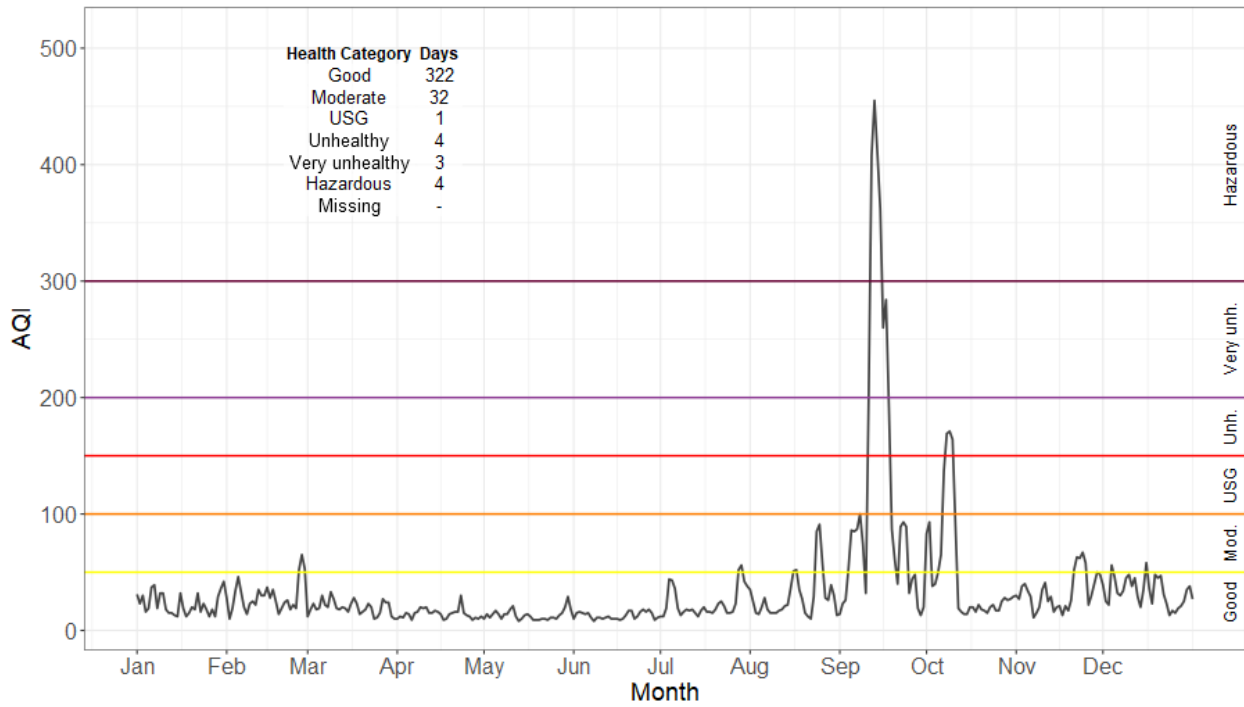


Figure 3. 2020 Ashland Air Quality Index Summary.

2020 Baker City Air Quality Index

Based on PM2.5

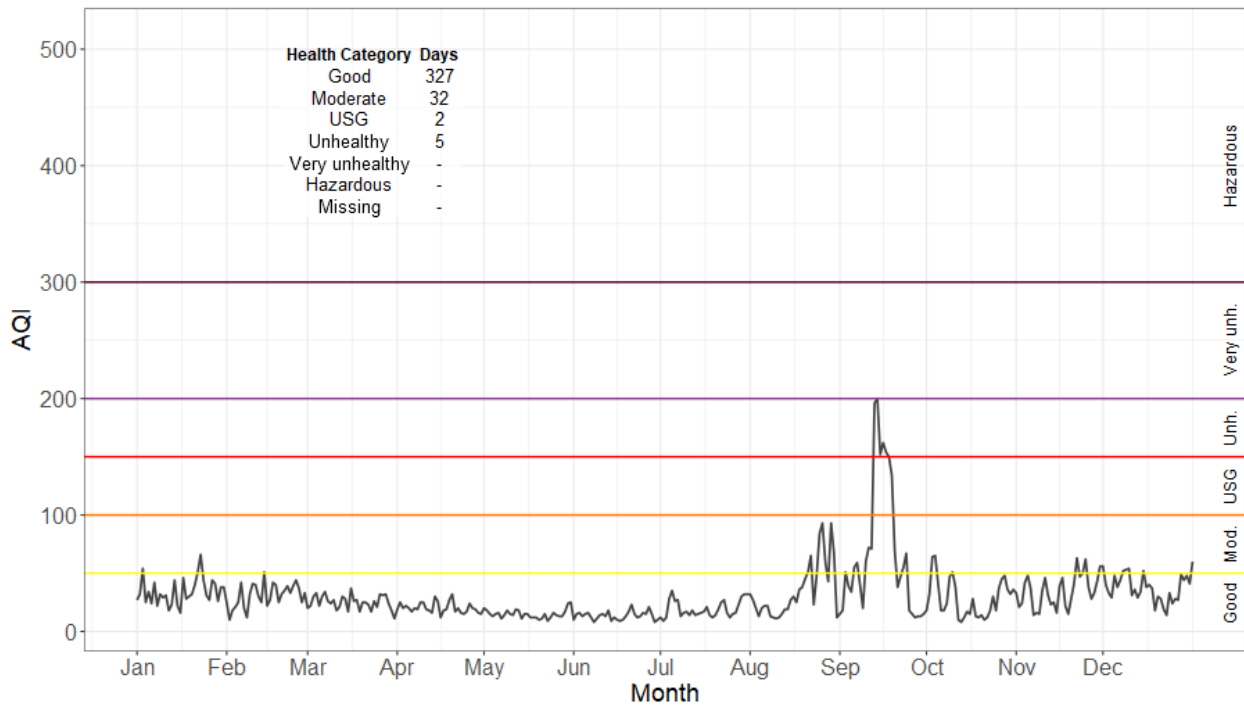


Figure 4. 2020 Baker City Air Quality Index Summary.

2020 Beaverton Air Quality Index

Based on PM2.5

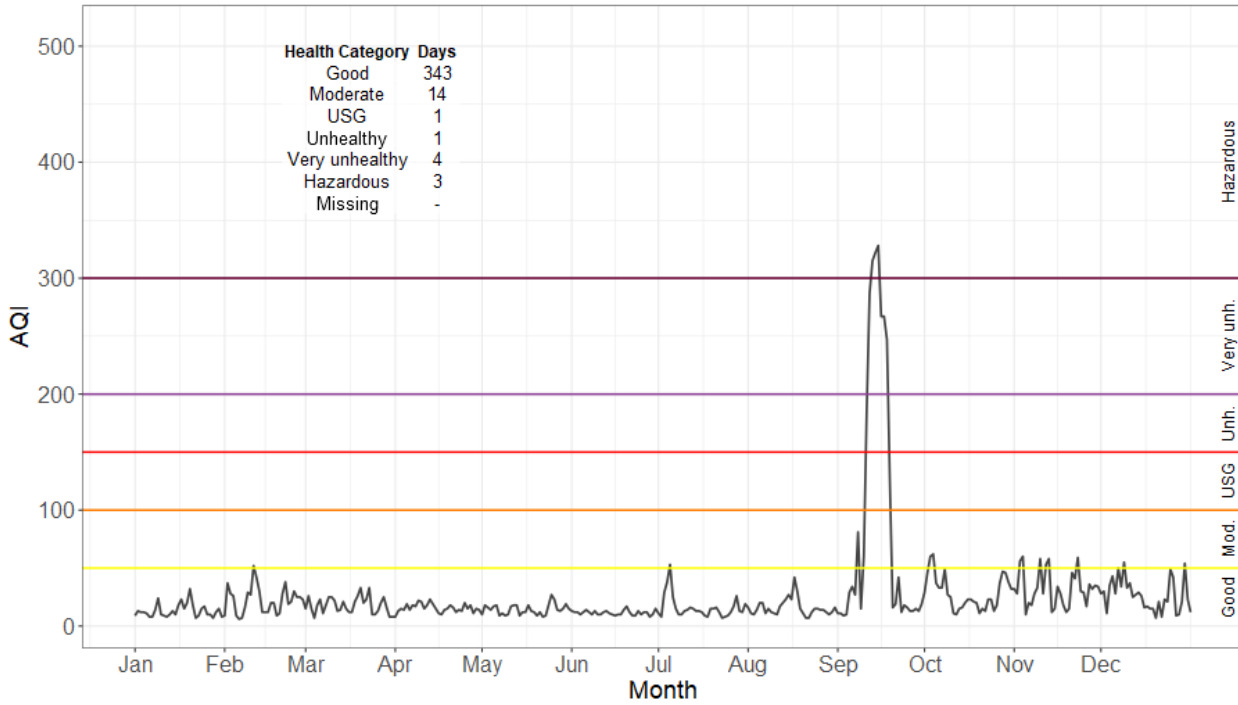


Figure 5. 2020 Beaverton Air Quality Index Summary.

2020 Bend Air Quality Index

Based on PM2.5

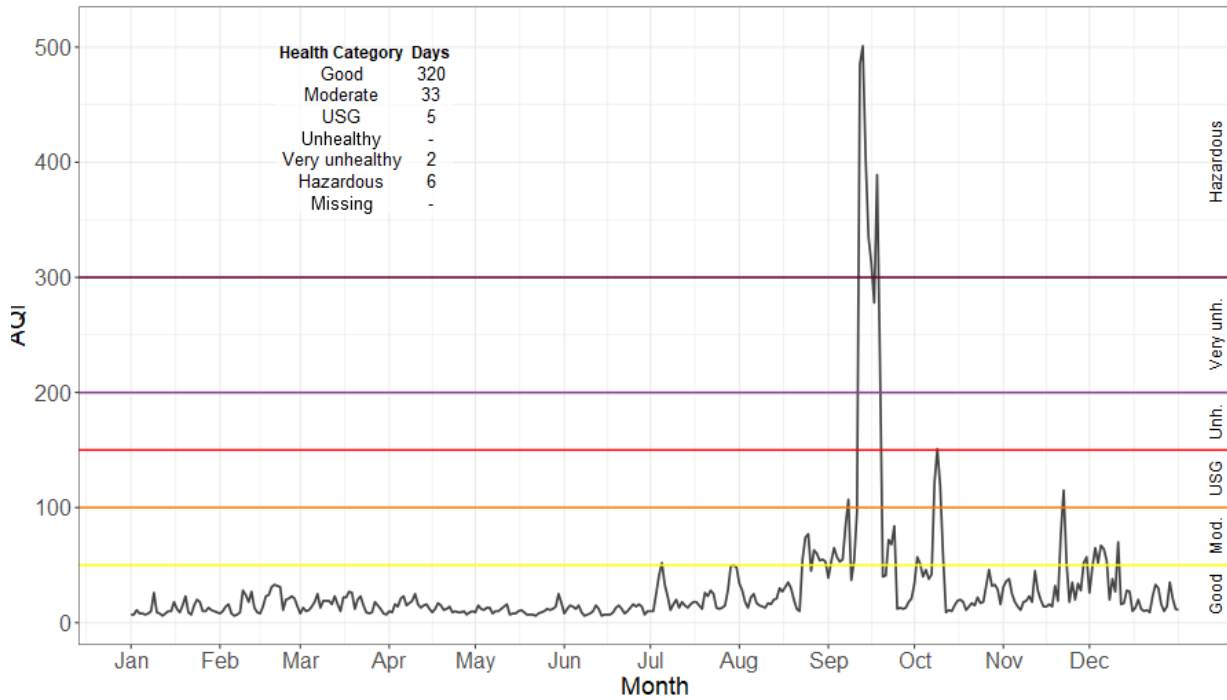


Figure 6. 2020 Bend Air Quality Index Summary.

2020 Brookings CPFA Air Quality Index

Based on SensOR PM2.5

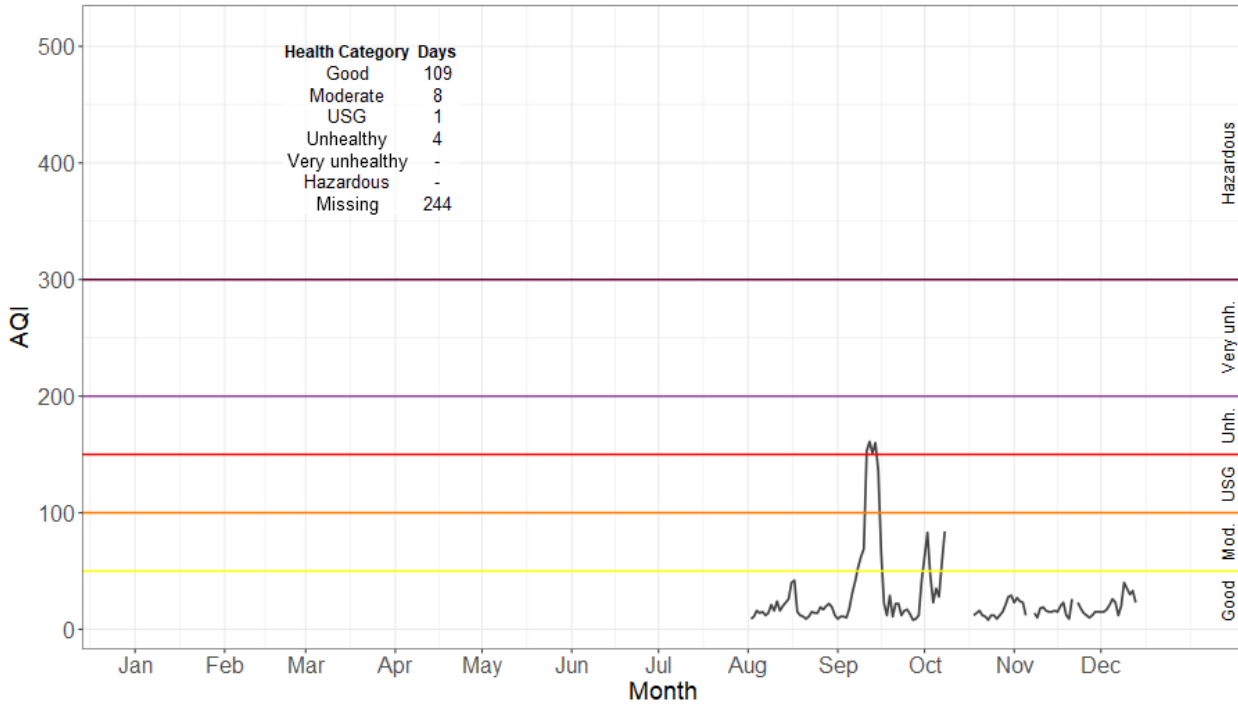


Figure 7. 2020 Brookings Air Quality Index Summary.

2020 Burns Air Quality Index

Based on PM2.5

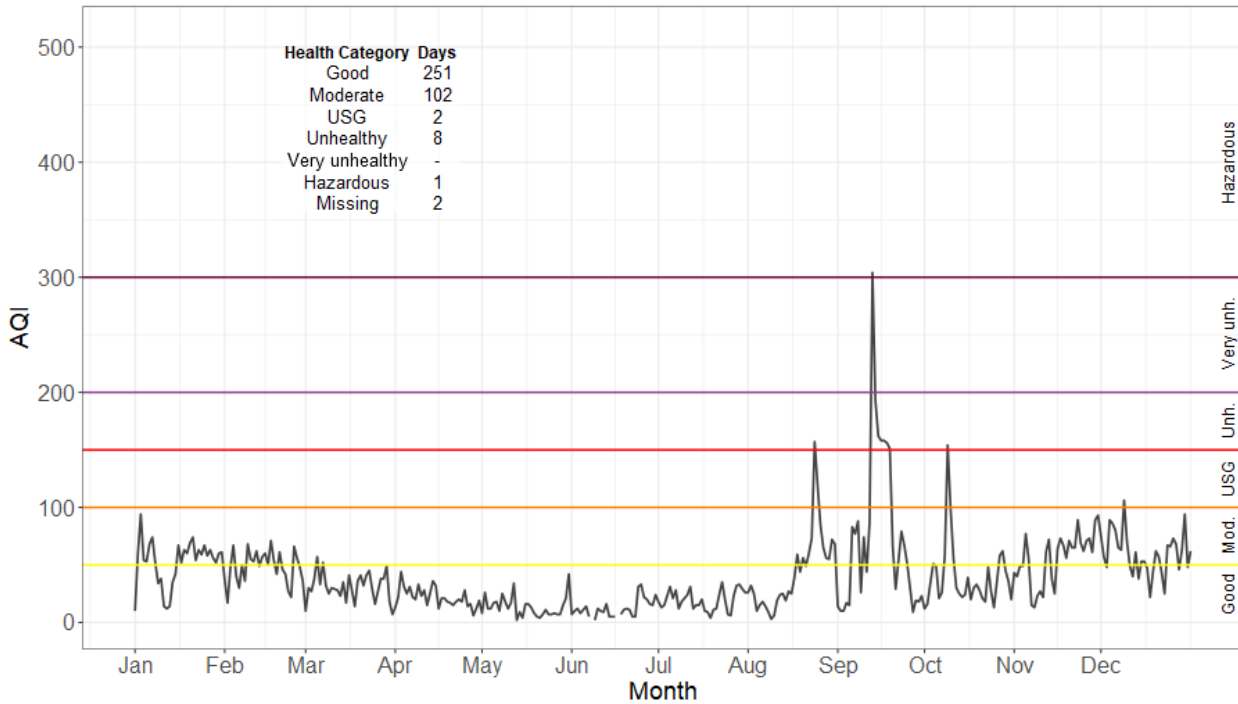


Figure 8. 2020 Burns/Hines Air Quality Index Summary.

2020 Cave Junction Air Quality Index

Based on PM2.5

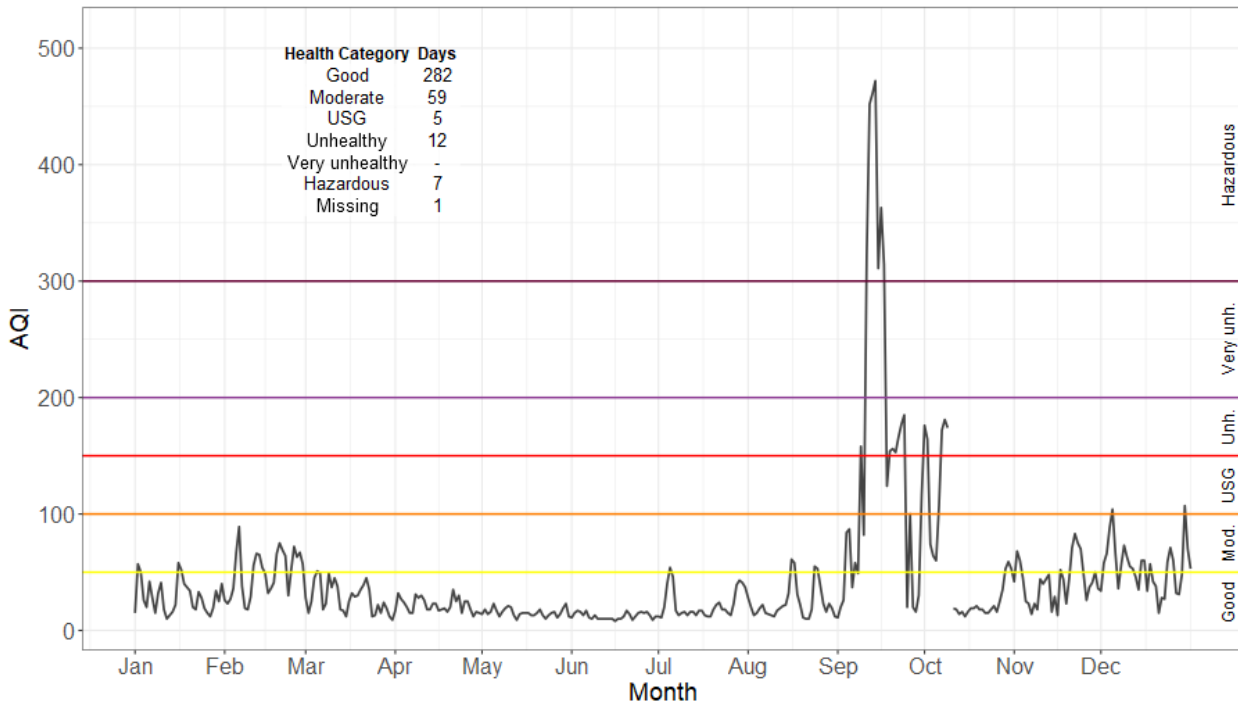


Figure 9. 2020 Cave Junction Air Quality Index Summary.

2020 Chiloquin Duke Drive Air Quality Index

Based on Sensor PM2.5

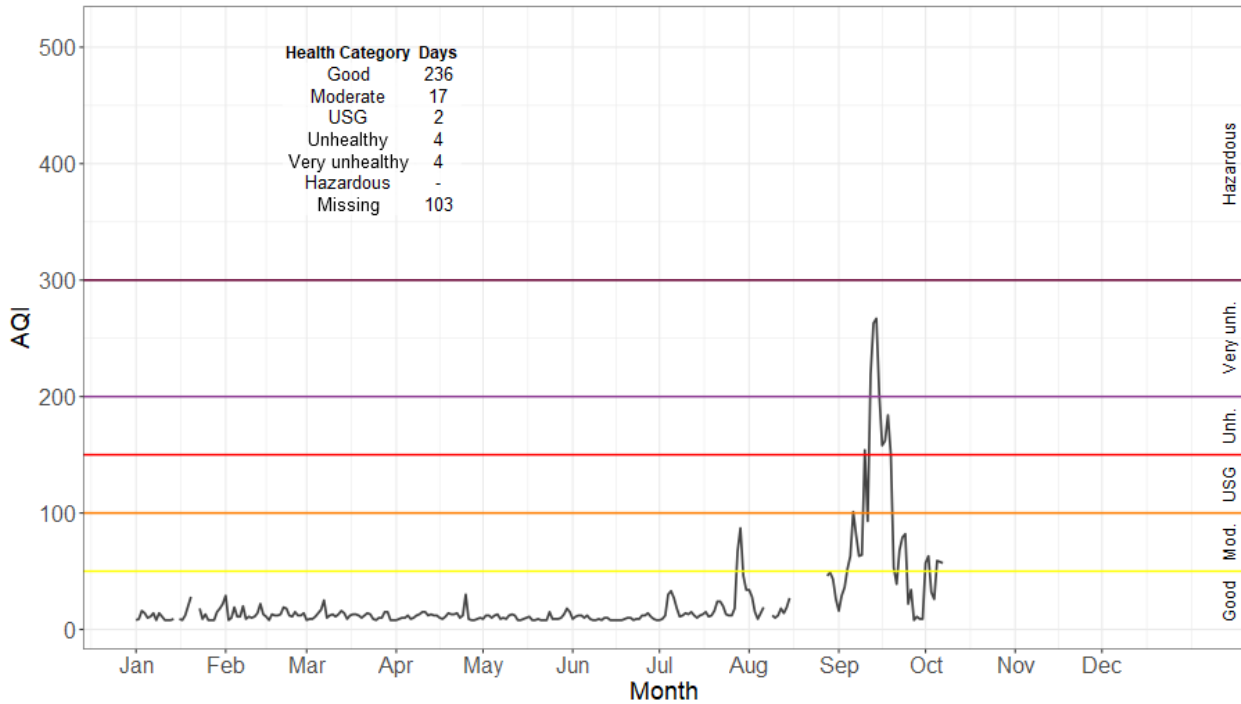


Figure 10. 2020 Chiloquin Air Quality Index Summary.

2020 Coos Bay Marshfield HS Air Quality Index

Based on SensOR PM2.5

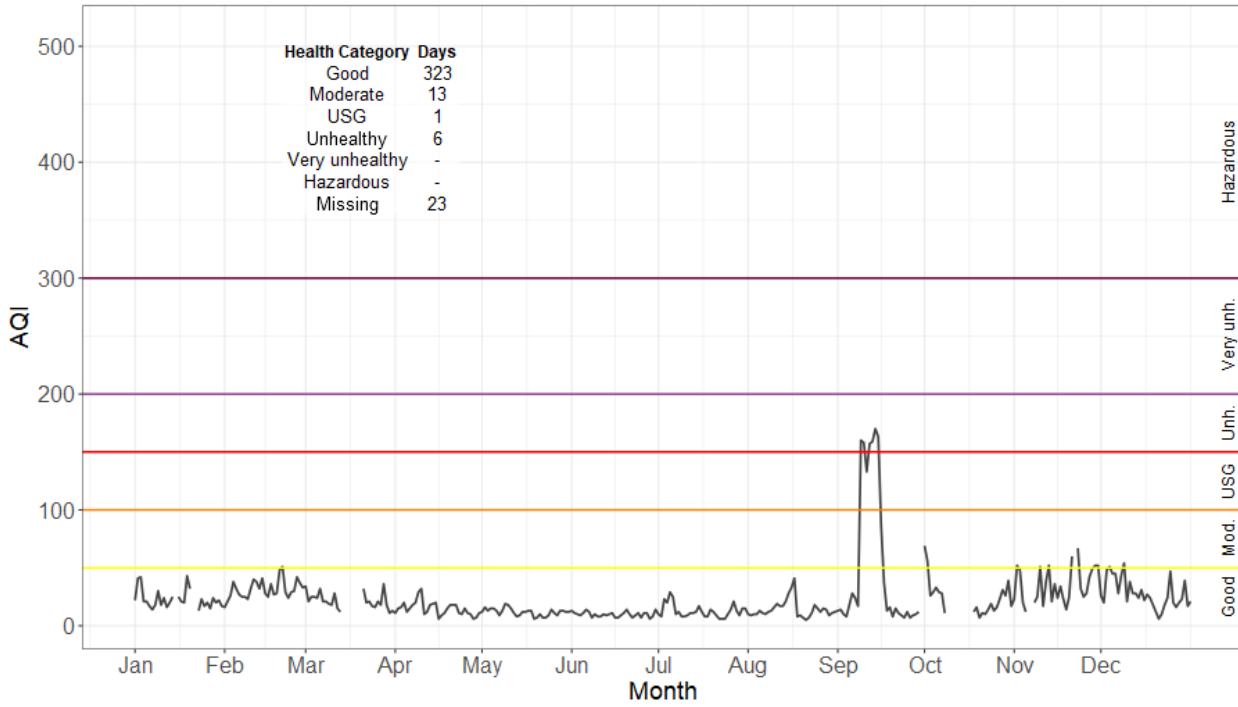


Figure 11. 2020 Coos Bay Air Quality Index Summary.

2020 Corvallis Air Quality Index

Based on PM2.5

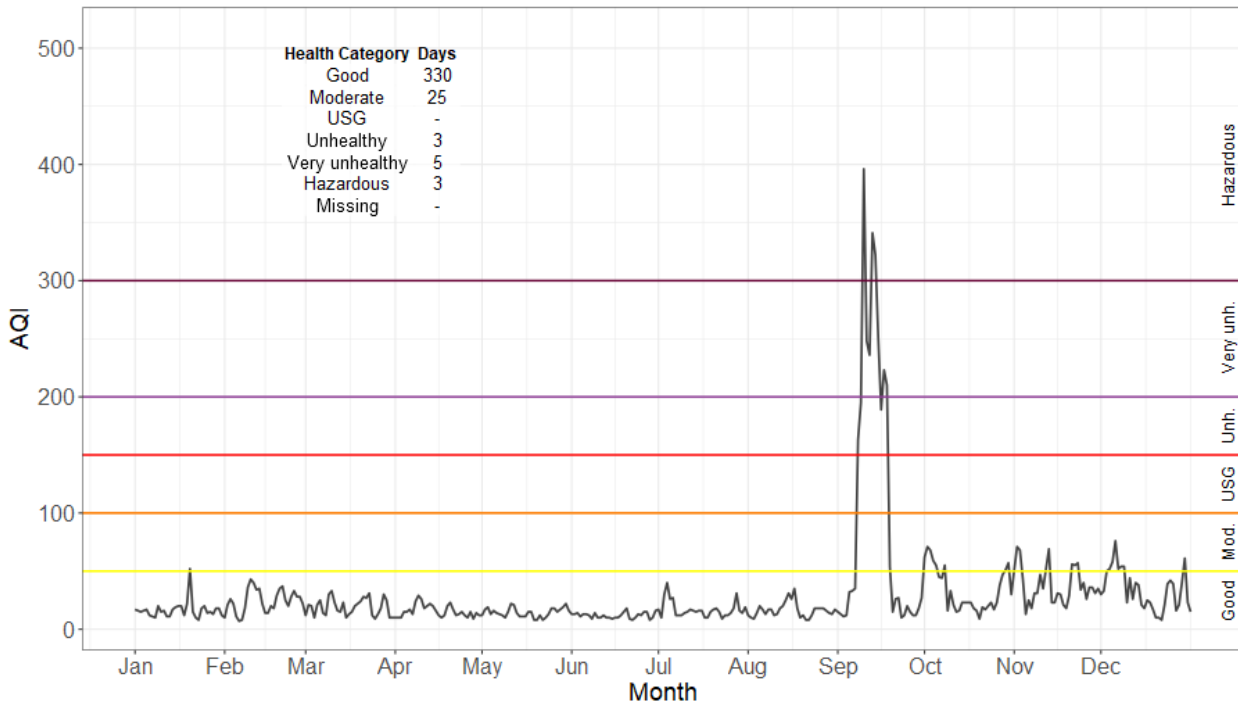


Figure 12. 2020 Corvallis Air Quality Index Summary.

2020 Cottage Grove Air Quality Index

Based on PM2.5

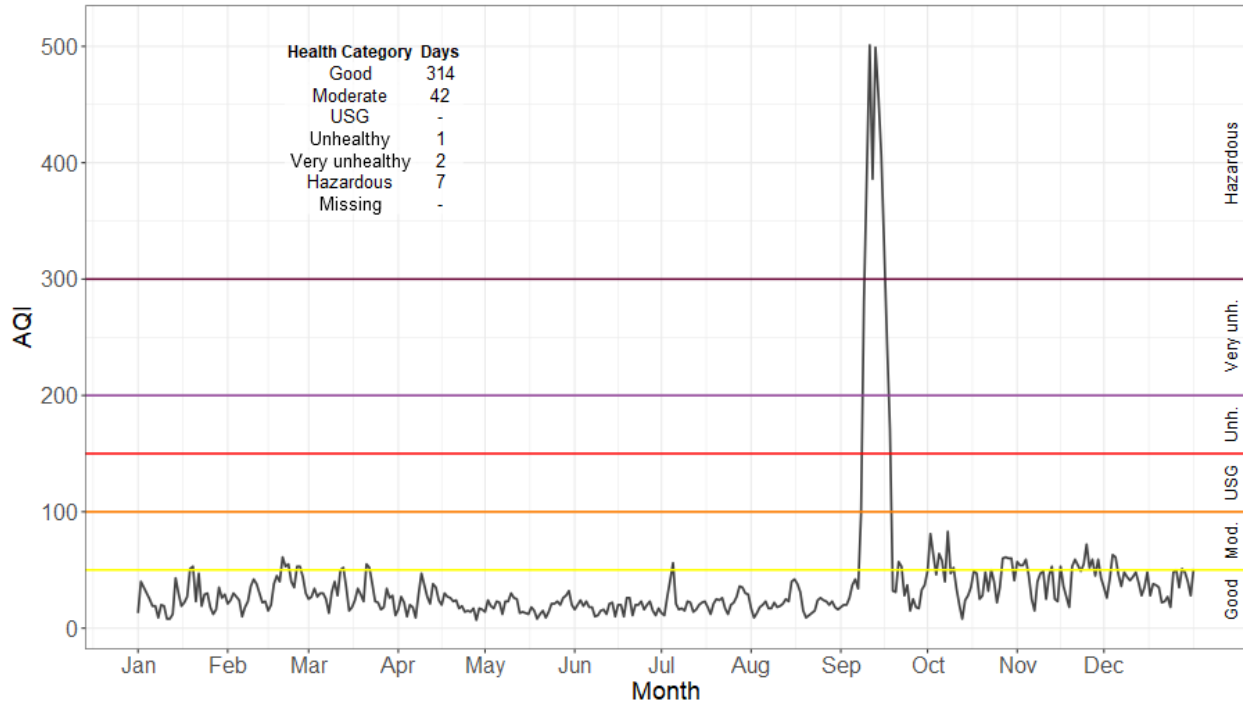


Figure 13. 2020 Cottage Grove Air Quality Index Summary.

2020 Cove City Hall Air Quality Index

Based on Sensor PM2.5

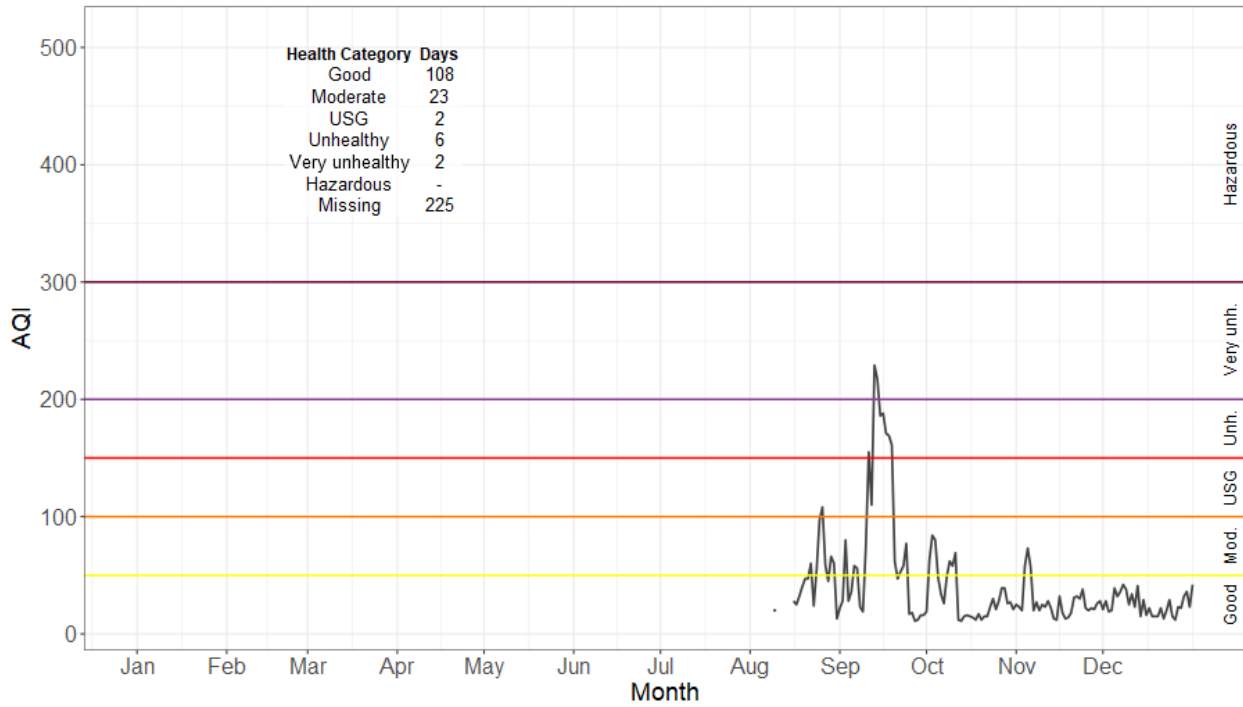


Figure 14. 2020 Cove Air Quality Index Summer Summary

2020 Crater Lake Air Quality Index

Based on PM2.5

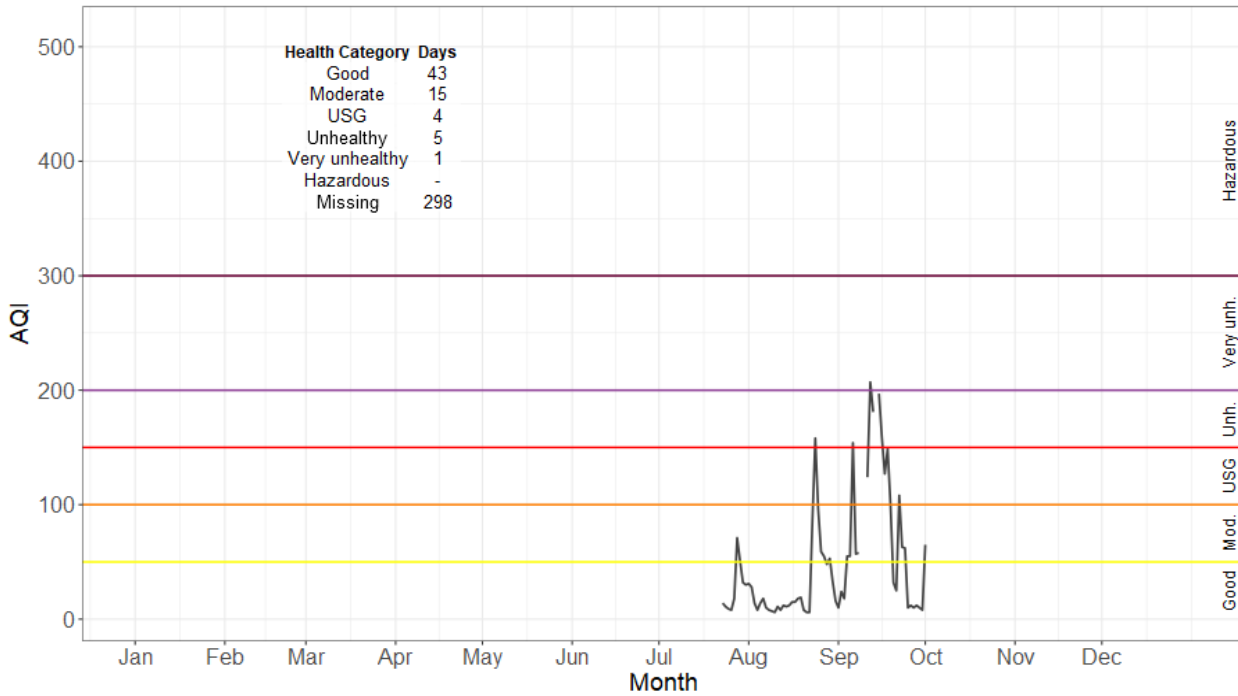


Figure 15. 2020 Crater Lake Summer Air Quality Index Summary.
Monitoring from June 25th to October 8th.

2020 Detroit Lake Forest Service Air Quality Index

Based on SensOR PM2.5

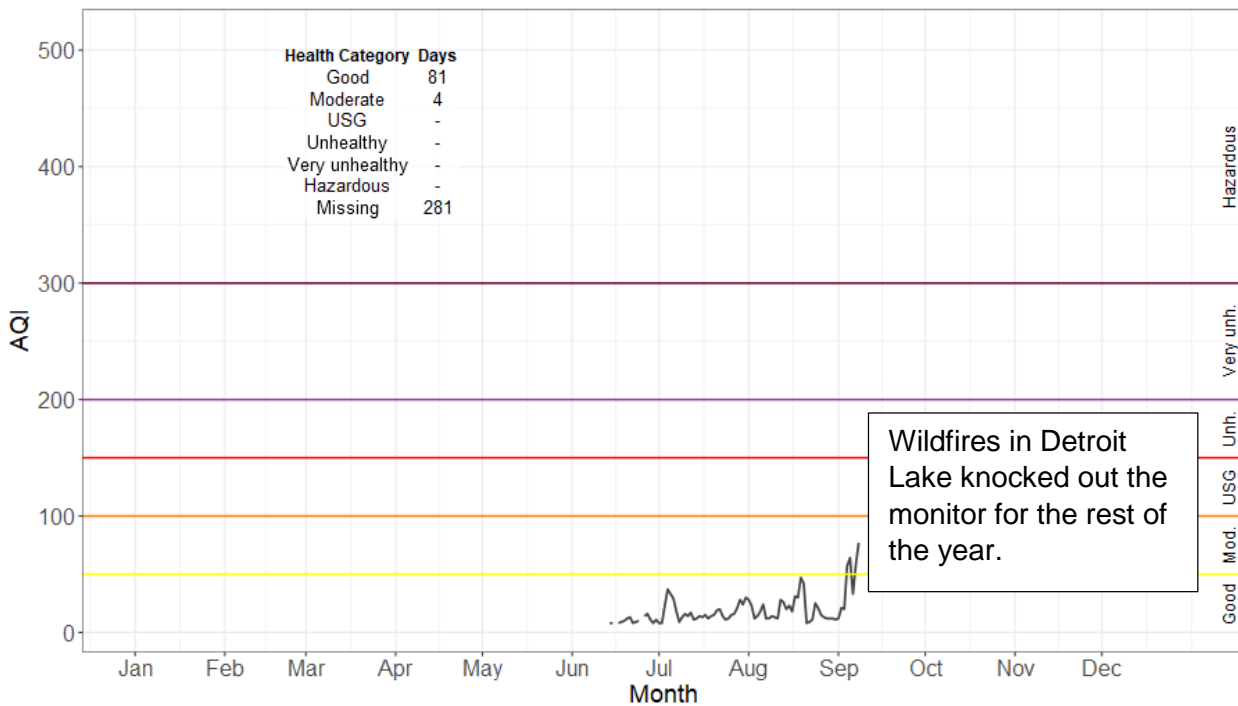


Figure 16. 2020 Detroit Lake Summer Air Quality Index Summary.
Monitoring from July 12th to October 2nd.

2020 Enterprise Air Quality Index

Based on PM2.5

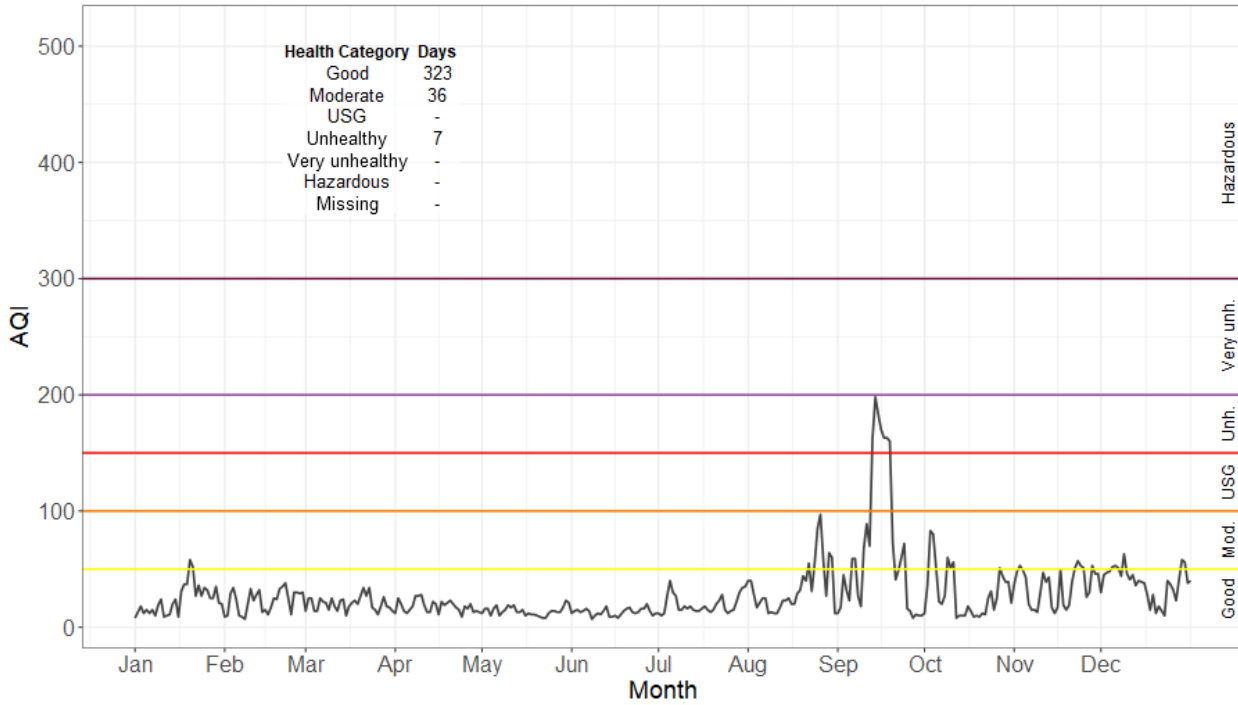


Figure 17. 2020 Enterprise Air Quality Index Summary.

2020 Eugene-Springfield Air Quality Index

Based on PM2.5 and Ozone

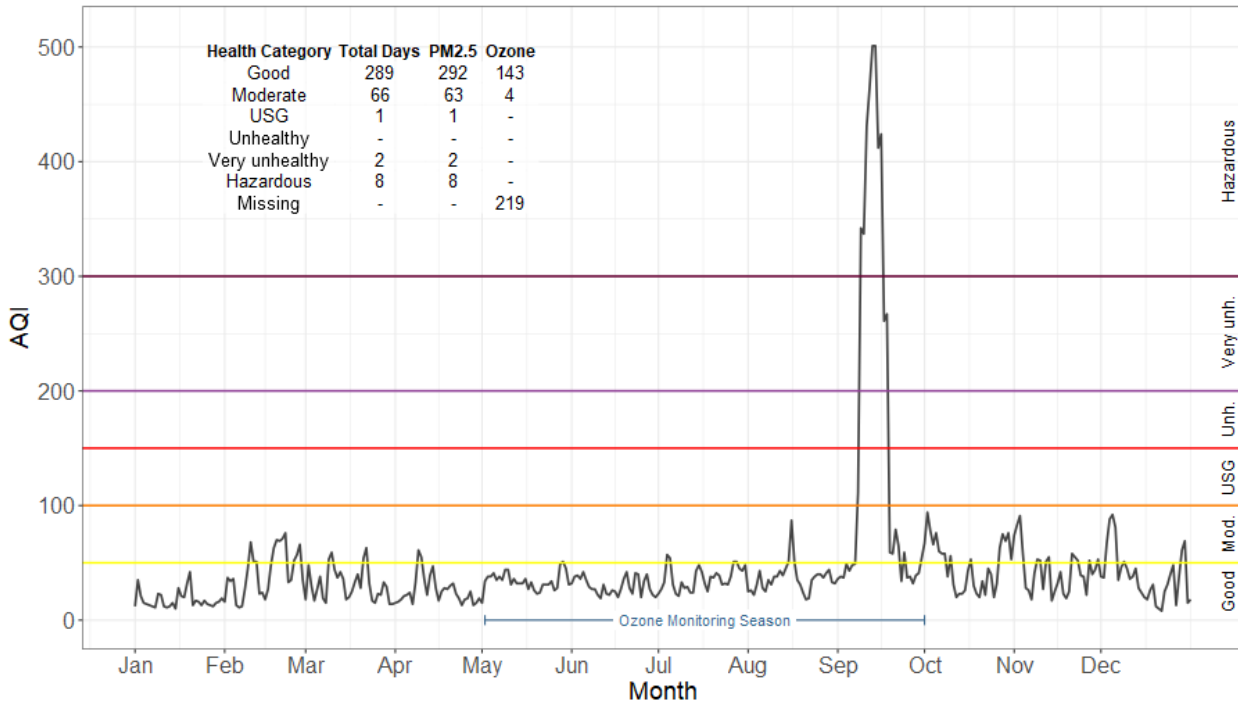


Figure 18. 2020 Eugene/Springfield Air Quality Index Summary.

Note: only the maximum ozone AQI or PM2.5 AQI is reported each day during ozone season.

2020 Florence Air Quality Index

Based on PM2.5

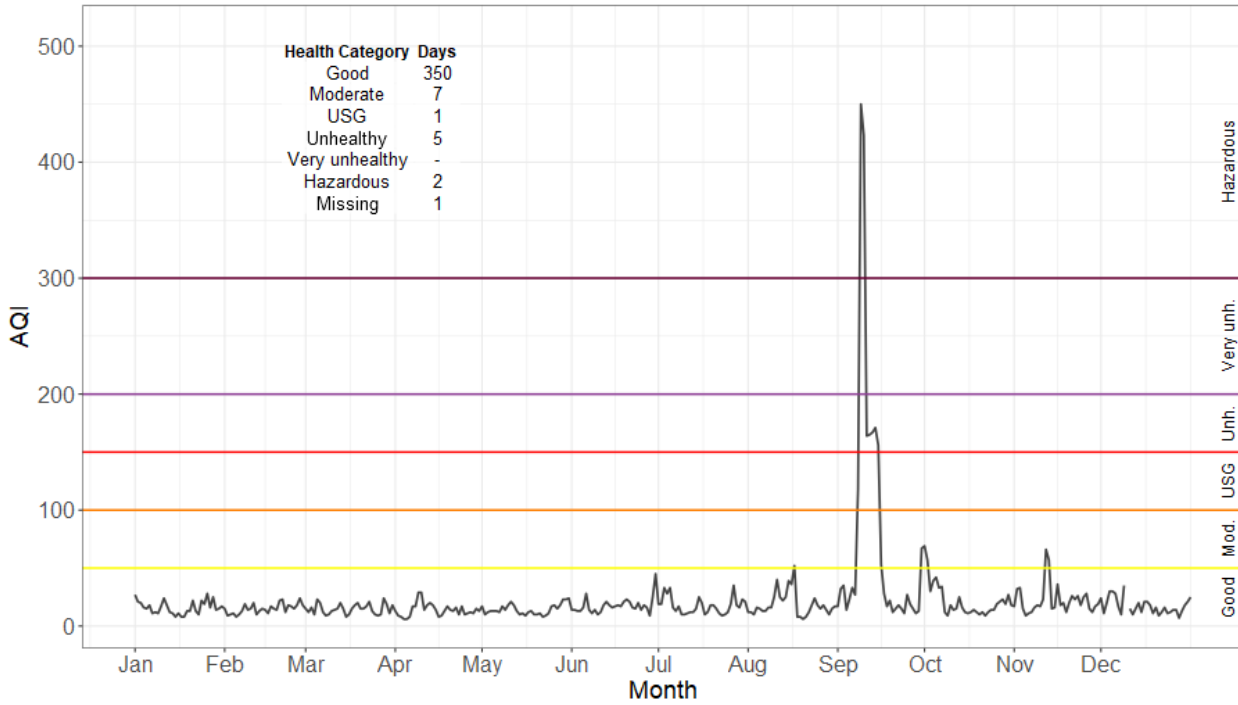


Figure 19. 2020 Florence Air Quality Index Summary.

2020 Forest Grove Pacific University Air Quality Index

Based on SensOR PM2.5

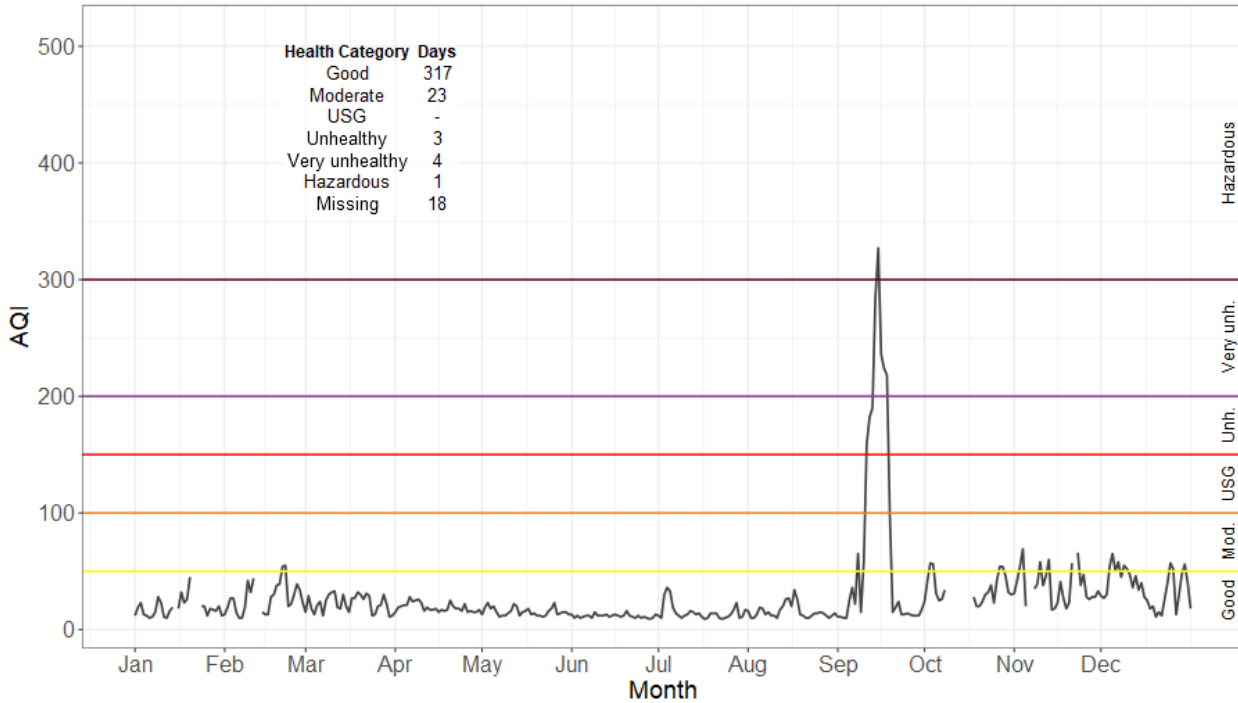


Figure 20. 2020 Forest Grove Air Quality Index Summary.

2020 Grants Pass Air Quality Index

Based on PM2.5

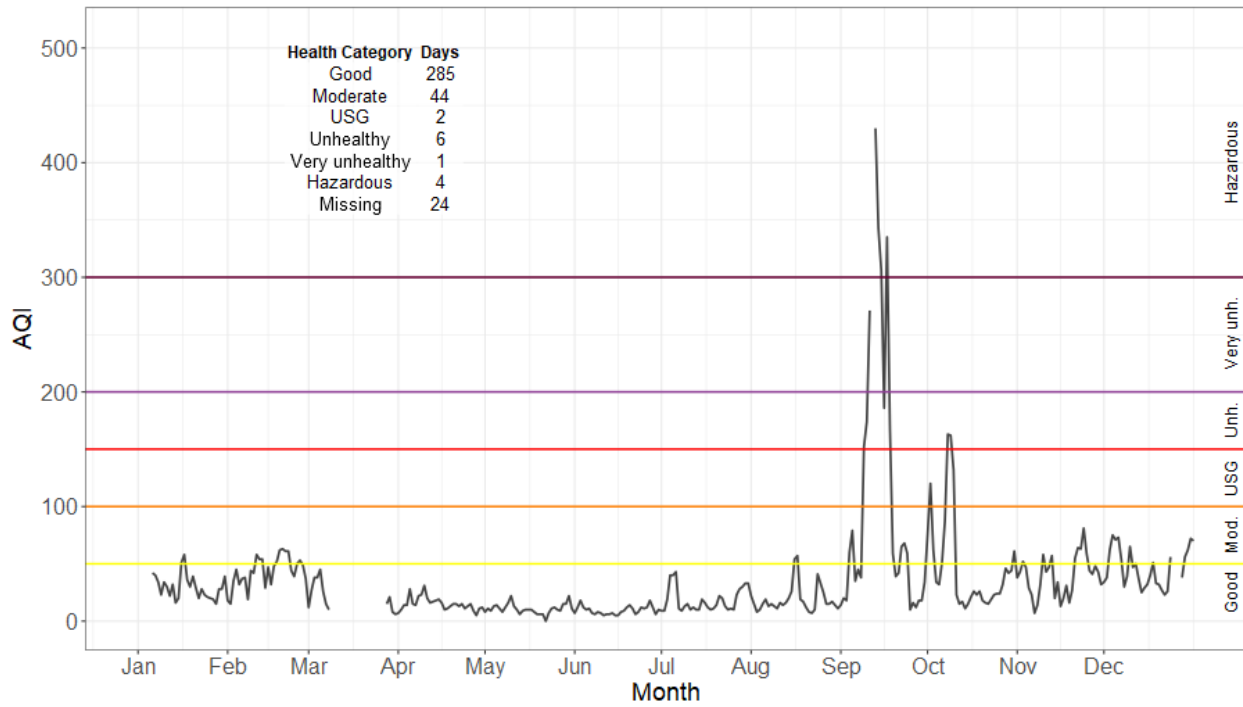


Figure 21. 2020 Grants Pass Air Quality Index Summary.

2020 Gresham Centennial High School Air Quality Index

Based on SensOR PM2.5

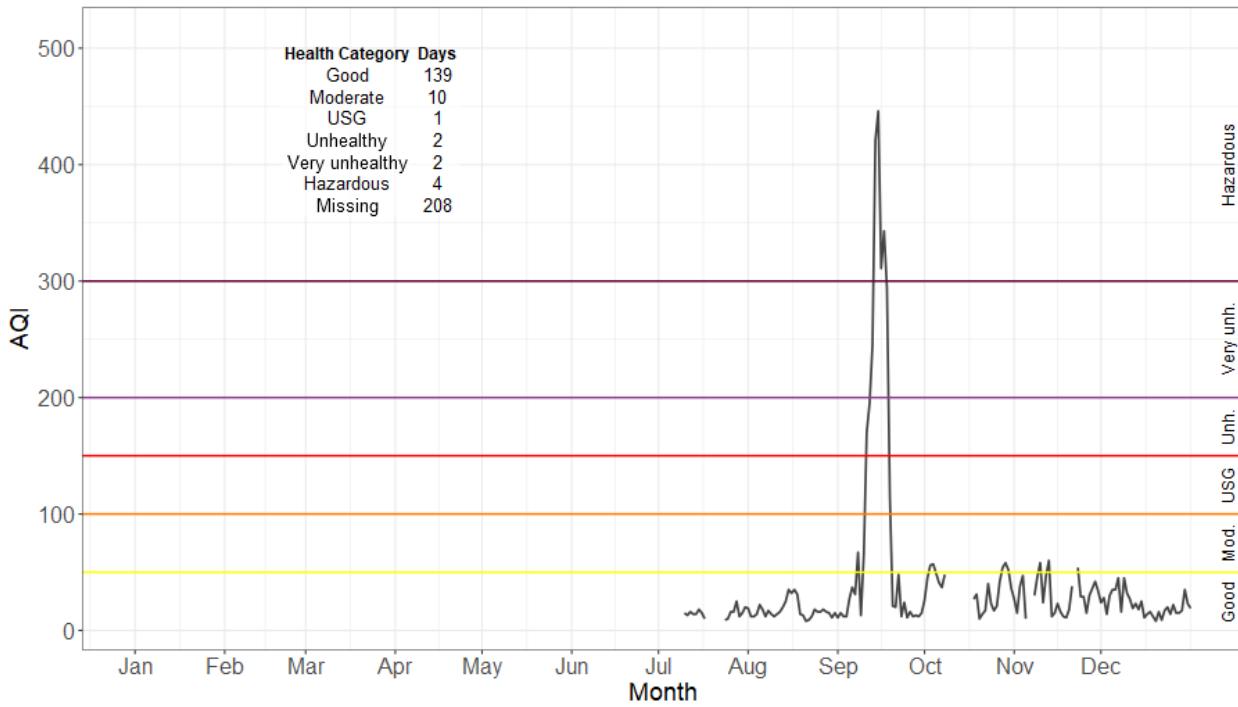


Figure 22. 2020 Gresham Air Quality Index Summary.

2020 Hermiston Air Quality Index

Based on PM2.5 and Ozone

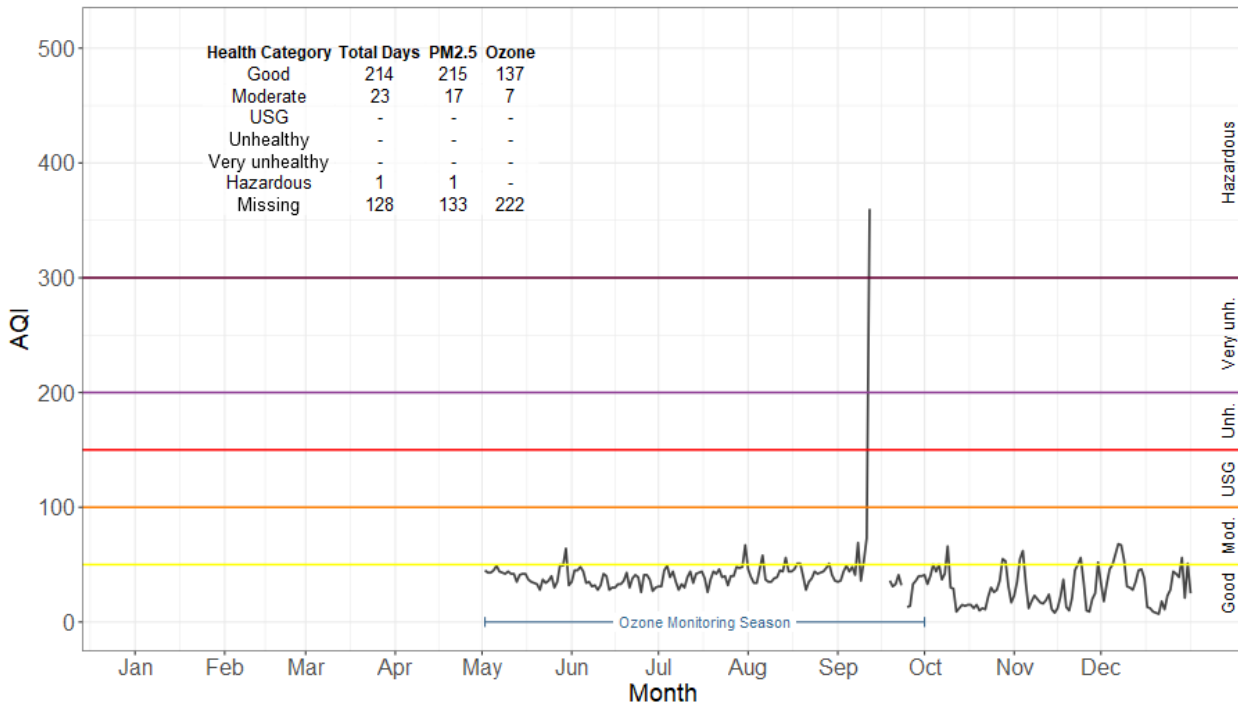


Figure 23. 2020 Hermiston Summer Air Quality Index Summary.
Monitoring from May 1st

2020 Hillsboro Air Quality Index

Based on PM2.5

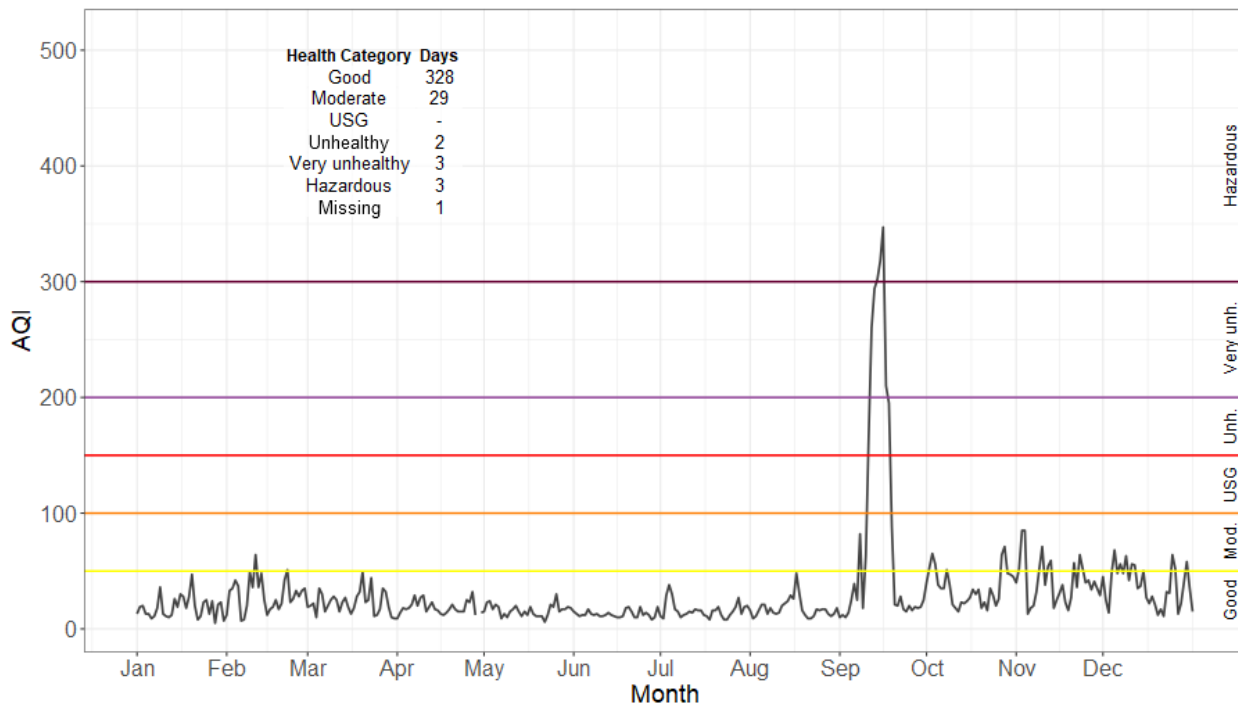


Figure 24. 2020 Hillsboro Air Quality Index Summary.

2020 Hood River West Side Fire Department Air Quality Index

Based on SensOR PM2.5

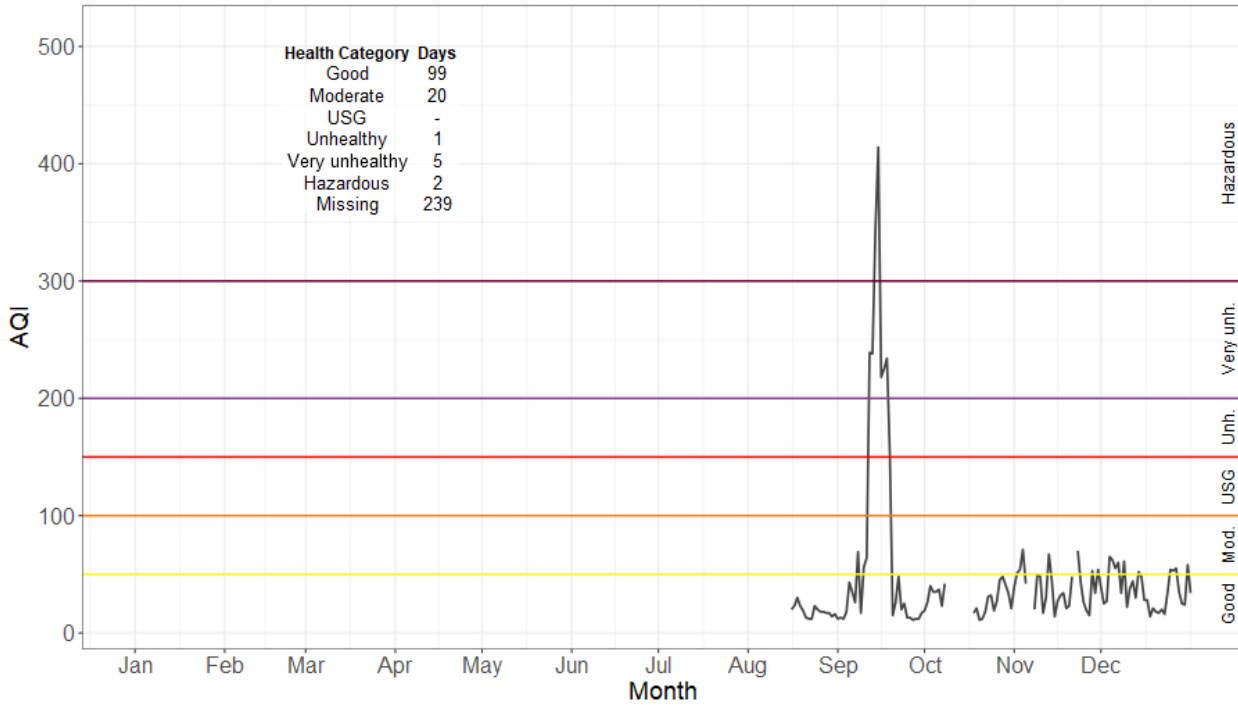


Figure 25. 2020 Hood River Air Quality Index Summary.
Monitoring started in August

2020 John Day Air Quality Index

Based on PM2.5

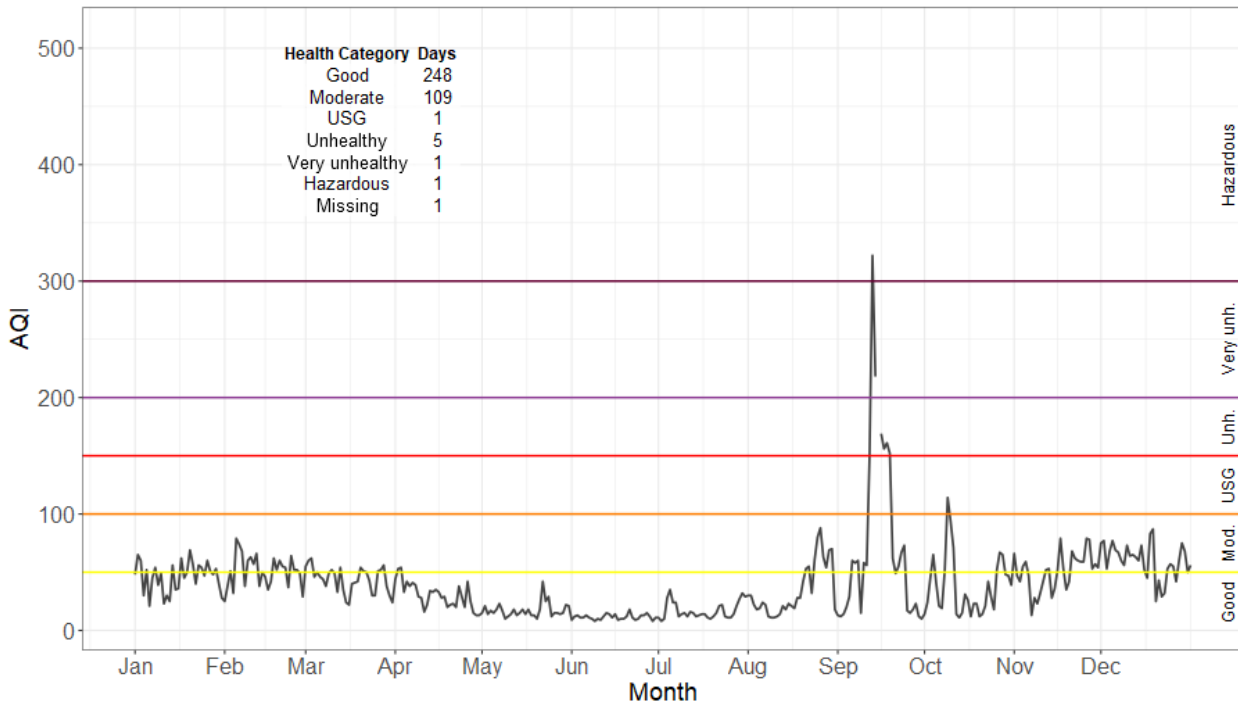


Figure 26. 2020 John Day Air Quality Index Summary.

2020 Klamath Falls Air Quality Index

Based on PM2.5

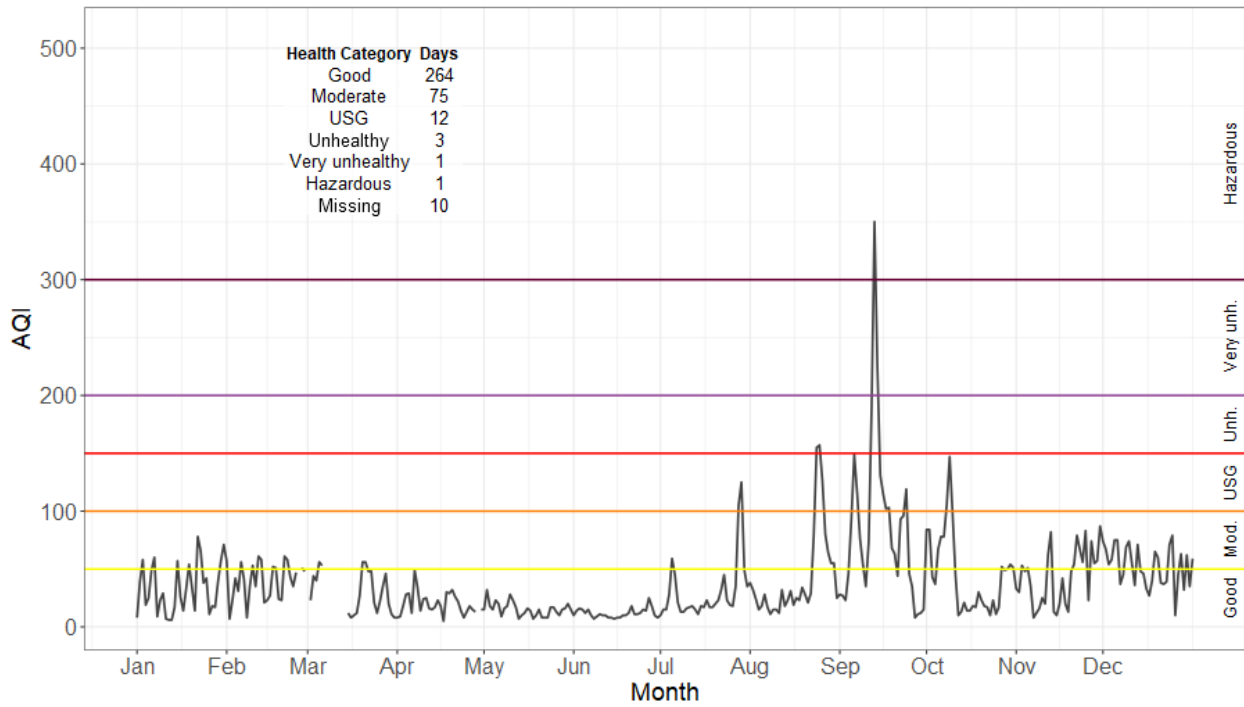


Figure 27. 2020 Klamath Falls Air Quality Index Summary.

2020 La Grande Air Quality Index

Based on PM2.5

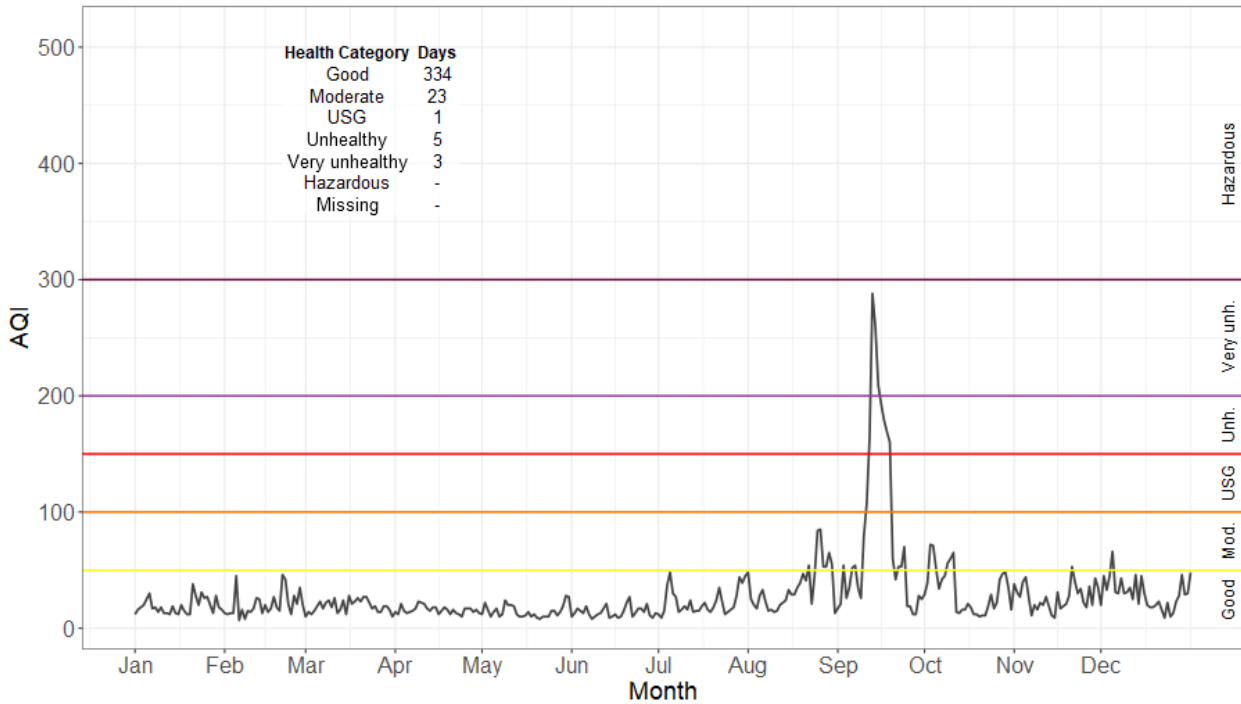


Figure 28. 2020 La Grande Air Quality Index Summary.

2020 Lakeview Air Quality Index

Based on PM2.5

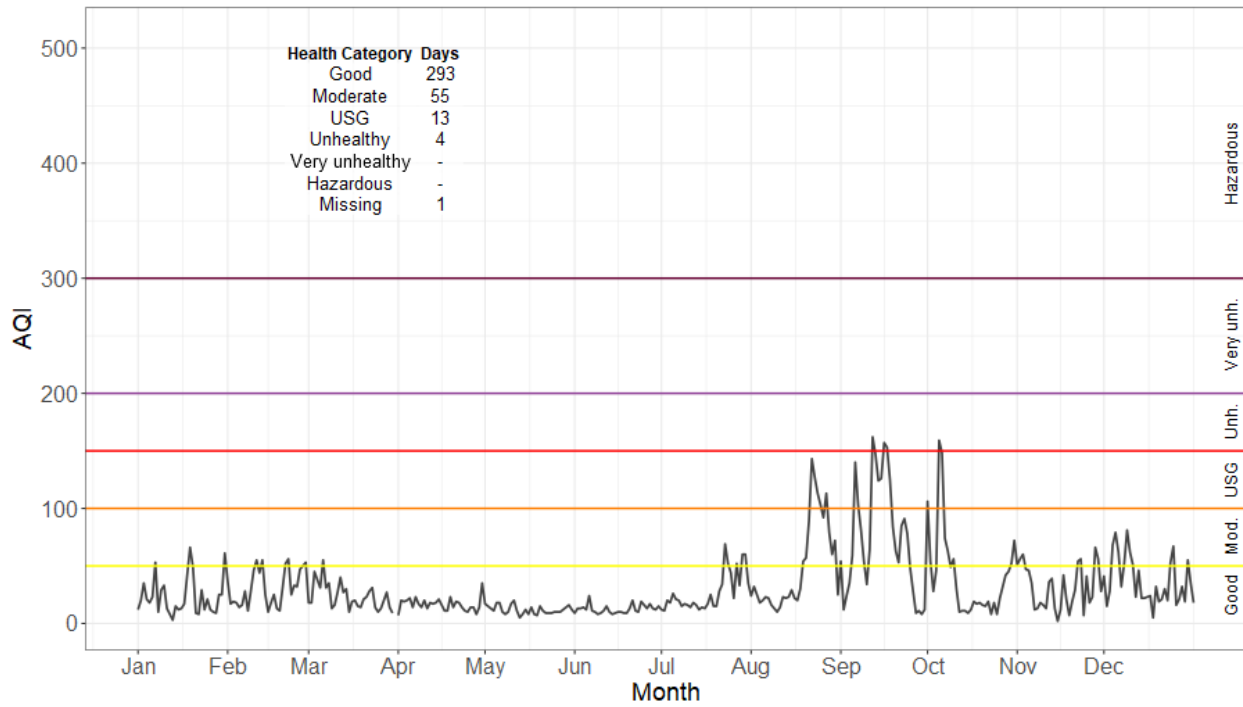


Figure 29. 2020 Lakeview Air Quality Index Summary.

2020 La Pine Rural Fire Dept 103 Air Quality Index

Based on SensOR PM2.5

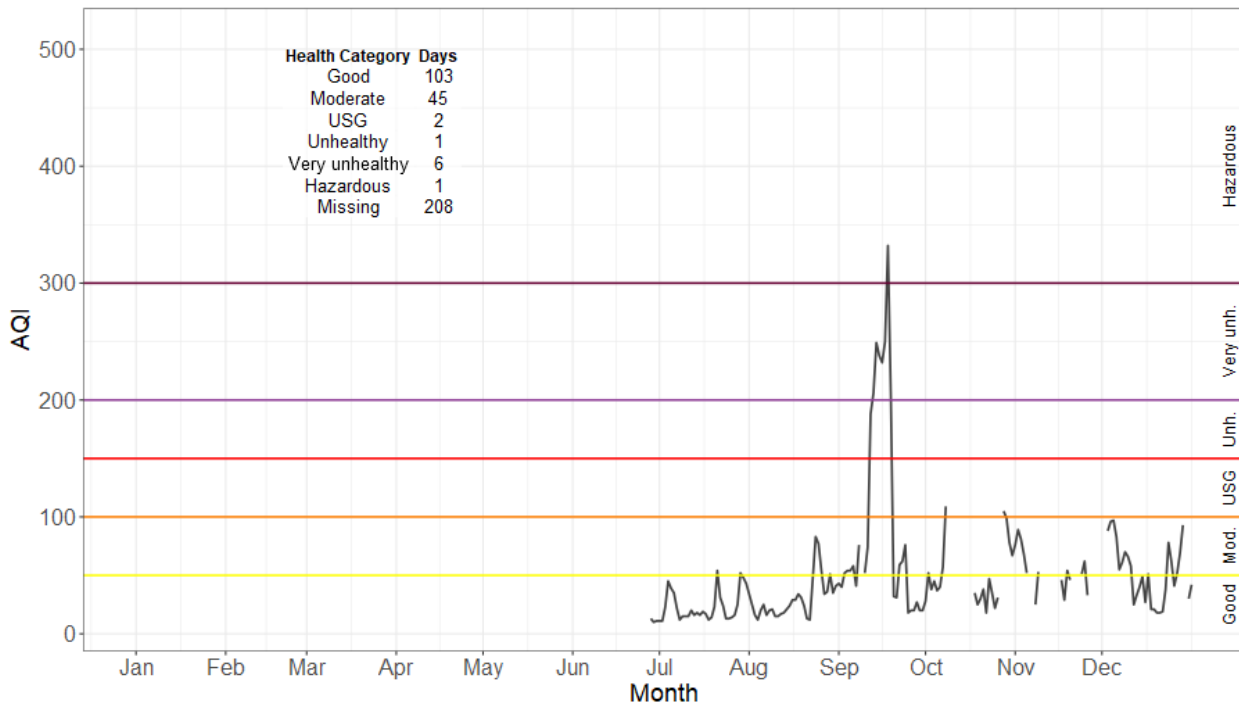


Figure 30. 2020 La Pine Air Quality Index Summary.

2020 Lyons Air Quality Index Based on PM2.5

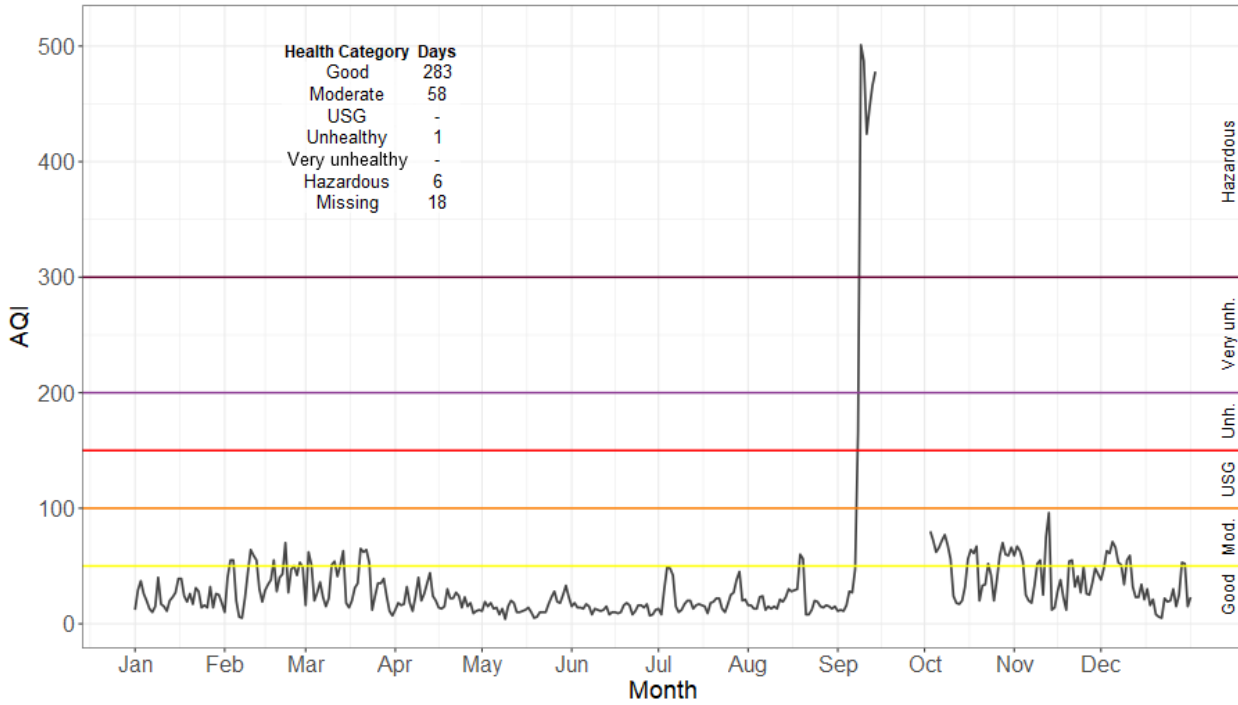


Figure 31. 2020 Lyons Air Quality Index Summary.
Monitoring June 22nd through December 31st.

2020 Madras Air Quality Index Based on PM2.5

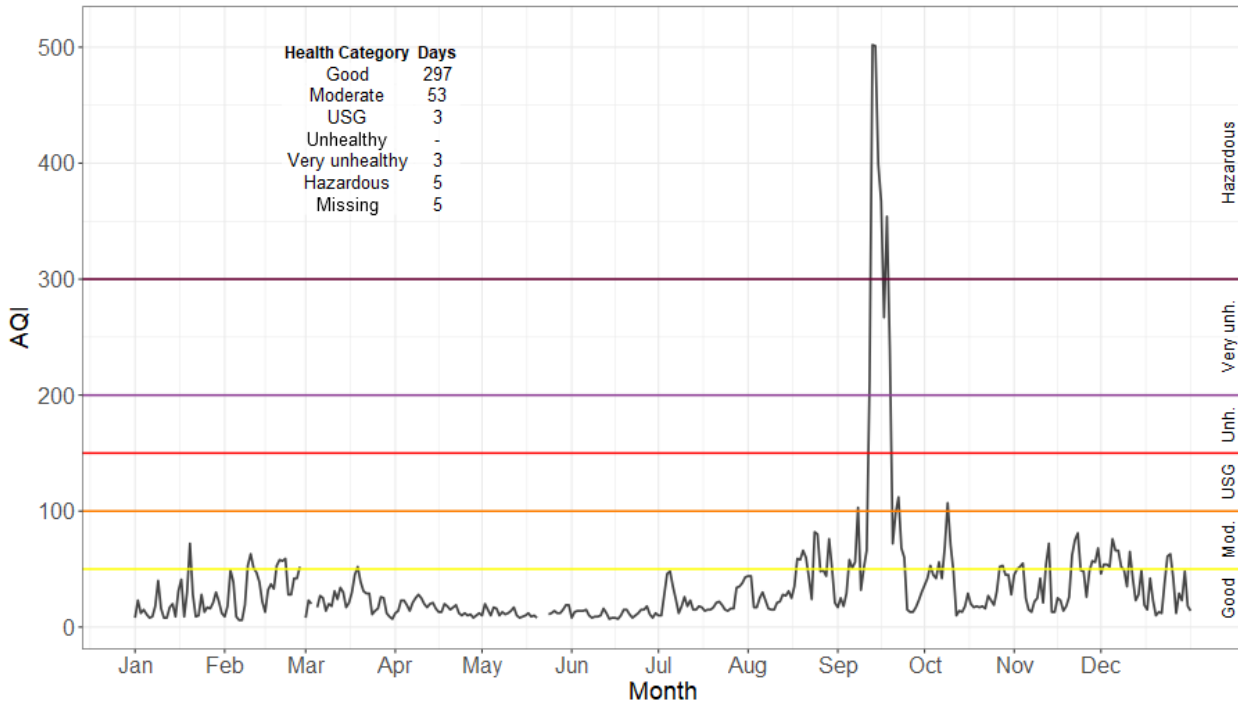


Figure 32. 2020 Madras Air Quality Index Summary.

2020 Medford Air Quality Index

Based on PM2.5 and Ozone

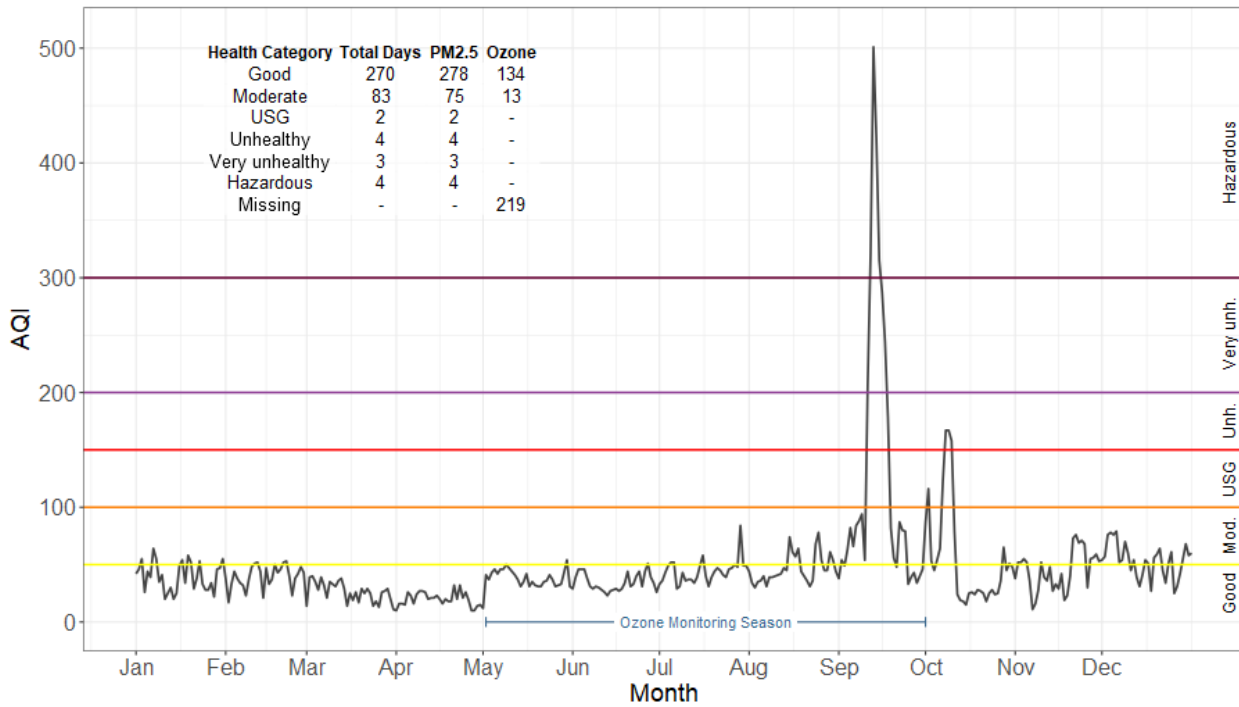


Figure 33. 2020 Medford Air Quality Index Summary.

Note: only the maximum ozone AQI or PM2.5 AQI is reported each day during ozone season.

2020 Mill City Air Quality Index

Based on Sensor PM2.5

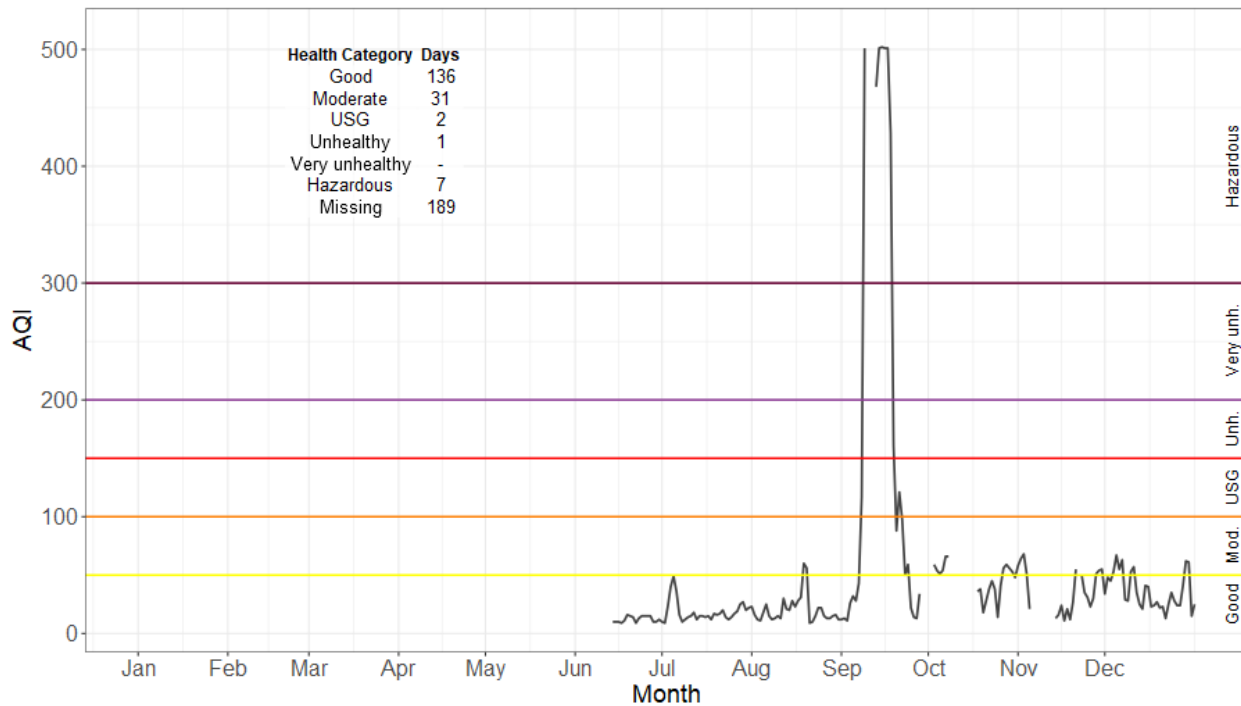


Figure 34. 2020 Mill City Summer Air Quality Index Summary.

Monitoring from July 18th through October 2nd.

2020 Government Camp Air Quality Index Based on PM2.5

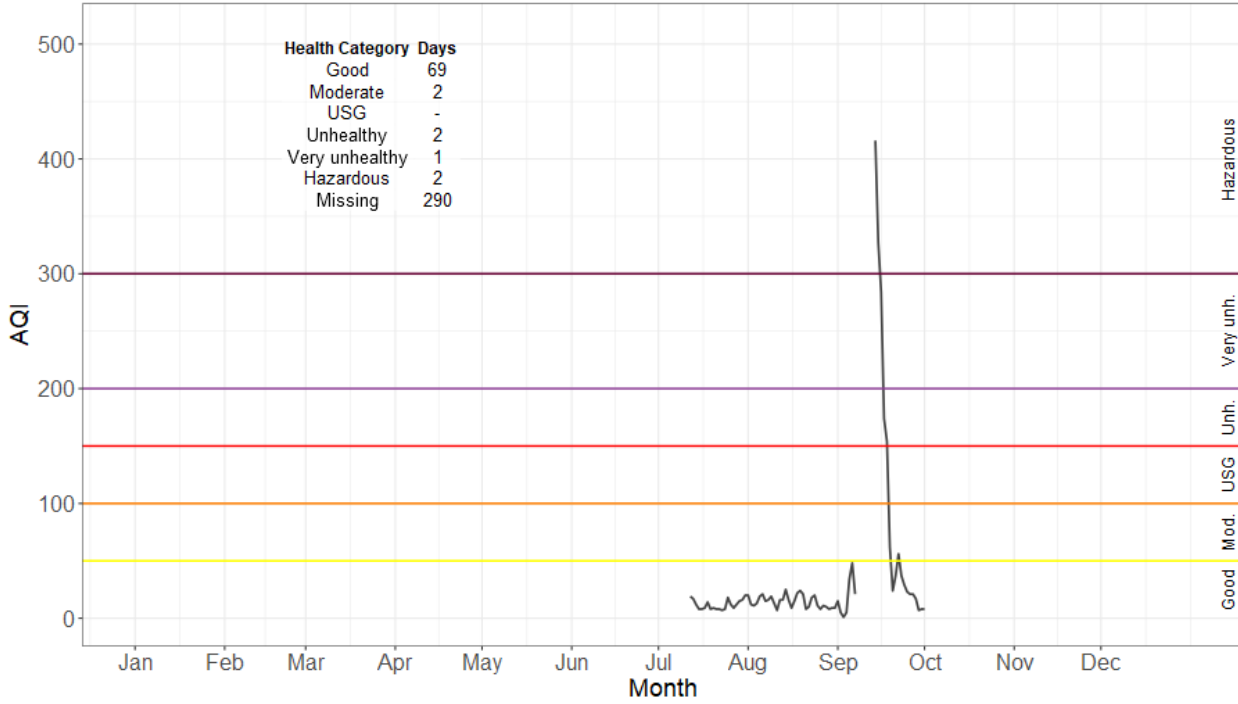


Figure 35. 2020 Mt. Hood Summer Air Quality Index Summary.
Monitoring from July 12th through October 14th.

2020 Oakridge Air Quality Index Based on PM2.5

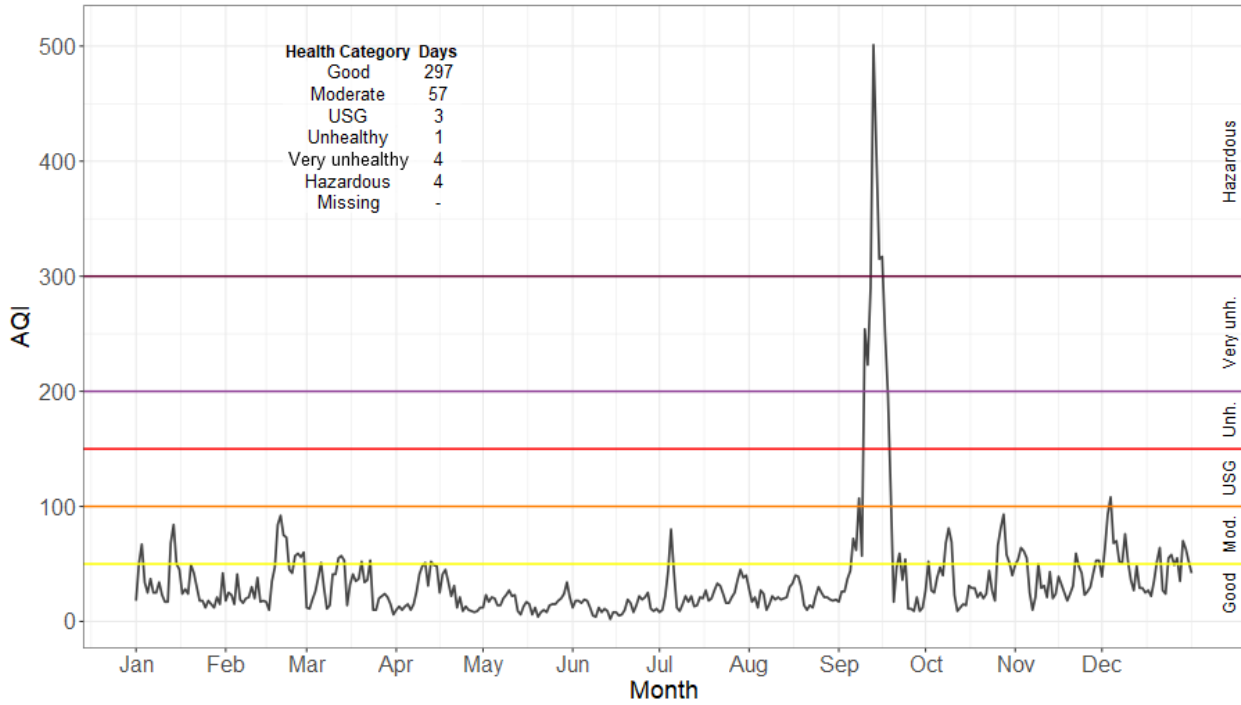


Figure 36. 2020 Oakridge Air Quality Index Summary.

2020 Ontario May Roberts Elementary School Air Quality Index

Based on SensOR PM2.5

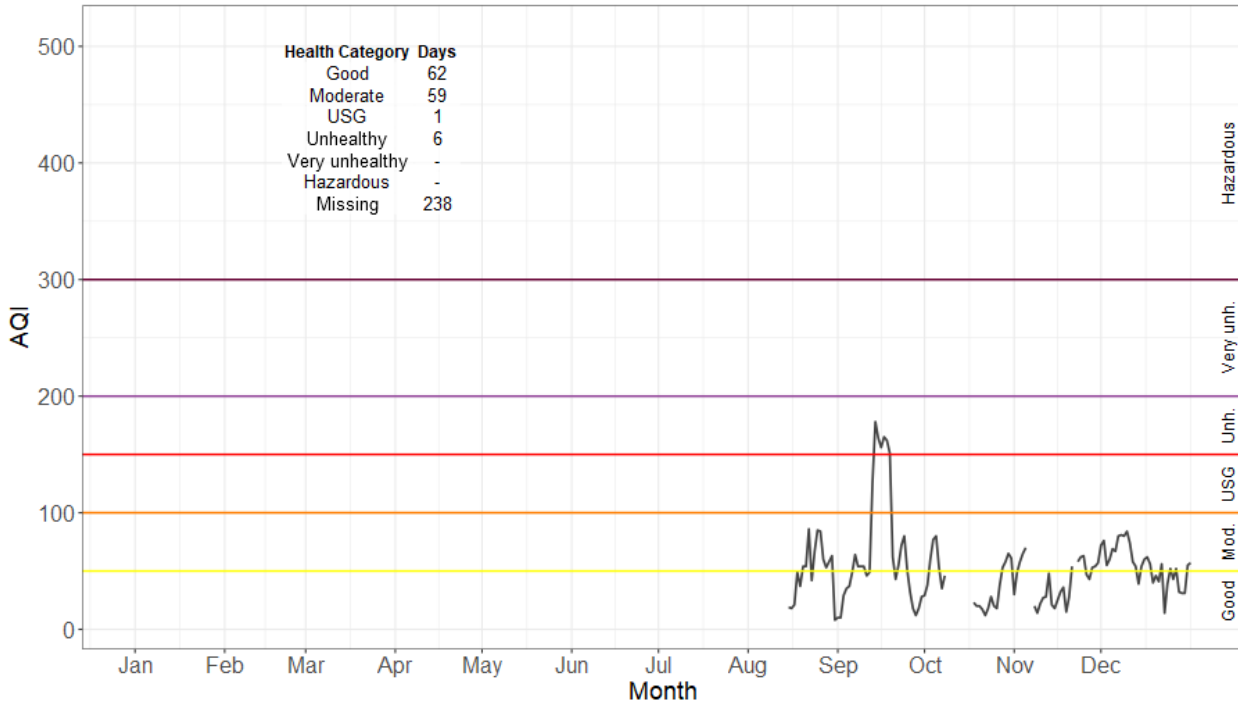


Figure 37. 2020 Ontario Air Quality Index Summary.

2020 Pendleton Air Quality Index

Based on PM2.5

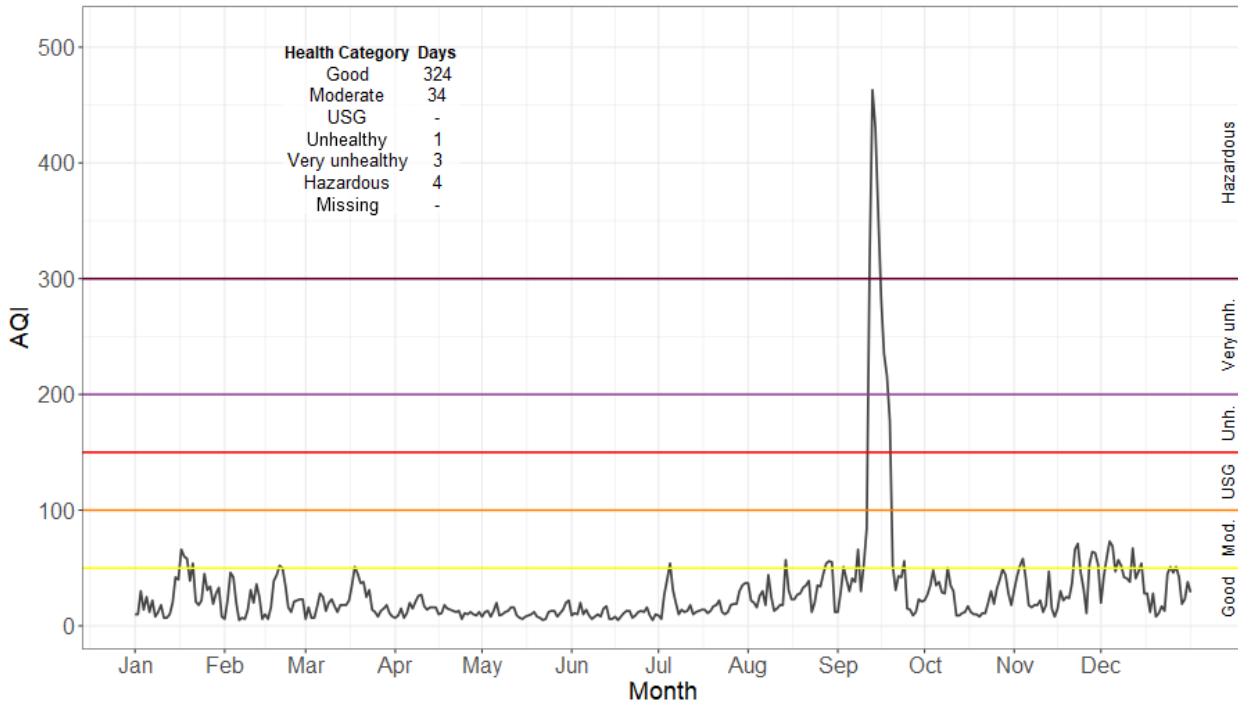


Figure 38. 2020 Pendleton Air Quality Index Summary.

2020 Portland Air Quality Index

Based on PM2.5 and Ozone

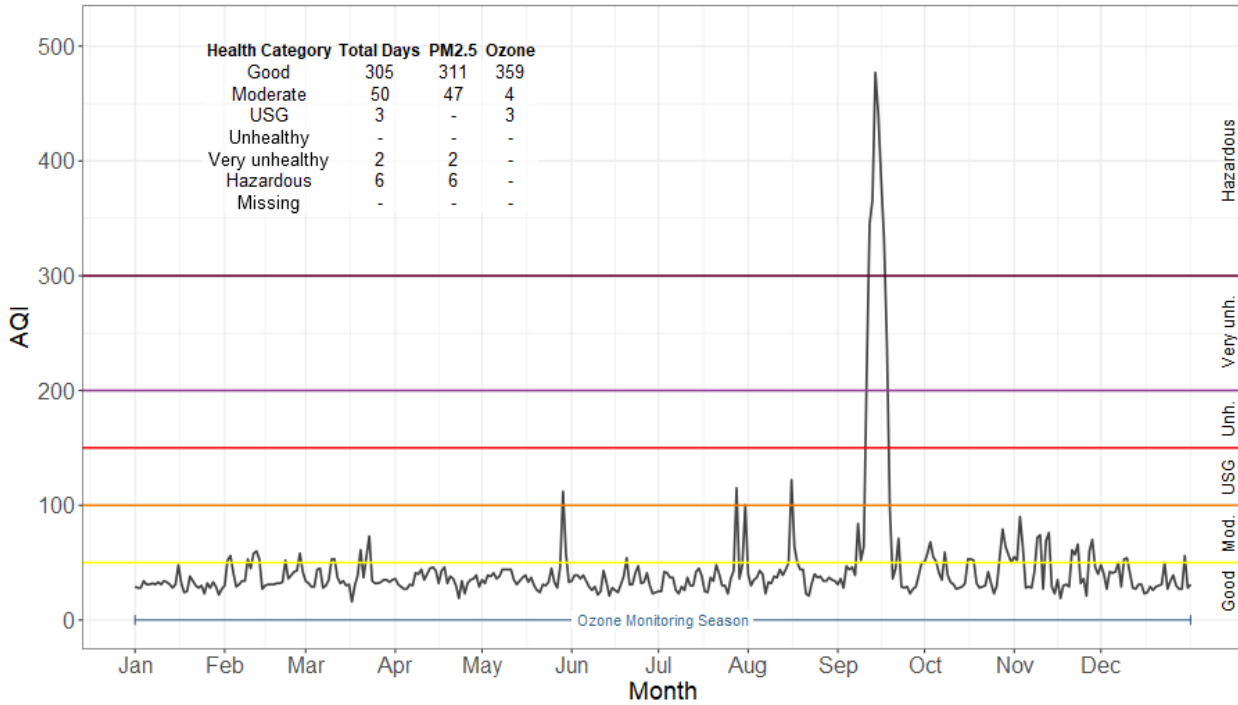


Figure 39. 2020 Portland Air Quality Index Summary.

Note: only the maximum AQI pollutant type is reported for each day.

2020 Prineville Air Quality Index

Based on PM2.5

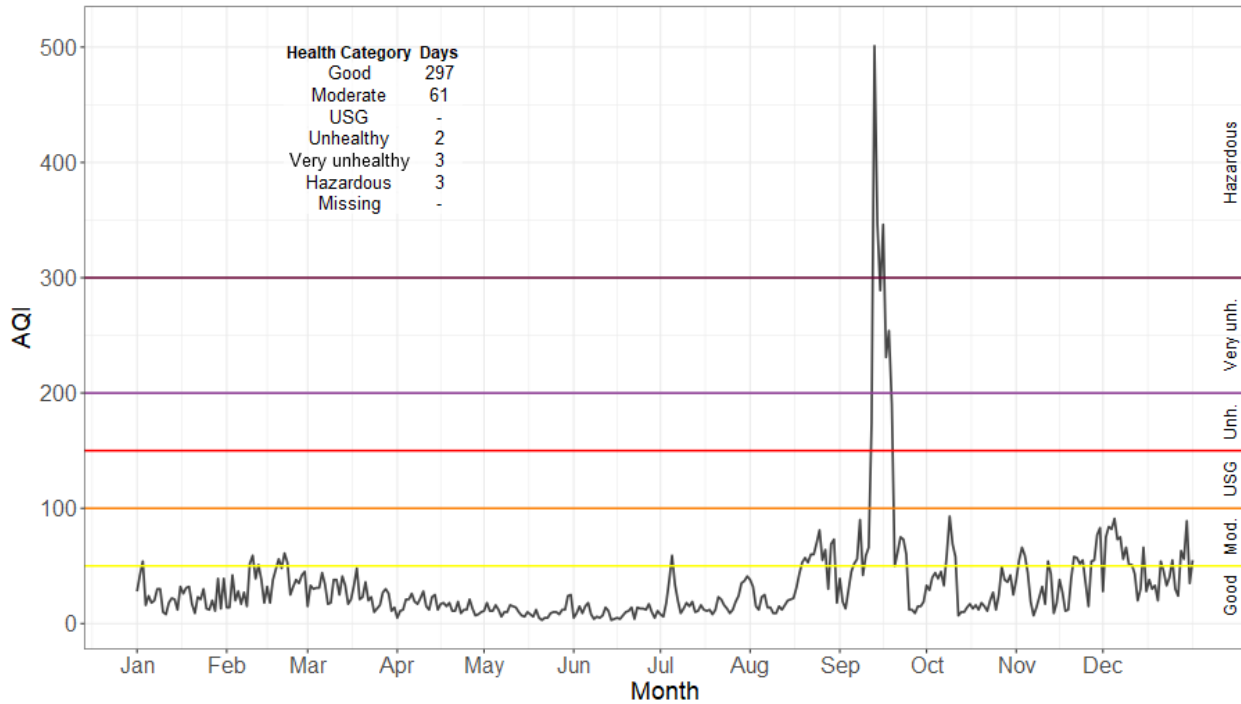


Figure 40. 2020 Prineville Air Quality Index Summary.

2020 Redmond High School Air Quality Index

Based on SensOR PM2.5

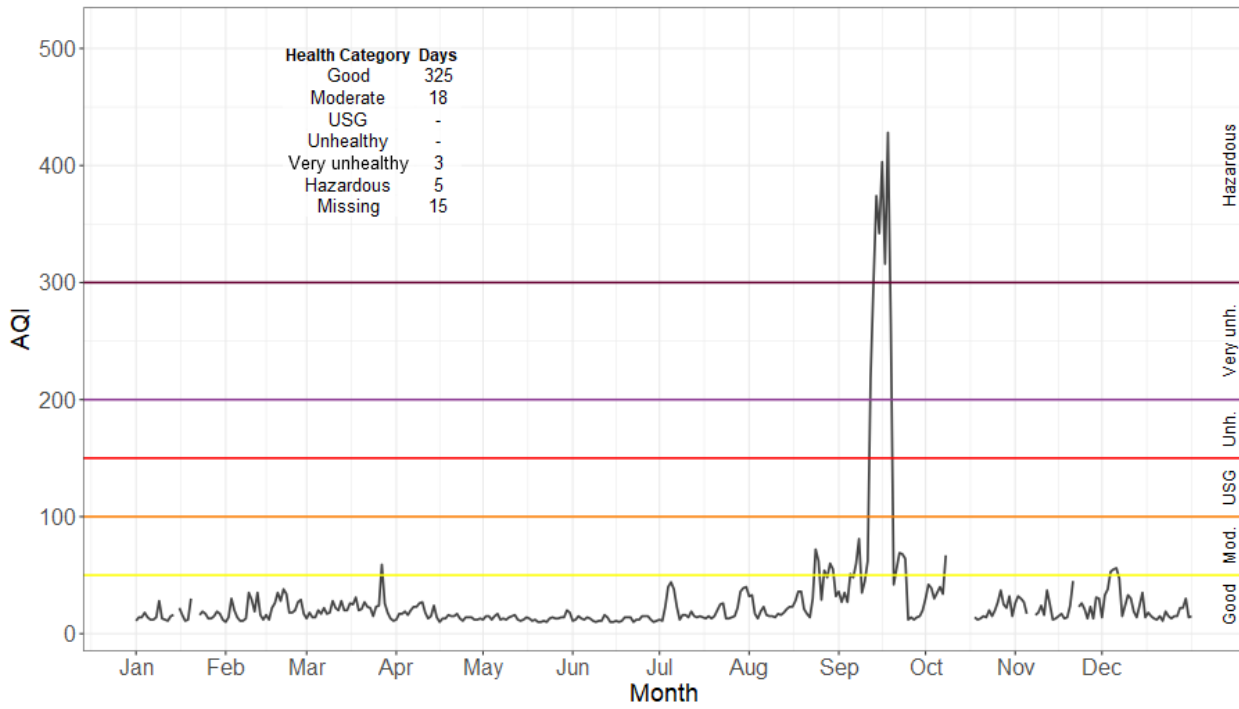


Figure 41. 2020 Redmond Air Quality Index Summary.

2020 Roseburg Air Quality Index

Based on PM2.5

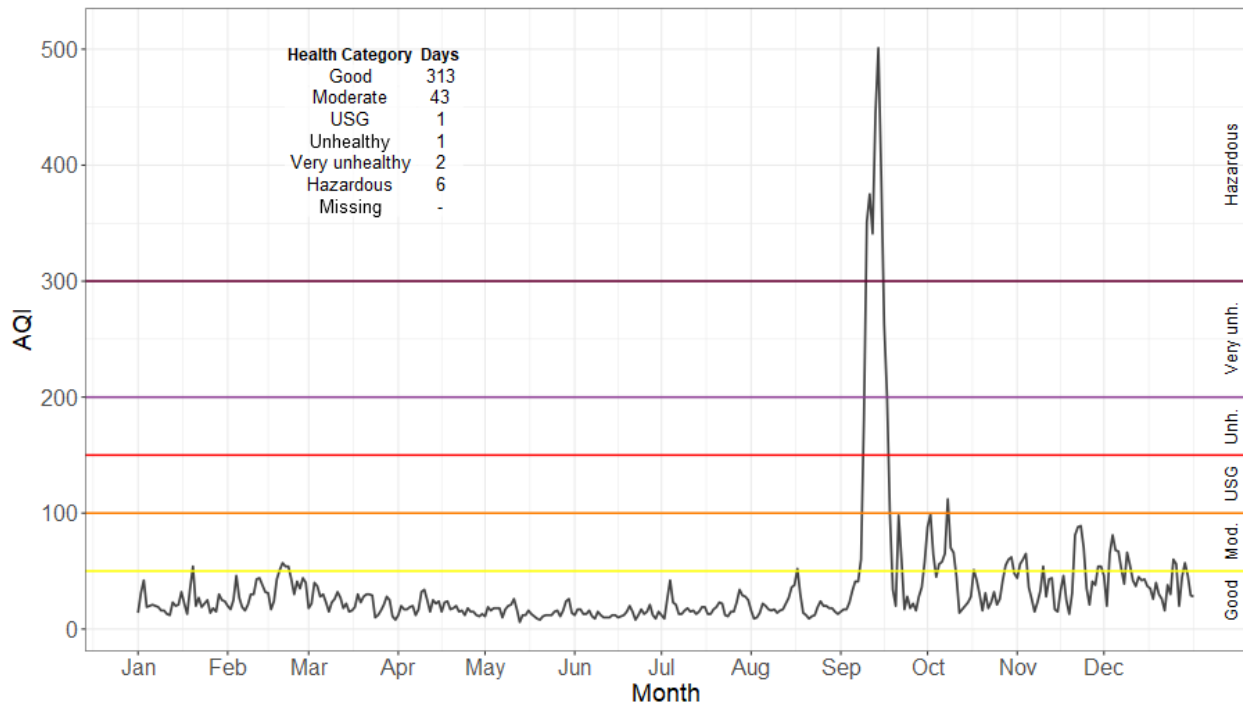


Figure 42. 2020 Roseburg Air Quality Index Summary.

2020 Salem Air Quality Index

Based on PM2.5 and Ozone

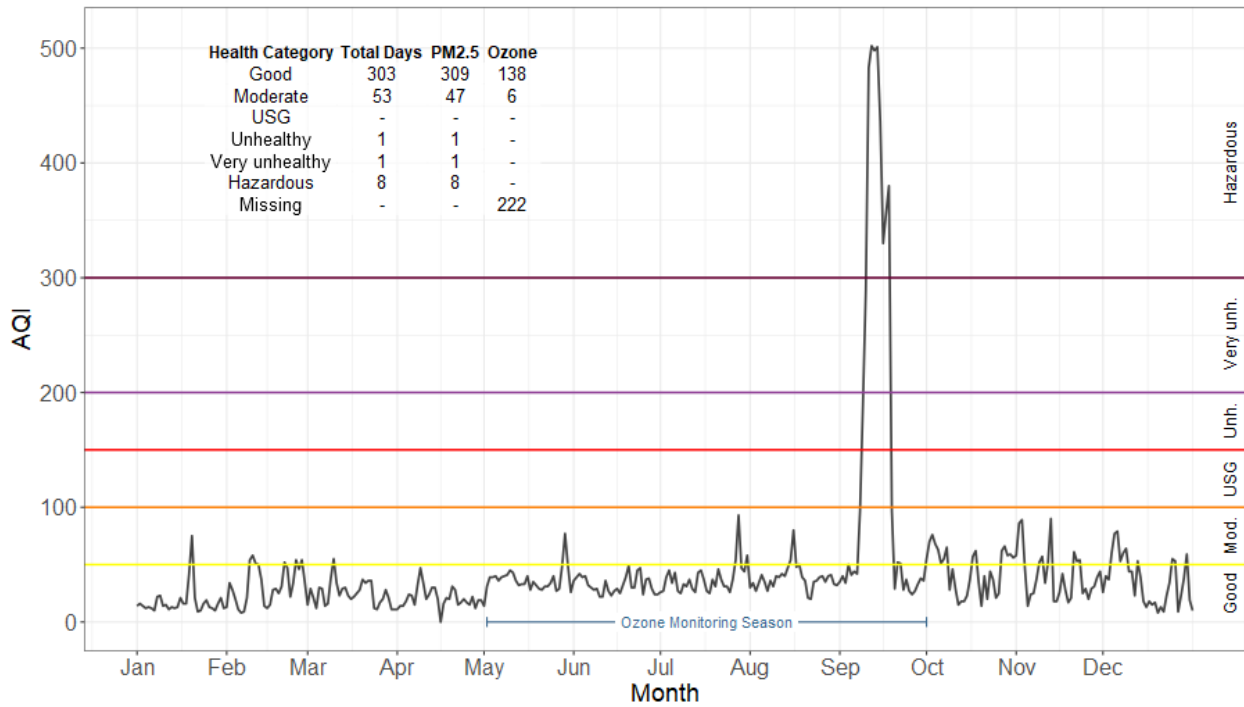


Figure 43. 2020 Salem Air Quality Index Summary.

Note: only the maximum ozone AQI or PM2.5 AQI is reported each day during ozone season.

2020 Sauvie Island Air Quality Index

Based on PM2.5

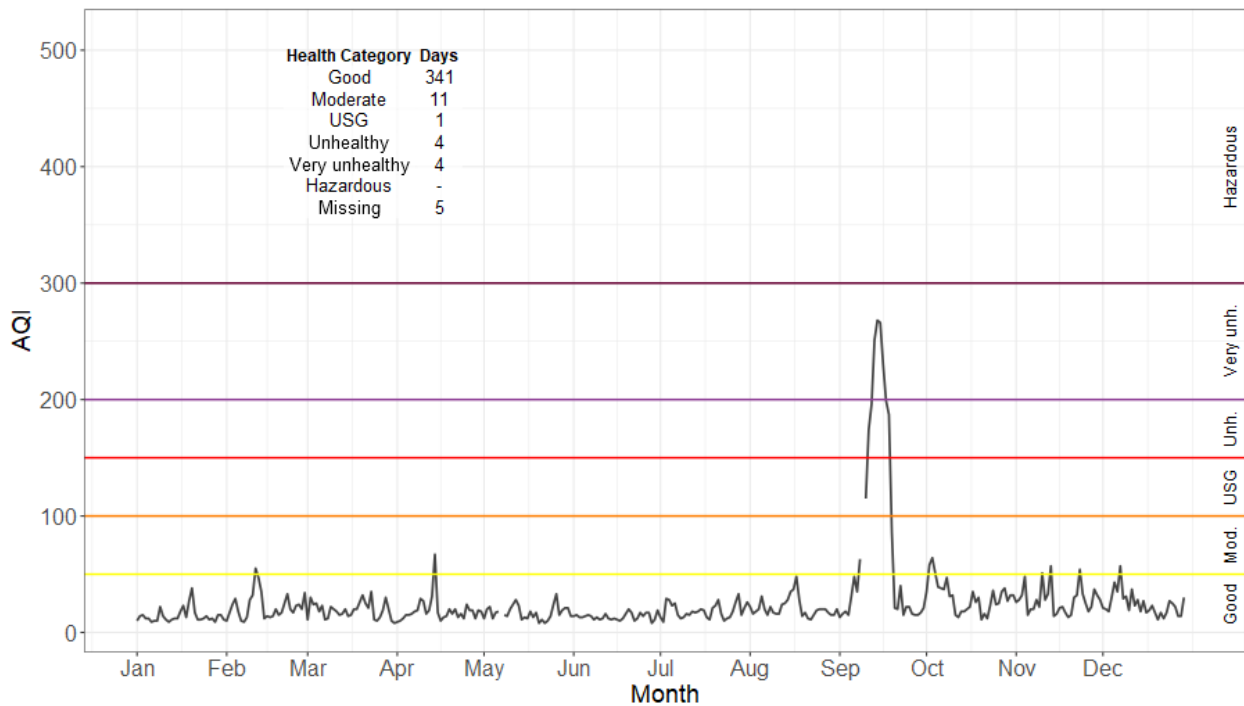


Figure 44. 2020 Sauvie Island Air Quality Index Summary.

2020 Shady Cove Air Quality Index

Based on PM2.5

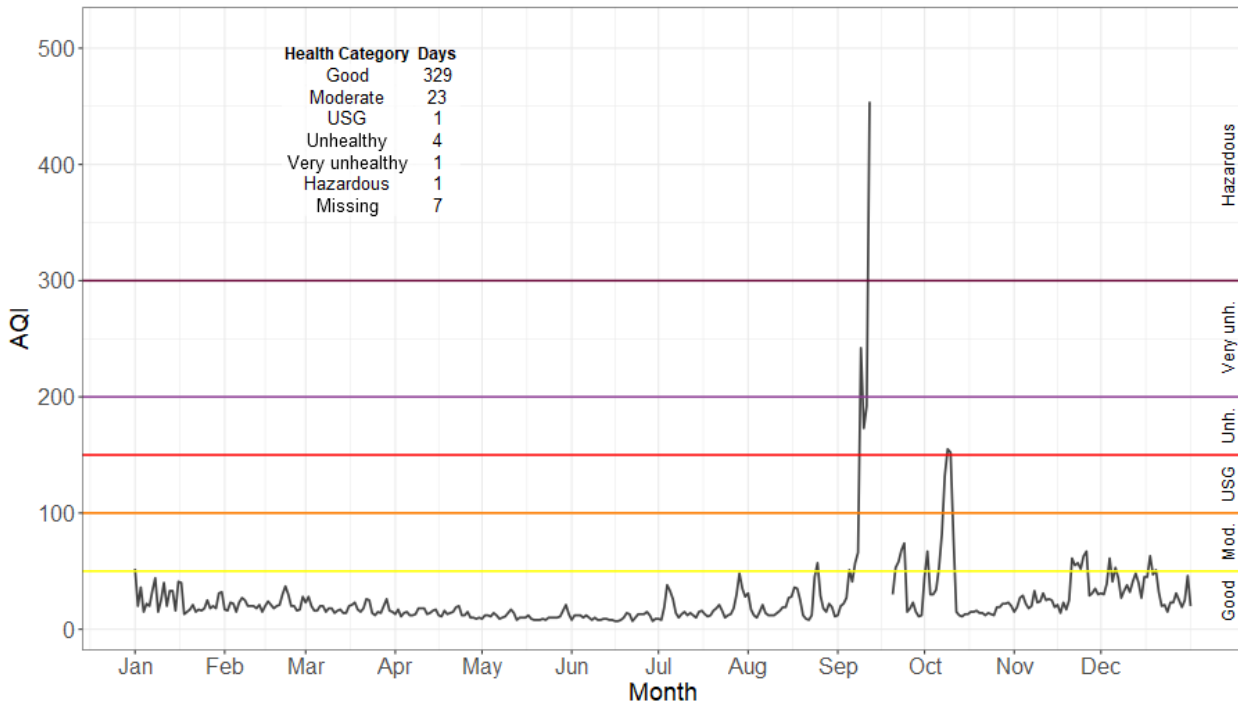


Figure 45. 2020 Shady Cove Air Quality Index Summary.

2020 Silverton Air Quality Index

Based on PM2.5

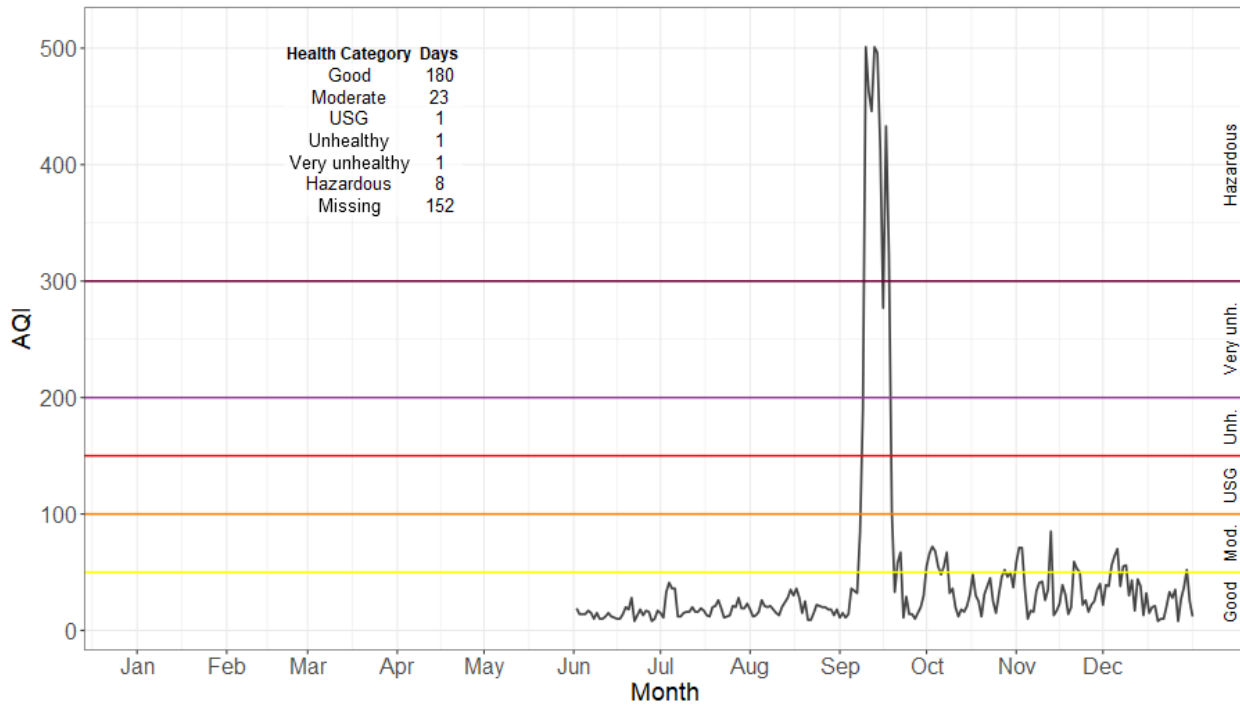


Figure 46. 2020 Silverton Summer Air Quality Index Summary.
Monitoring from June 21st through October 8th.

2020 Sisters Air Quality Index

Based on PM2.5

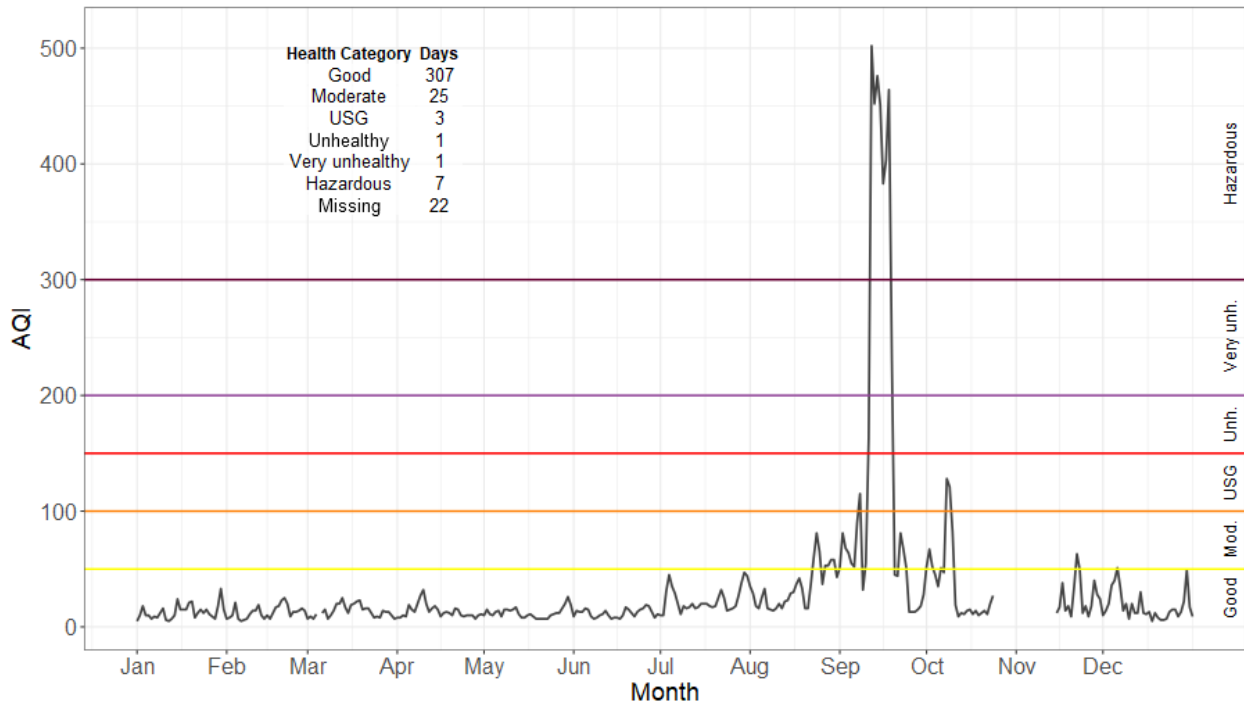


Figure 47. 2020 Sisters Air Quality Index Summary.

2020 Sweet Home Air Quality Index

Based on PM2.5

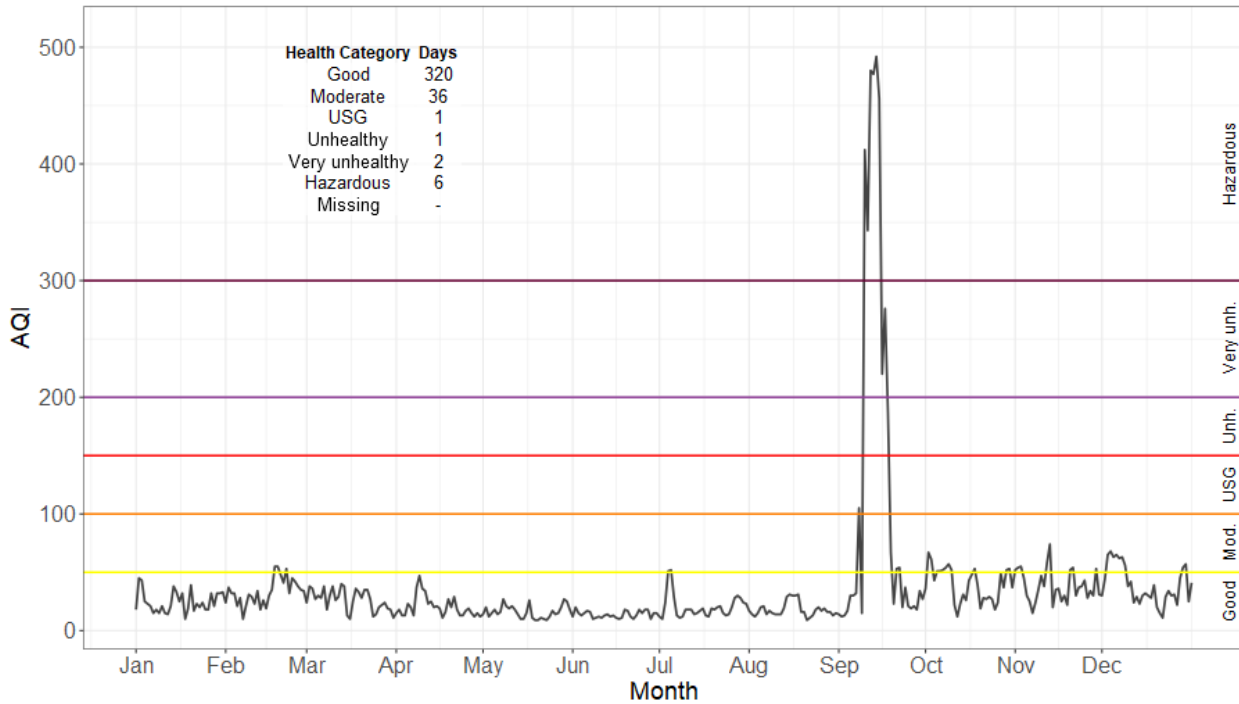


Figure 48. 2020 Sweet Home Air Quality Index Summary.

2020 The Dalles Air Quality Index

Based on PM2.5 & SensOR PM2.5

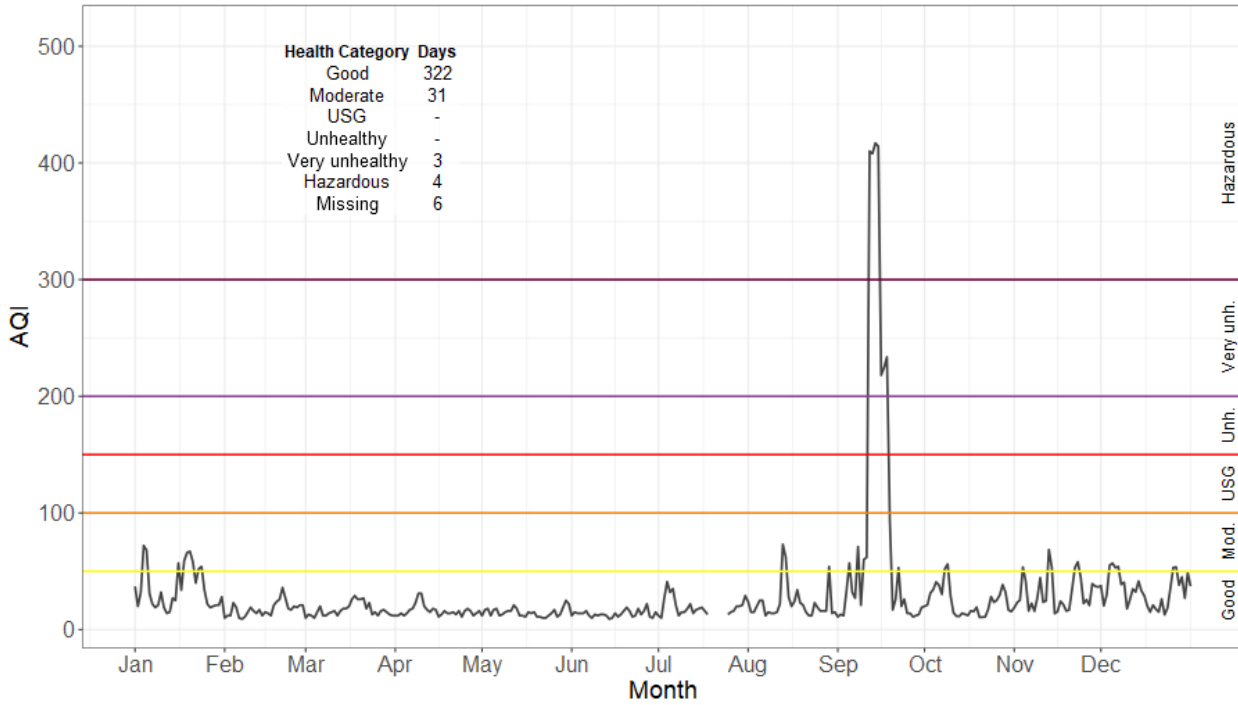


Figure 49. 2020 The Dalles Air Quality Index Summary.

2020 Tillamook Forestry Dept Air Quality Index

Based on SensOR PM2.5

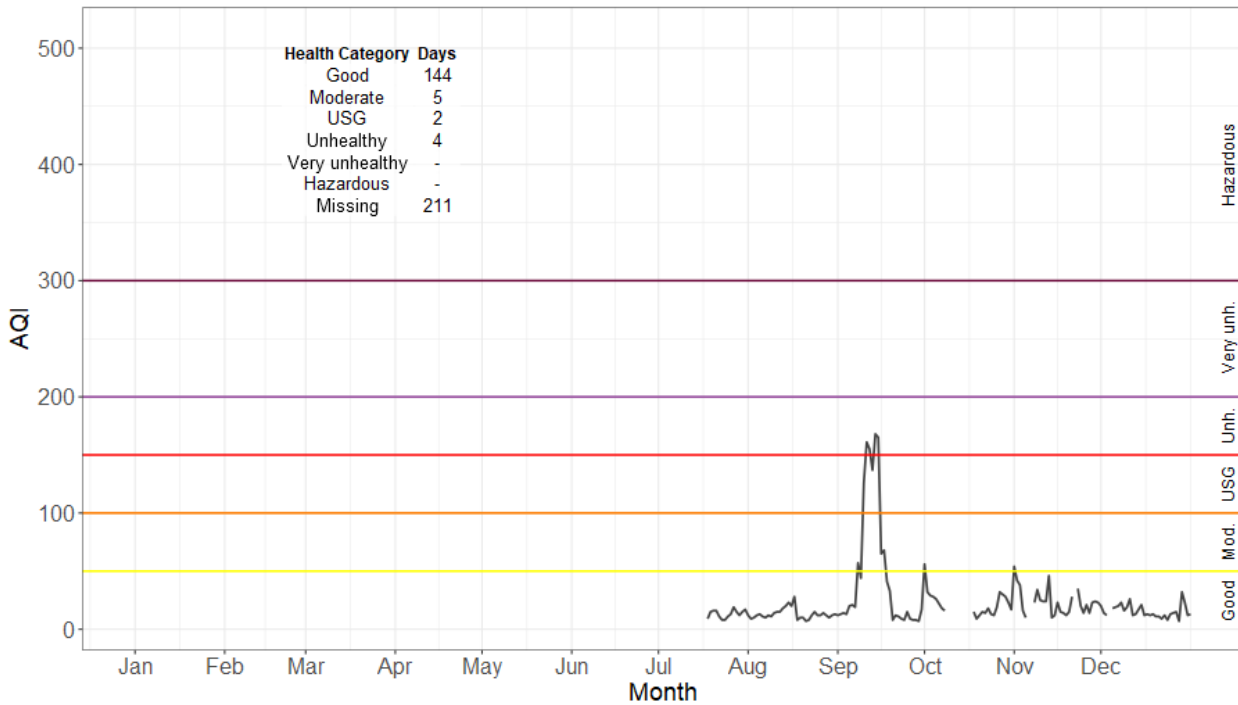


Figure 50. 2020 Tillamook Air Quality Index Summary

2020 Tualatin Air Quality Index

Based on PM2.5 and Ozone

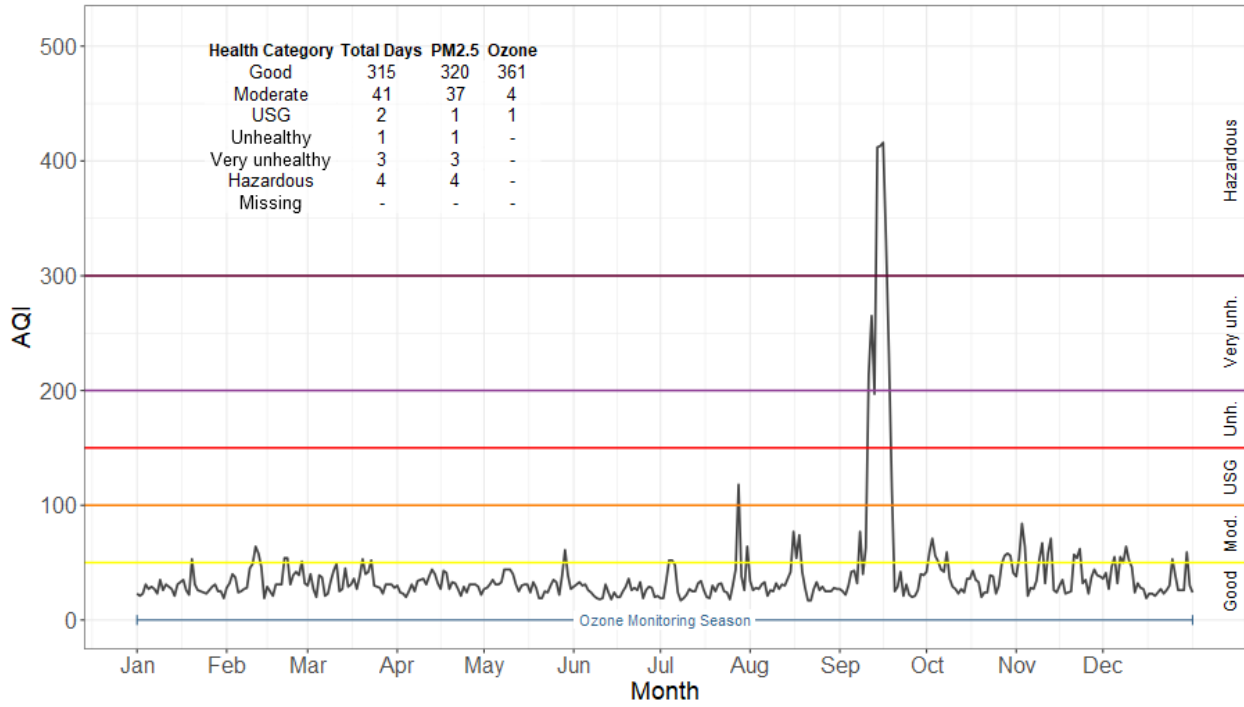


Figure 51. 2020 Tualatin Interstate-5 Near-Road Air Quality Index Summary

Table 4. Oregon 2020 AQI Summary.

| 2020 AQI Summary | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days | Sum | Comment |
|---------------------|------|----------|--|-----------|----------------|-----------|--------------|-----|--|
| Albany | 325 | 30 | 0 | 1 | 6 | 4 | 0 | 366 | |
| Applegate Valley | 327 | 20 | 7 | 5 | 0 | 7 | 0 | 366 | |
| Ashland | 322 | 32 | 1 | 4 | 3 | 4 | 0 | 366 | |
| Baker City | 327 | 32 | 2 | 5 | 0 | 0 | 0 | 366 | |
| Beaverton | 343 | 14 | 1 | 1 | 4 | 3 | 0 | 366 | |
| Bend | 320 | 33 | 5 | 0 | 2 | 6 | 0 | 366 | |
| Brookings | 109 | 8 | 1 | 4 | 0 | 0 | 244 | 366 | Started in Aug |
| Burns | 251 | 102 | 2 | 8 | 0 | 1 | 2 | 366 | |
| Cave Junction | 282 | 59 | 5 | 12 | 0 | 7 | 1 | 366 | |
| Chiloquin | 236 | 17 | 2 | 4 | 4 | 0 | 103 | 366 | |
| Coos Bay | 323 | 13 | 1 | 6 | 0 | 0 | 23 | 366 | |
| Corvallis | 330 | 25 | 0 | 3 | 5 | 3 | 0 | 366 | |
| Cottage Grove | 314 | 42 | 0 | 1 | 2 | 7 | 0 | 366 | |
| Cove | 108 | 23 | 2 | 6 | 2 | 0 | 225 | 366 | Started in Aug |
| Crater Lake | 43 | 15 | 4 | 5 | 1 | 0 | 298 | 366 | Summer only |
| Detroit Lake | 81 | 4 | Monitor had to be shut down during fire in Detroit Lake. Most certainly in Hazardous | | | | 281 | 366 | Started in July |
| Enterprise | 323 | 36 | 0 | 7 | 0 | 0 | 0 | 366 | |
| Eugene/ Springfield | 289 | 66 | 1 | 0 | 2 | 8 | 0 | 366 | |
| Florence | 350 | 7 | 1 | 5 | 0 | 2 | 1 | 366 | |
| Forest Grove | 317 | 23 | 0 | 3 | 4 | 1 | 18 | 366 | |
| Grants Pass | 285 | 44 | 2 | 6 | 1 | 4 | 24 | 366 | |
| Gresham | 139 | 10 | 1 | 2 | 2 | 4 | 208 | 366 | |
| Hermiston | 214 | 23 | 0 | 0 | 0 | 1 | 128 | 366 | Started in May |
| Hillsboro | 328 | 29 | 0 | 2 | 3 | 3 | 1 | 366 | |
| Hood River | 99 | 20 | 0 | 1 | 5 | 2 | 239 | 366 | Started in Aug |
| John Day | 248 | 109 | 1 | 5 | 1 | 1 | 1 | 366 | |
| Klamath Falls | 264 | 75 | 12 | 3 | 1 | 1 | 10 | 366 | |
| La Grande | 334 | 23 | 1 | 5 | 3 | 0 | 0 | 366 | |
| Lakeview | 293 | 55 | 13 | 4 | 0 | 0 | 1 | 366 | |
| La Pine | 103 | 45 | 2 | 1 | 6 | 1 | 208 | 366 | Started in Jul |
| Lyons | 283 | 58 | 0 | 1* | 0* | 6* | 18 | 366 | *The monitor was shut down due to wildfire in Lyons. All the missing days occurred during this time. |

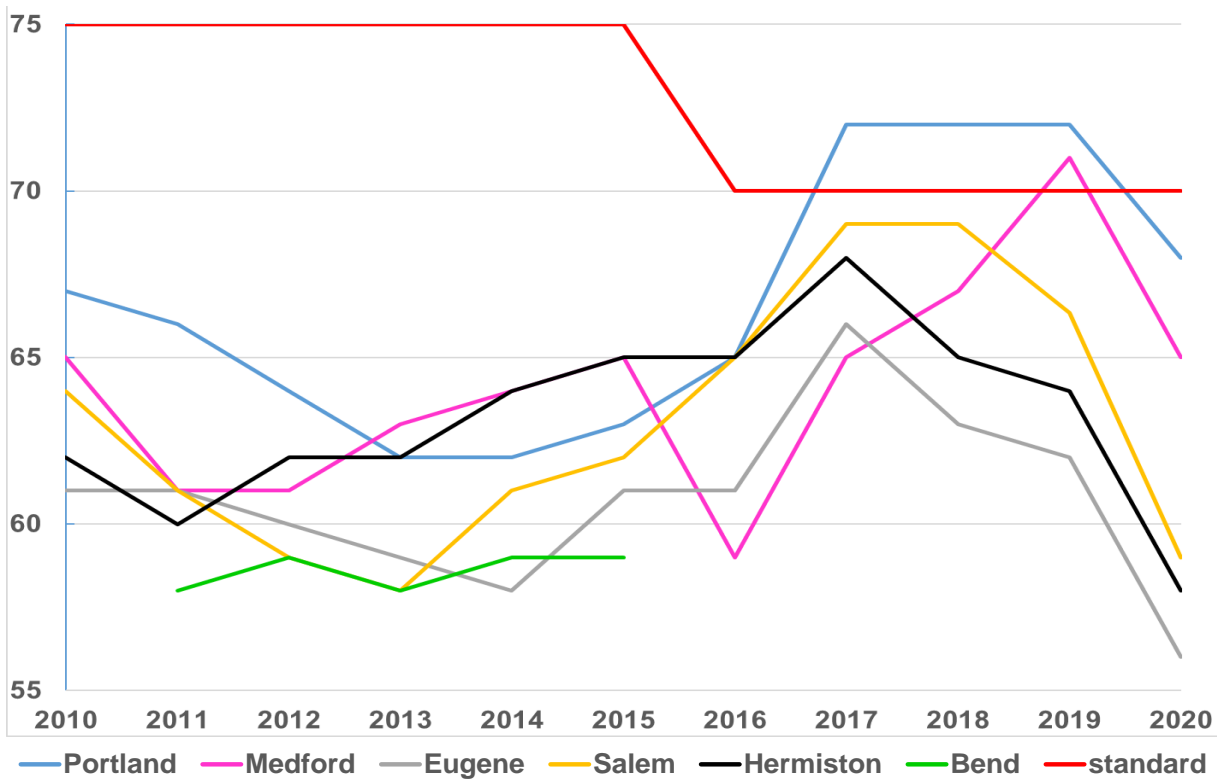
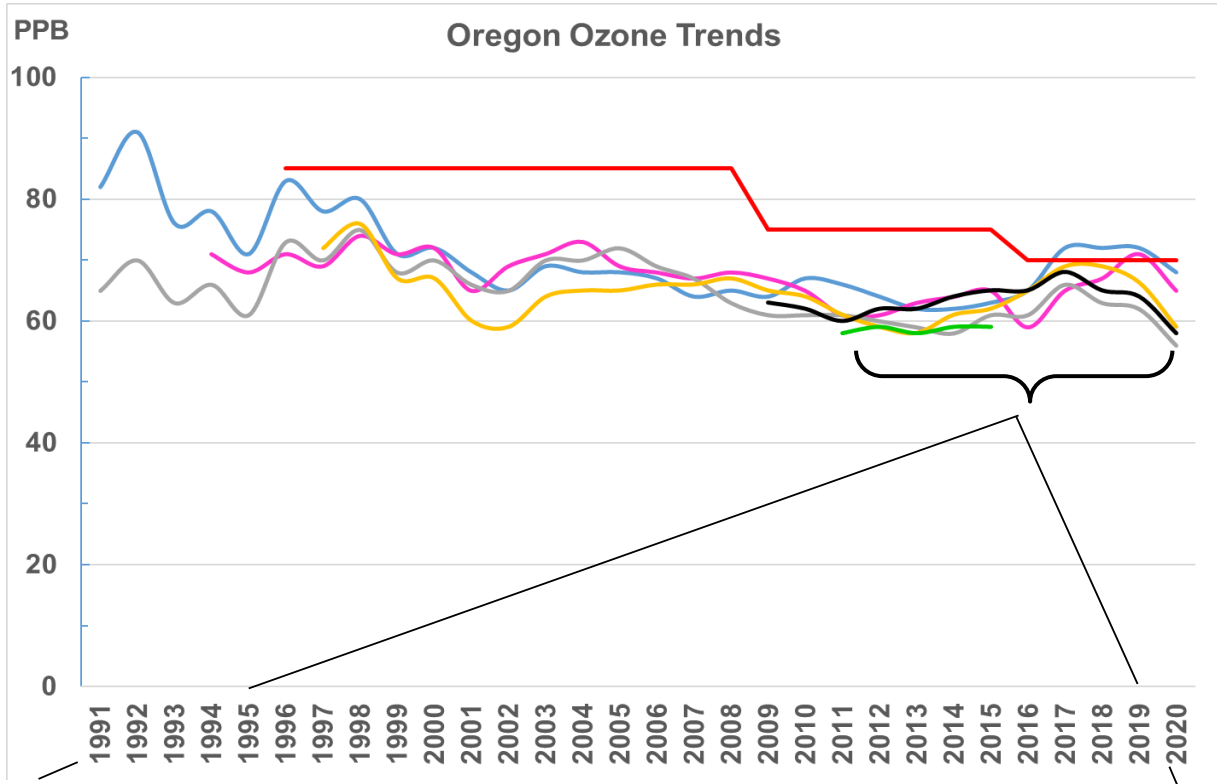
| 2020 AQI Summary | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days | Sum | Comment |
|-----------------------|------|----------|-----|-----------|----------------|-----------|--------------|-----|---|
| Madras | 297 | 53 | 3 | 0 | 3 | 5 | 5 | 366 | |
| Medford | 270 | 83 | 2 | 4 | 3 | 4 | 0 | 366 | |
| Mill City | 136 | 31 | 2 | 1 | 0 | 7 | 189 | 366 | Started in June |
| Mt. Hood | 69 | 2 | 0 | 2* | 1* | 2* | 290 | 366 | Summer only. *Monitor shut down for part of the wildfire |
| Oakridge | 297 | 57 | 3 | 1 | 4 | 4 | 0 | 366 | |
| Ontario | 62 | 59 | 1 | 6 | 0 | 0 | 238 | 366 | |
| Pendleton | 324 | 34 | 0 | 1 | 3 | 4 | 0 | 366 | |
| Portland | 305 | 50 | 3 | 0 | 2 | 6 | 0 | 366 | |
| Prineville | 297 | 61 | 0 | 2 | 3 | 3 | 0 | 366 | |
| Redmond | 325 | 18 | 0 | 0 | 3 | 5 | 15 | 366 | |
| Roseburg | 313 | 43 | 1 | 1 | 2 | 6 | 0 | 366 | |
| Salem | 303 | 53 | 0 | 1 | 1 | 8 | 0 | 366 | |
| Sauvie Island | 341 | 11 | 1 | 4 | 4 | 0 | 5 | 366 | |
| Shady Cove | 329 | 23 | 1 | 4 | 1 | 1 | 7 | 366 | |
| Silverton | 180 | 23 | 1 | 1 | 1 | 8 | 152 | 366 | Started in June |
| Sisters | 307 | 25 | 3 | 1 | 1 | 7 | 22 | 366 | |
| Sweet Home | 320 | 36 | 1 | 1 | 2 | 6 | 0 | 366 | |
| The Dalles | 322 | 31 | 0 | 0 | 3 | 4 | 6 | 366 | |
| Tillamook | 144 | 5 | 2 | 4 | 0 | 0 | 211 | 366 | Started in July |
| Tualatin Interstate-5 | 315 | 41 | 2 | 1 | 3 | 4 | 0 | 366 | |

Air Quality Trends

Ozone Trends

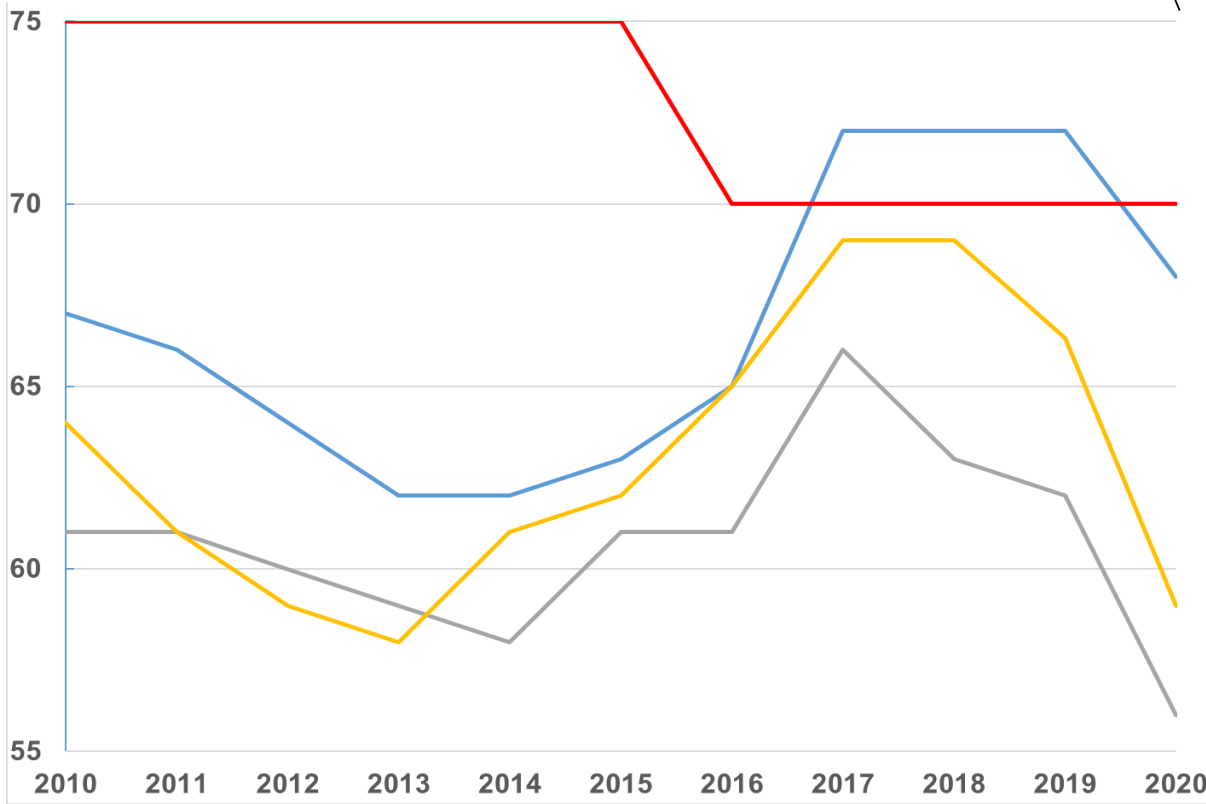
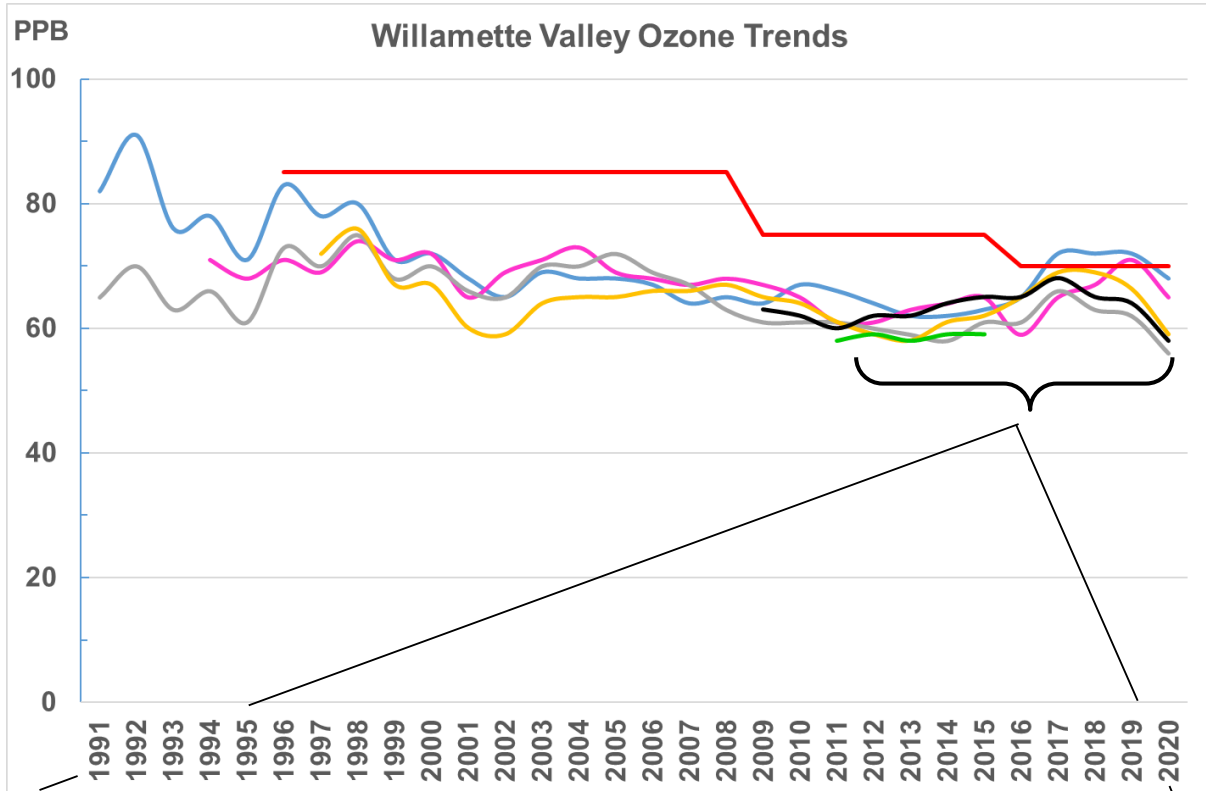
Ozone is a secondary pollutant formed when there are elevated levels of nitrogen dioxide and volatile organic compounds that undergo chemical reactions in high temperatures, and sunlight. In Oregon, elevated ozone occurs in the summer and can be formed by human-caused pollution from fossil fuel combustion and also by naturally caused pollution from wildfire smoke, which contains NO₂ and VOCs. In 2017 and 2018, most of the state experienced elevated ozone because the wildfire smoke introduced natural precursors on top of the human-caused emissions.

The graphs below show the air quality trends compared to the National Ambient Air Quality Standard (NAAQS). Data with wildfire contributions are included because it is very difficult to determine if the ozone would have exceeded the NAAQS without the smoke from wildfires.



Three year average of the 4th highest daily maximum 8 hour average

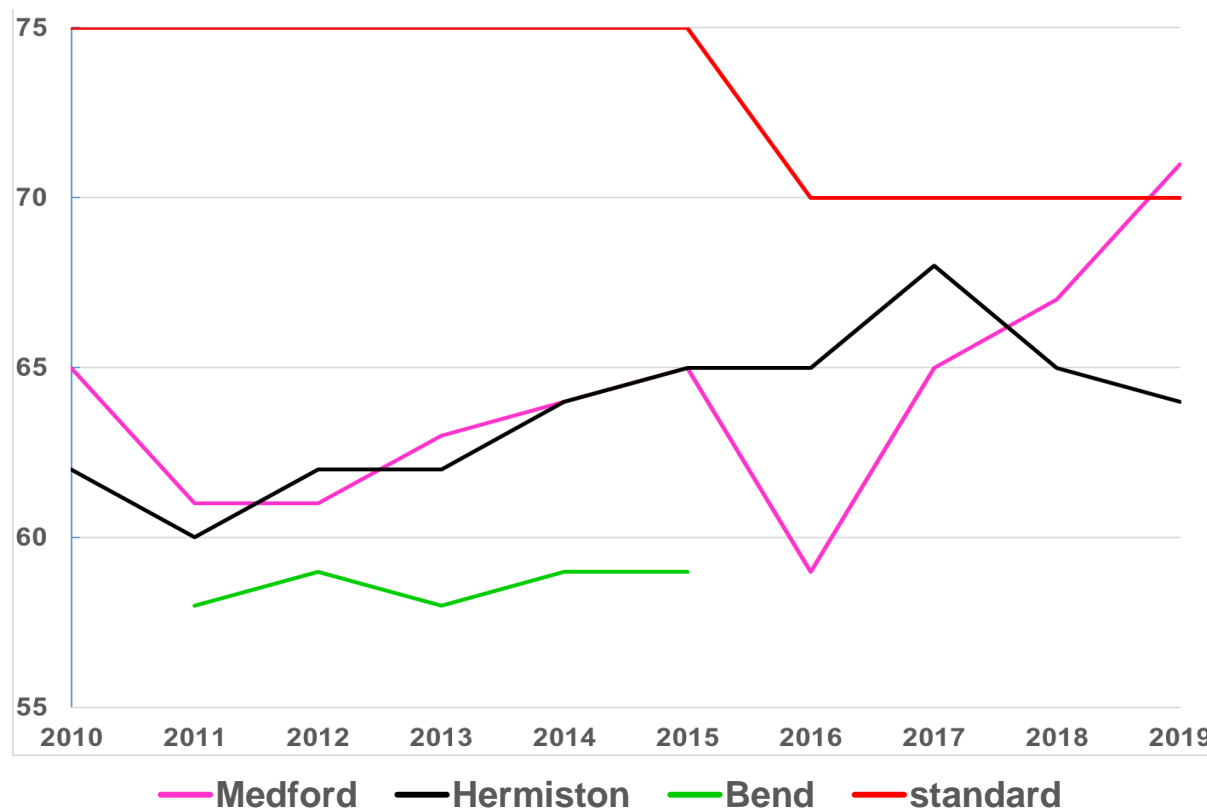
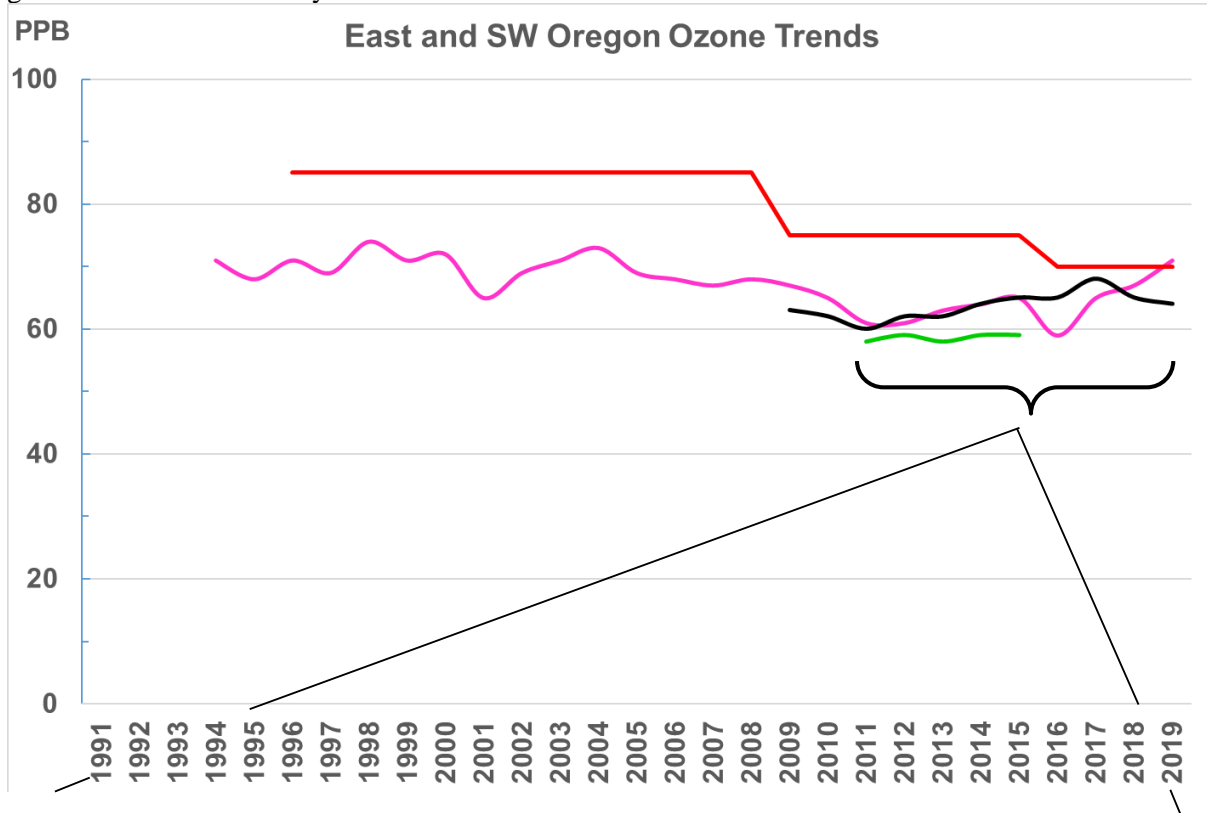
Figure 52. Oregon ozone trend.
For more detail, see the charts by region below.



— Portland — Eugene — Salem — standard

Three year average of the 4th highest daily maximum 8 hour average

Figure 53. Willamette Valley ozone trends



— Medford — Hermiston — Bend — standard

Figure 54. Southwest and Eastern Oregon ozone trends

The data is the three year average of the 4th highest annual daily 8 hour average.

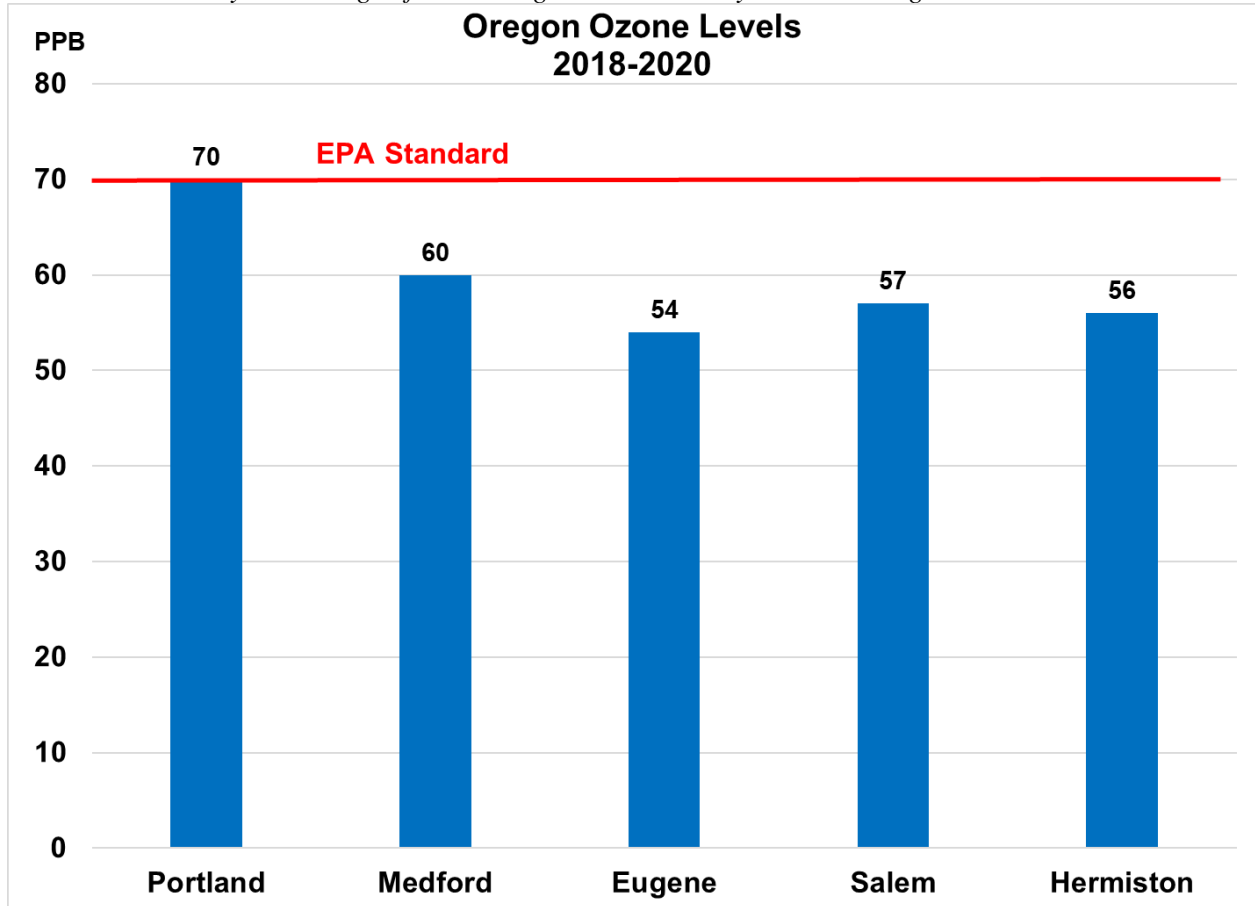


Figure 55. Oregon cities 2018-2020 Ozone Levels

The data is the three year average of the 4th highest annual daily 8 hour average.

* Bend and The Dalles no longer have monitors. The Bend data is for 2013-15, The Dalles data is for 2016-2018.

Note that the wildfire smoke in 2018 and 2020 contributed to the elevated ozone levels and most likely caused Portland and Medford to violate the NAAQS. However, since high ozone occurs in the summer months precisely when wildfire smoke impacts occur, it is very difficult to determine what the ozone level would have been but for the wildfire smoke.

PM2.5 Trends

The charts below show the trends for the 98th percentile and annual average PM2.5. The 98th Percentile is used for comparison to the daily standard. Wildfire data was separated for daily standard comparison.

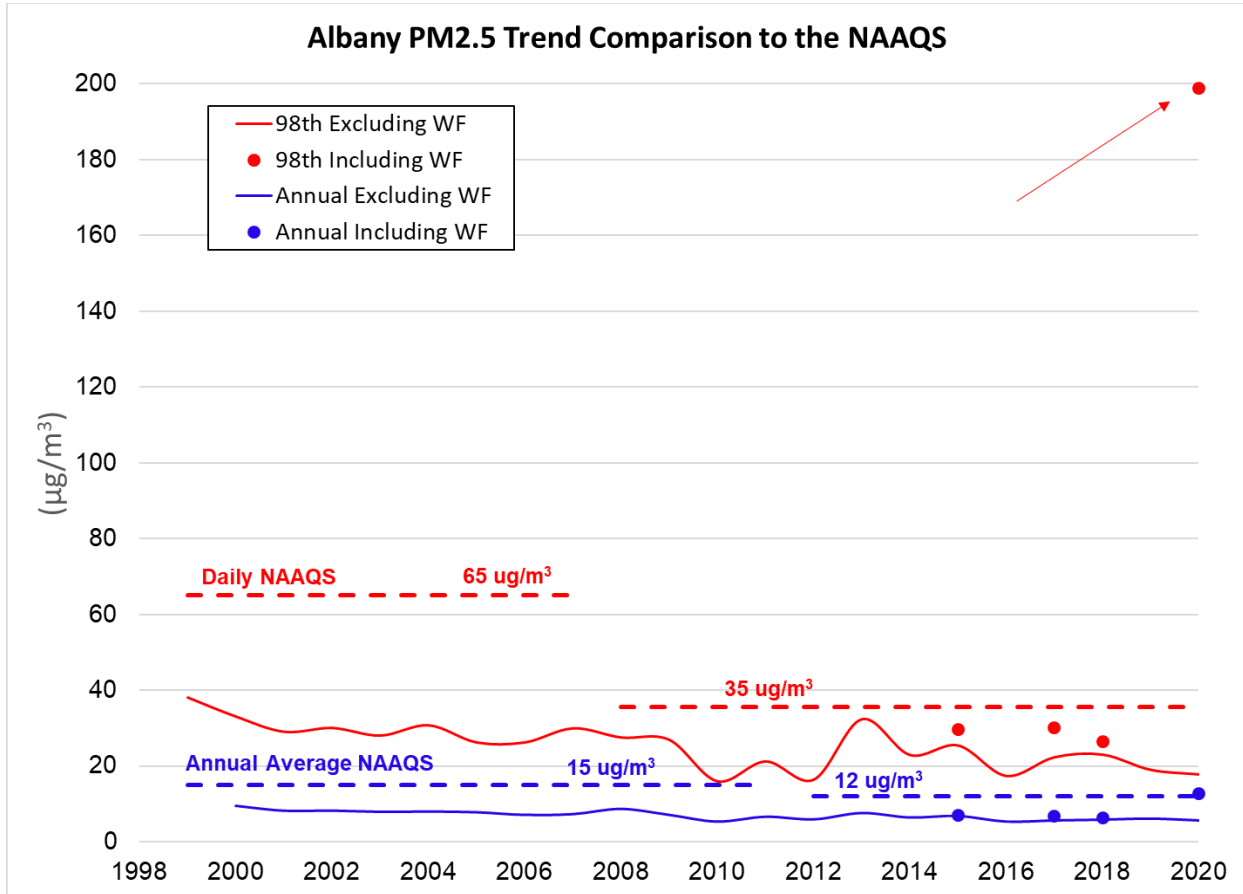


Figure 56. Albany PM2.5 trends

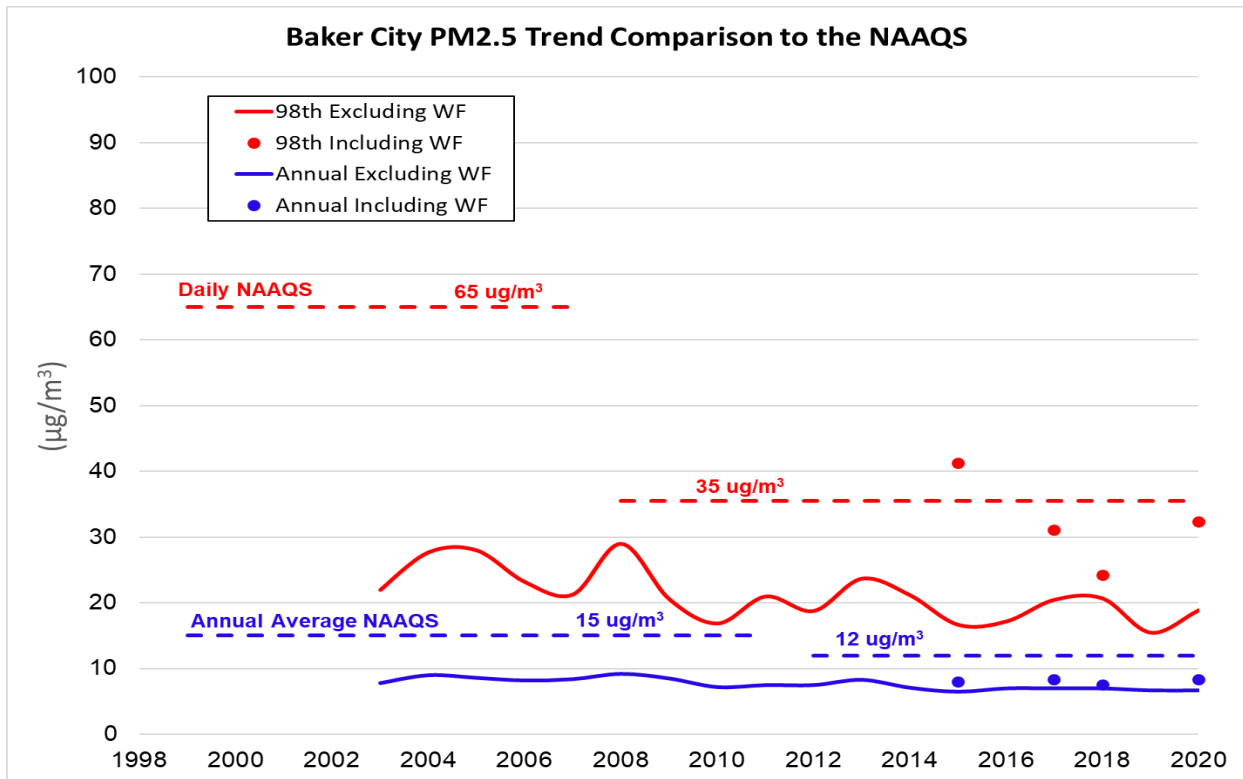


Figure 57. Baker City PM2.5 trends

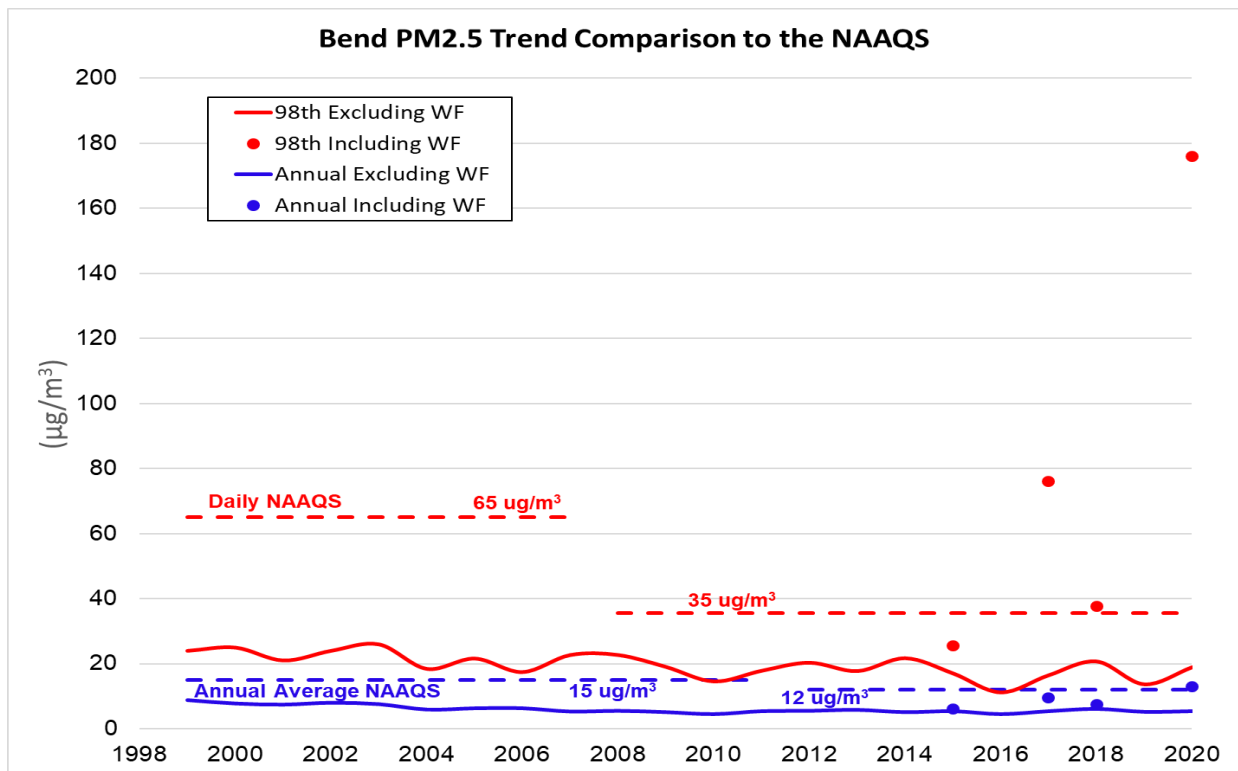


Figure 58. Bend PM2.5 trends

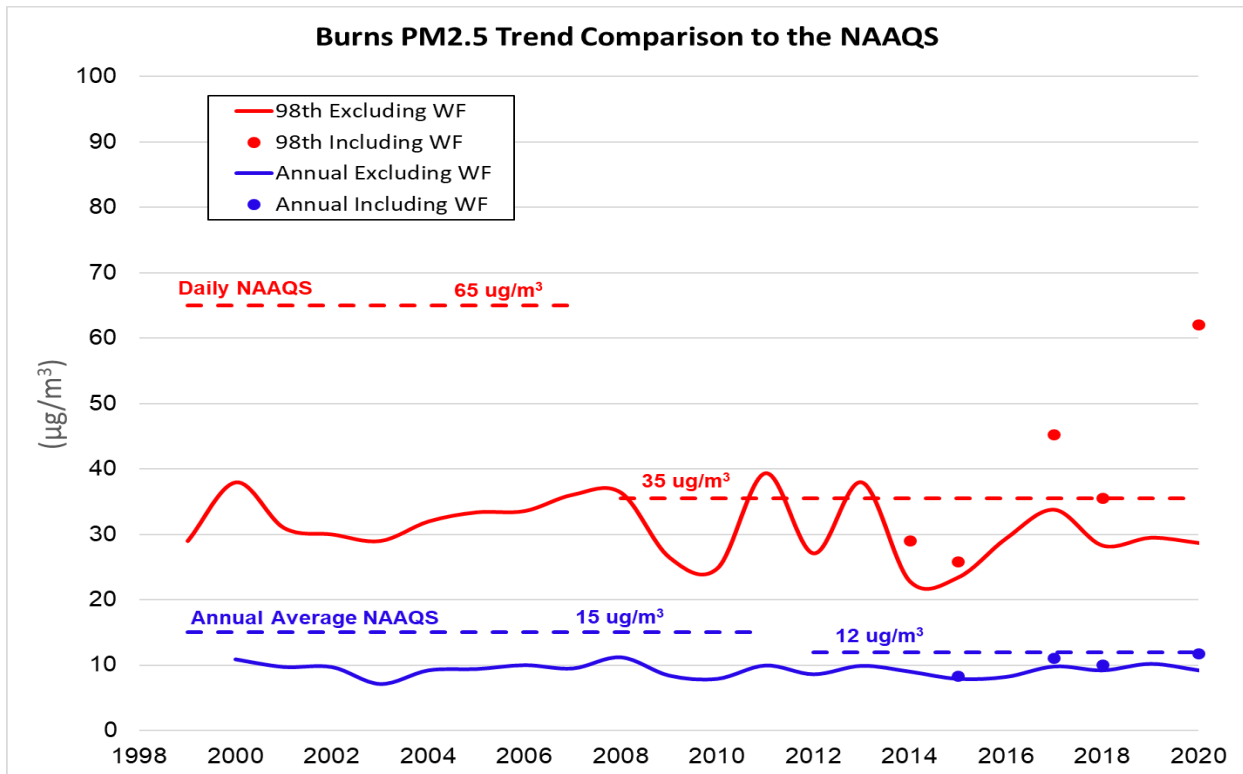


Figure 59. Burns PM2.5 trend.

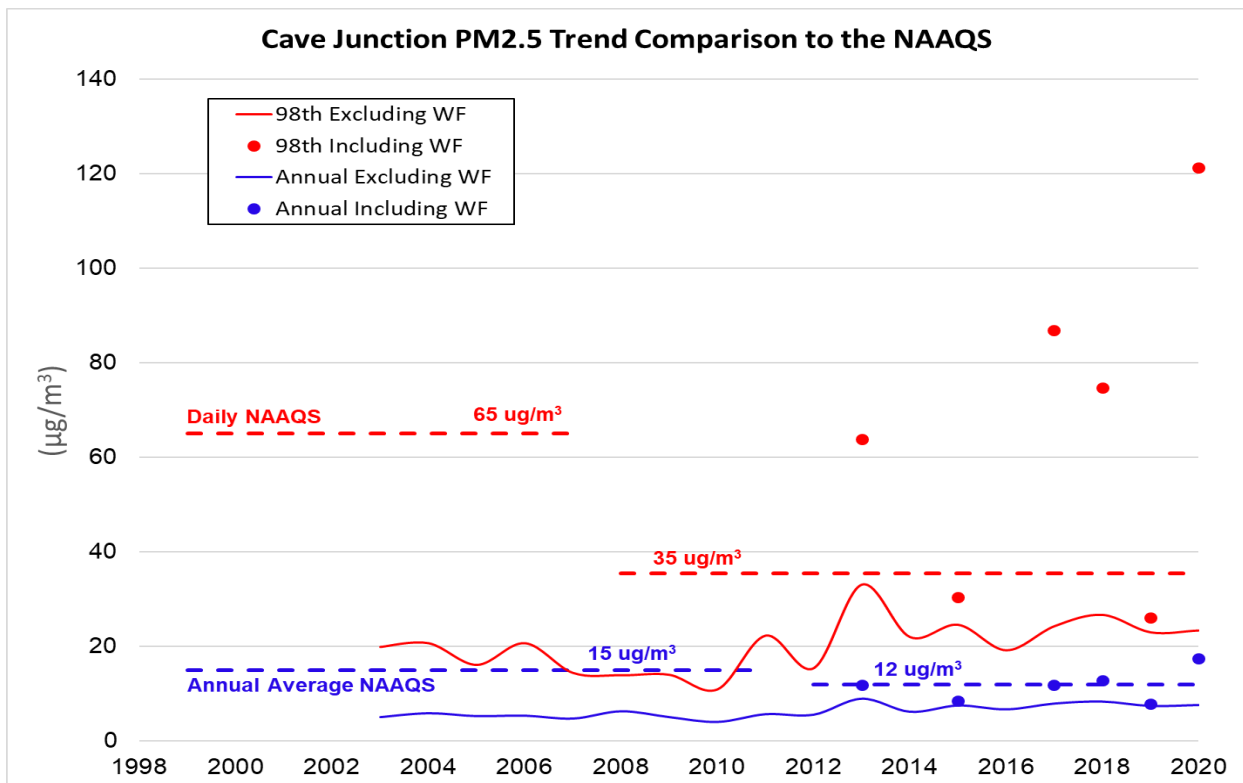


Figure 60. Cave Junction PM2.5 trend.

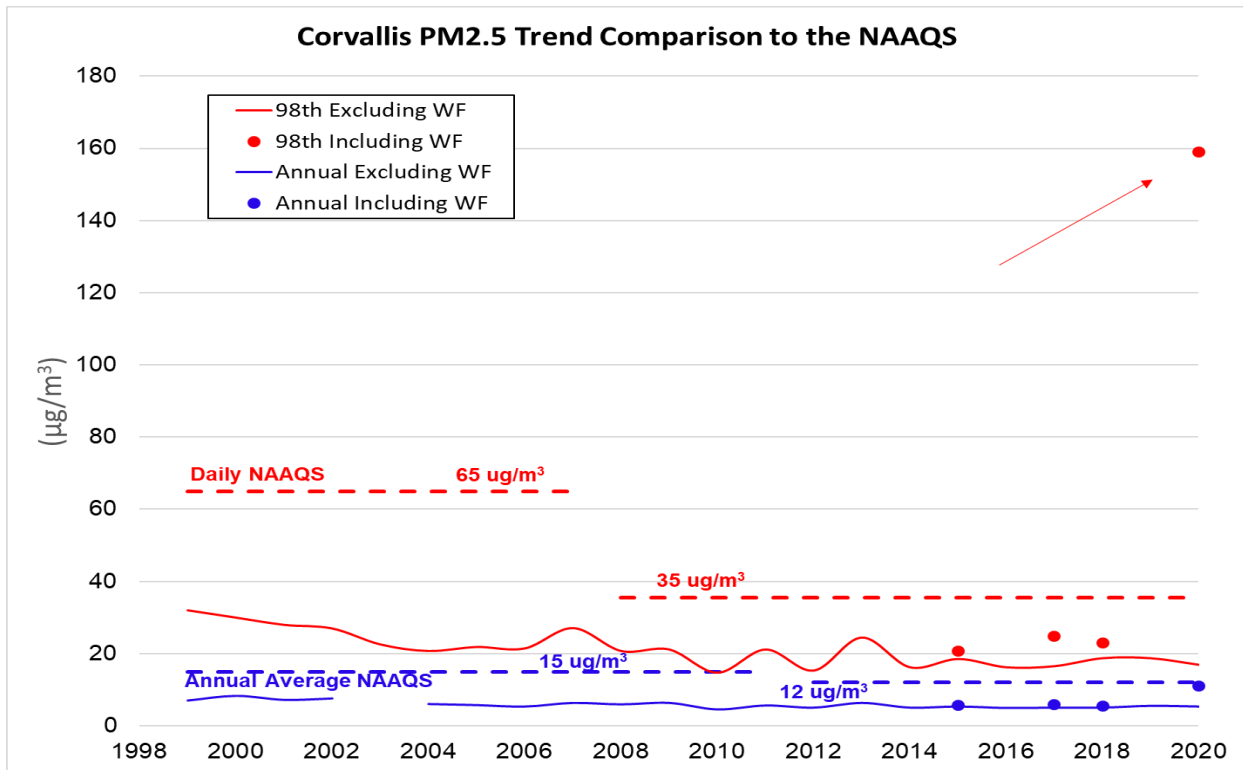


Figure 61. Corvallis PM2.5 trend.

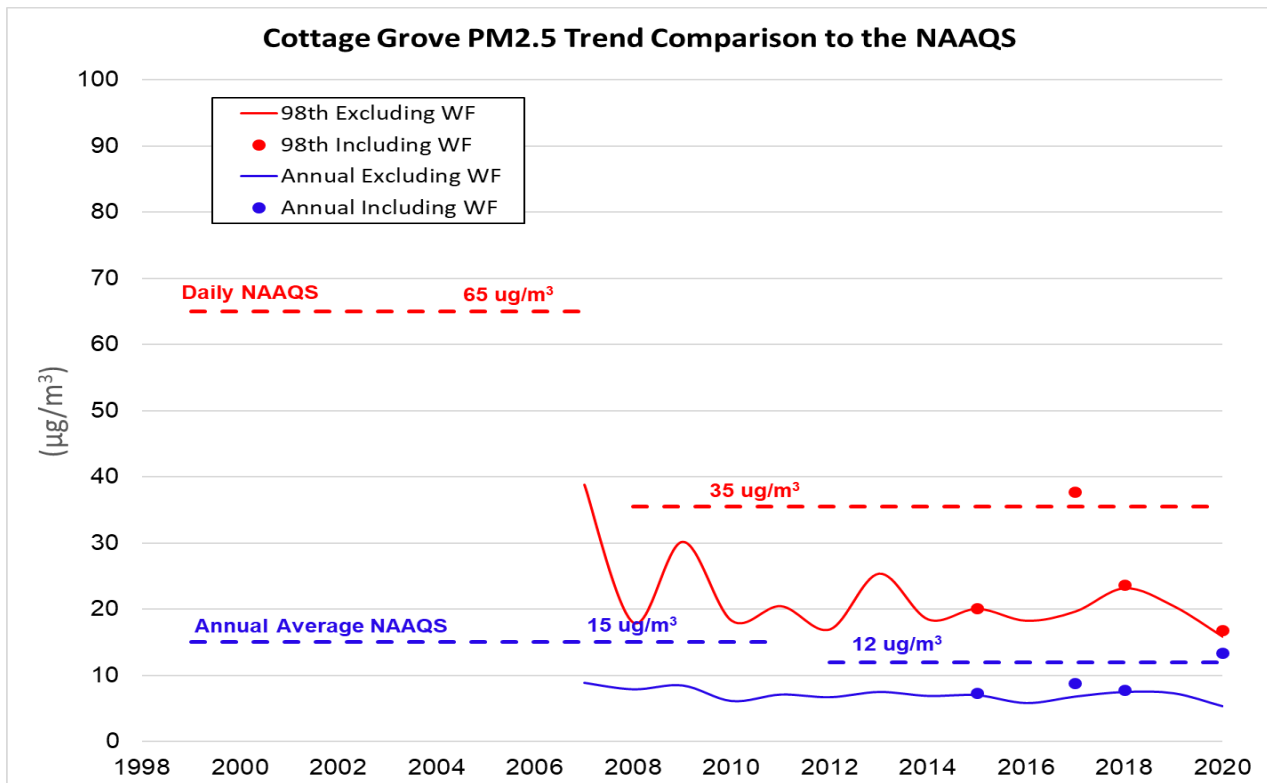


Figure 62. Cottage Grove PM2.5 trends.

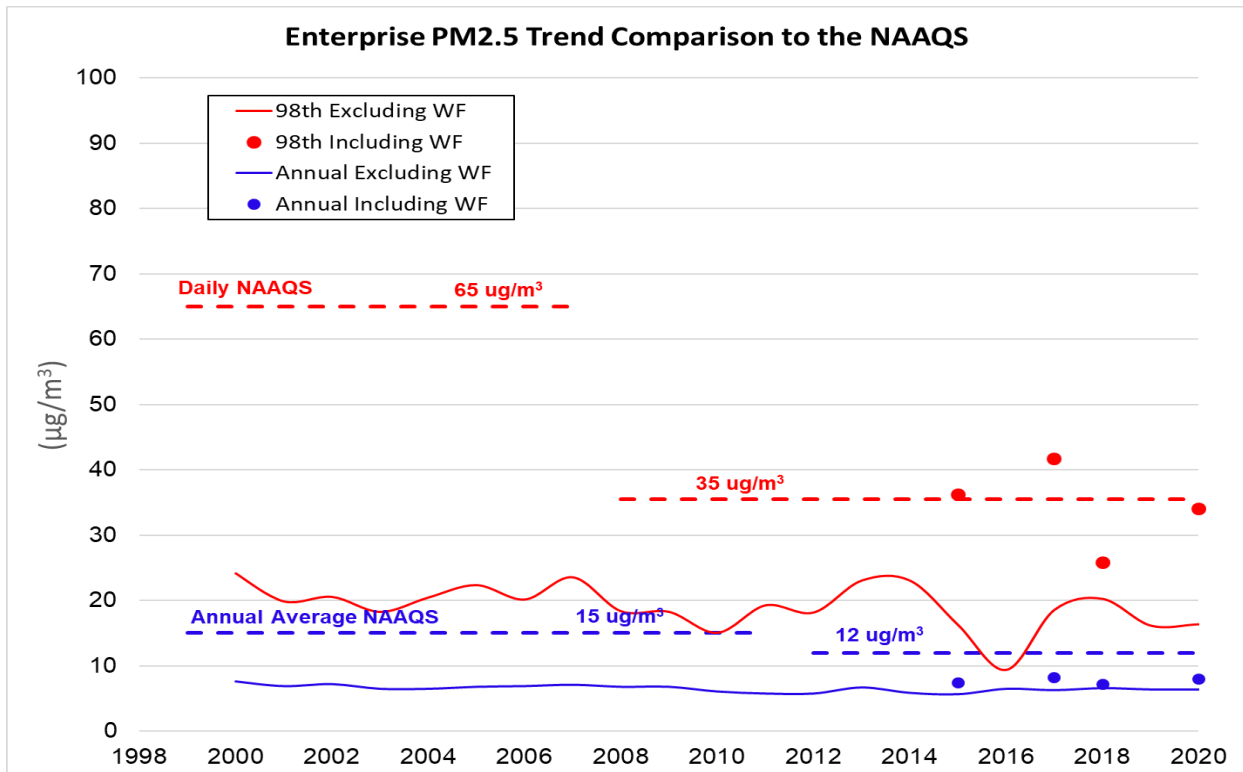


Figure 63. Enterprise PM2.5 trends.

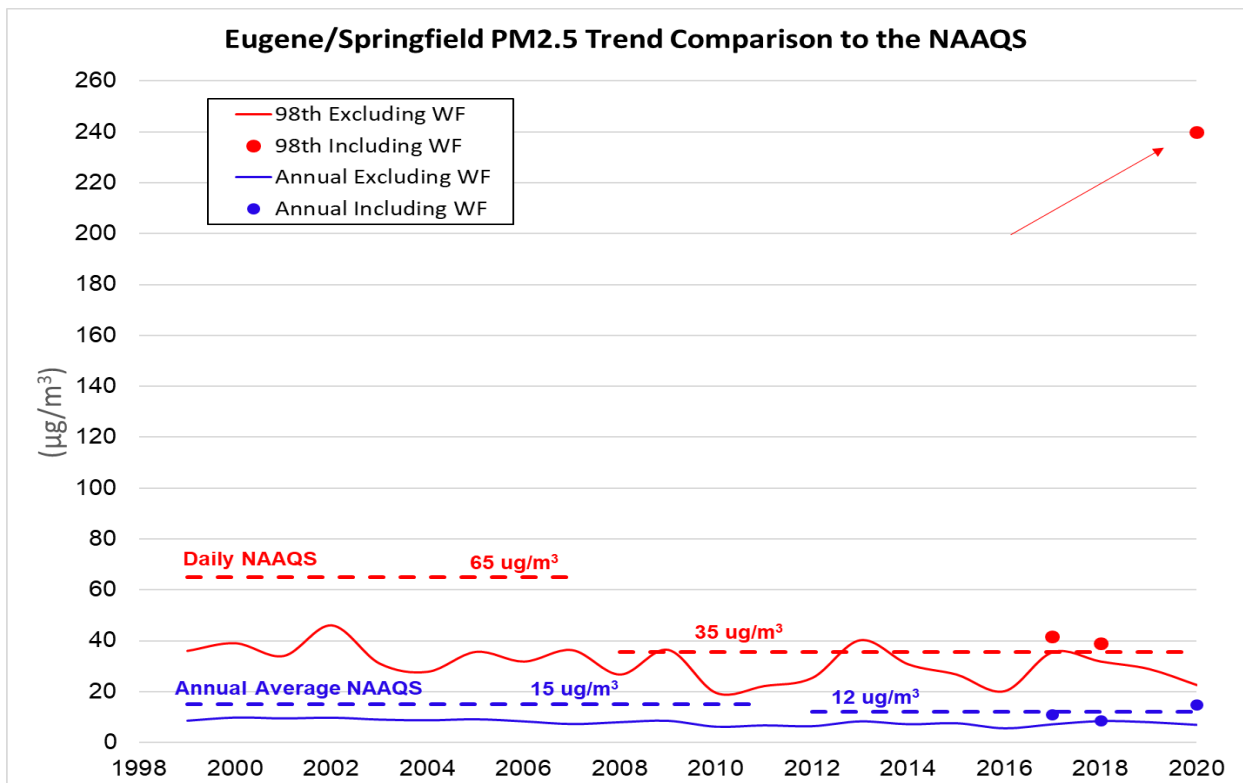


Figure 64. Eugene/Springfield PM2.5 trends.

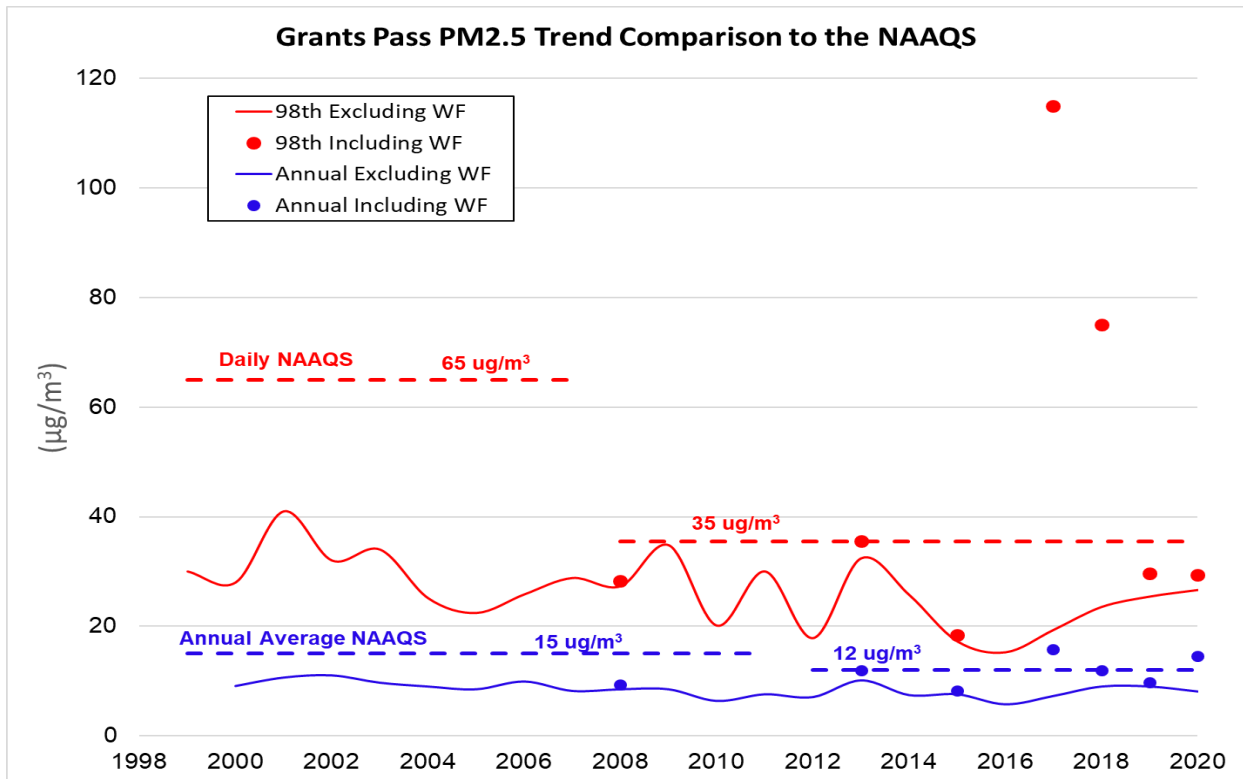


Figure 65. Grants Pass PM2.5 trends.

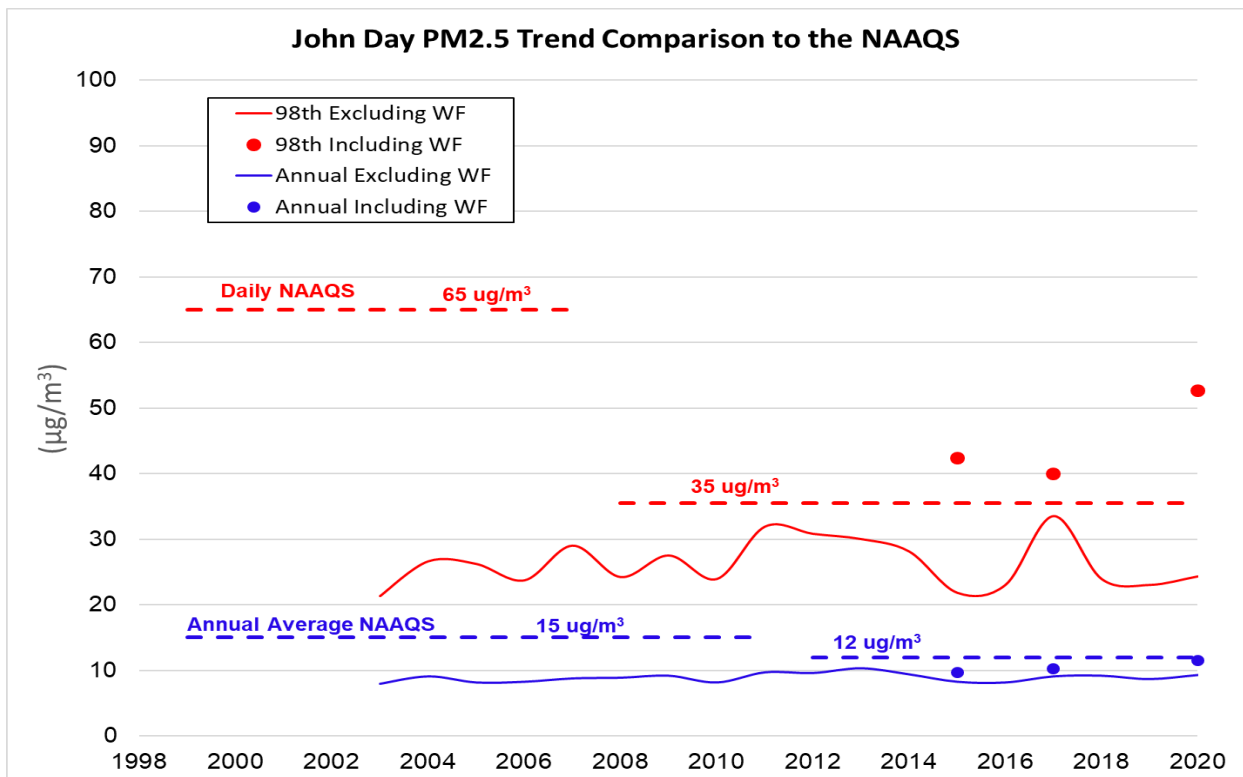


Figure 66. John Day PM2.5 trends.

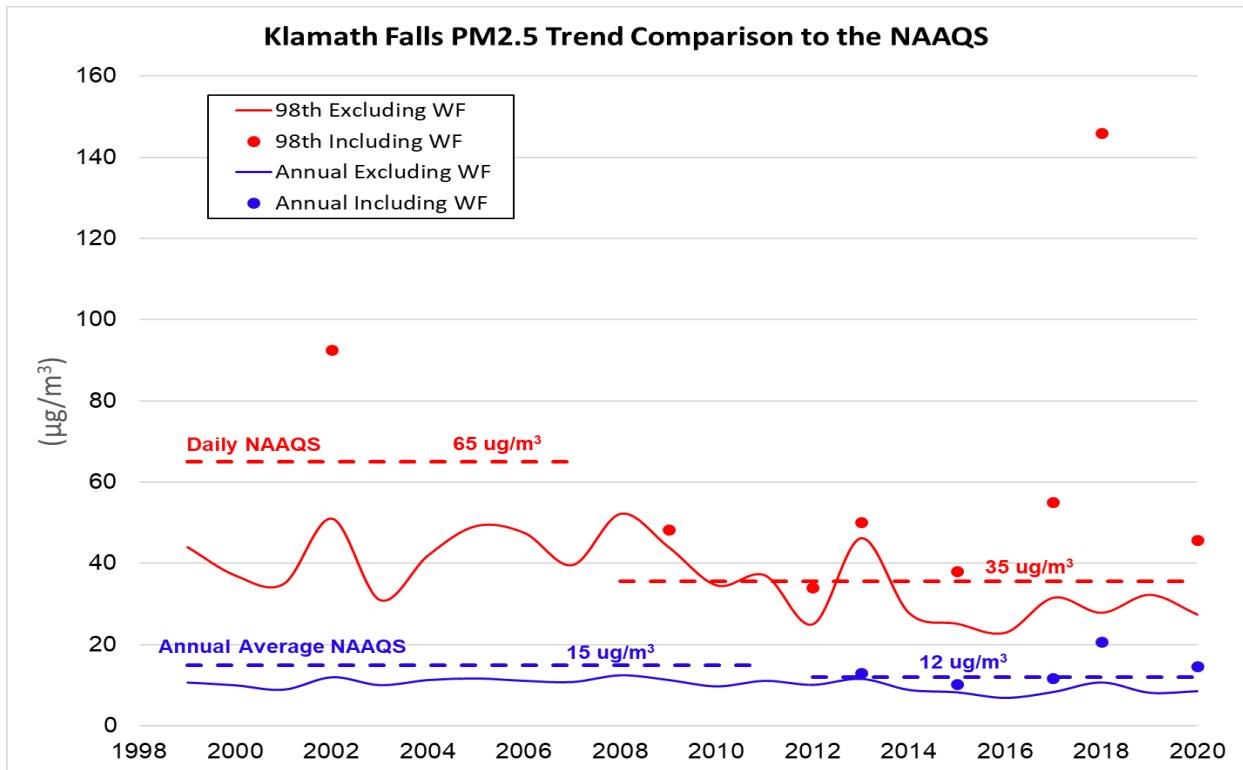


Figure 67. Klamath Falls PM2.5 trends.

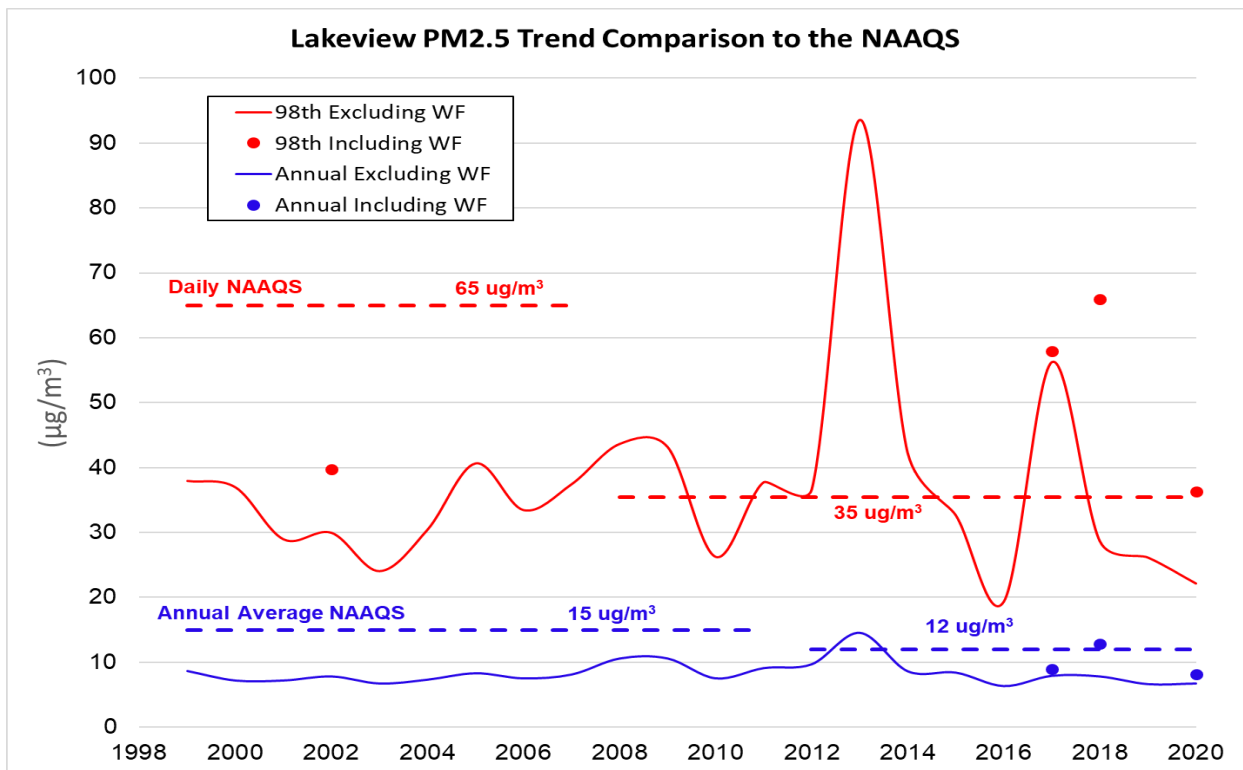


Figure 68. Lakeview PM2.5 trends.

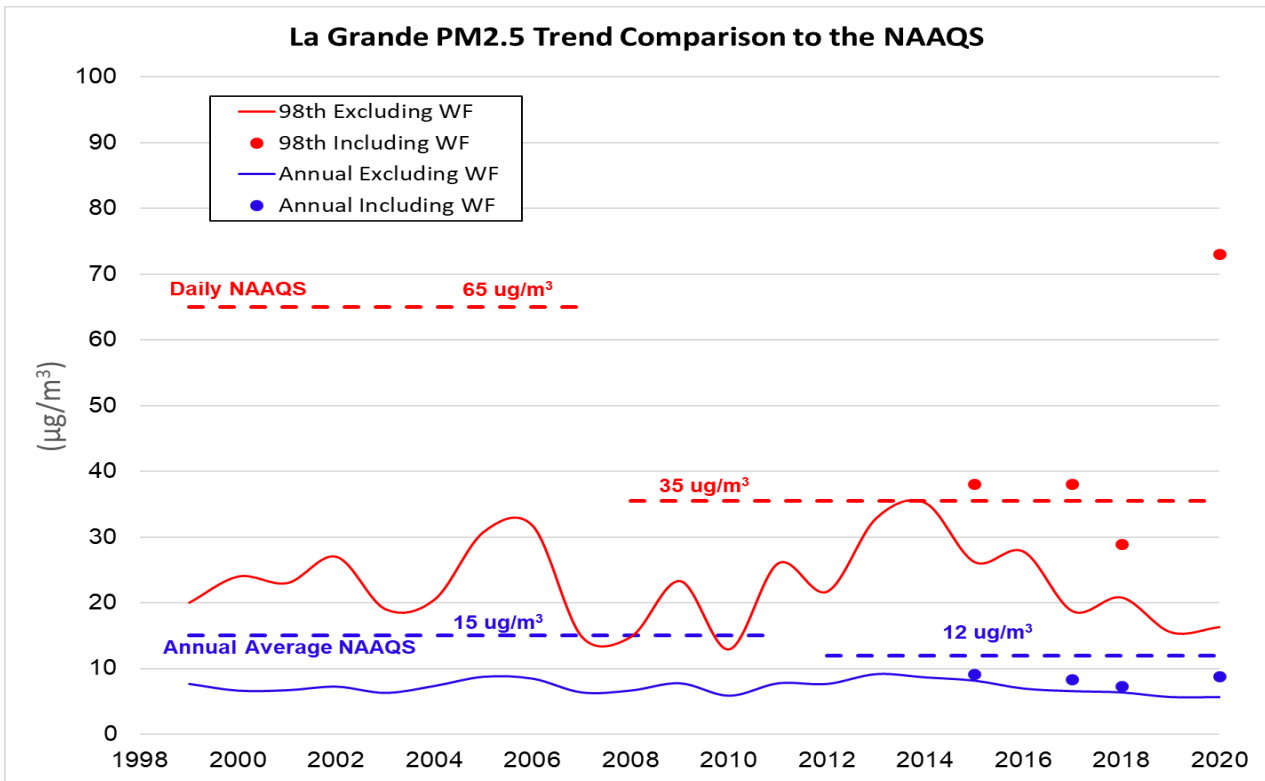


Figure 69. La Grande PM2.5 trends.

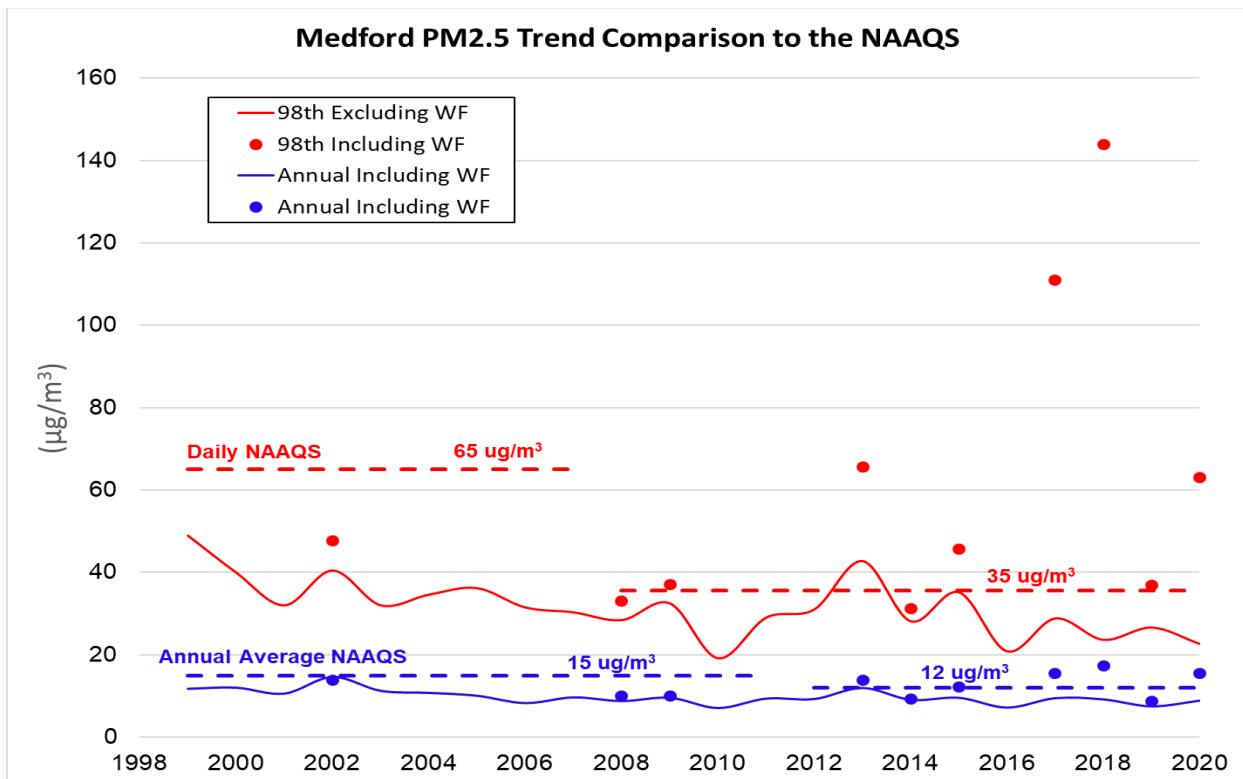


Figure 70. Medford PM2.5 trends.

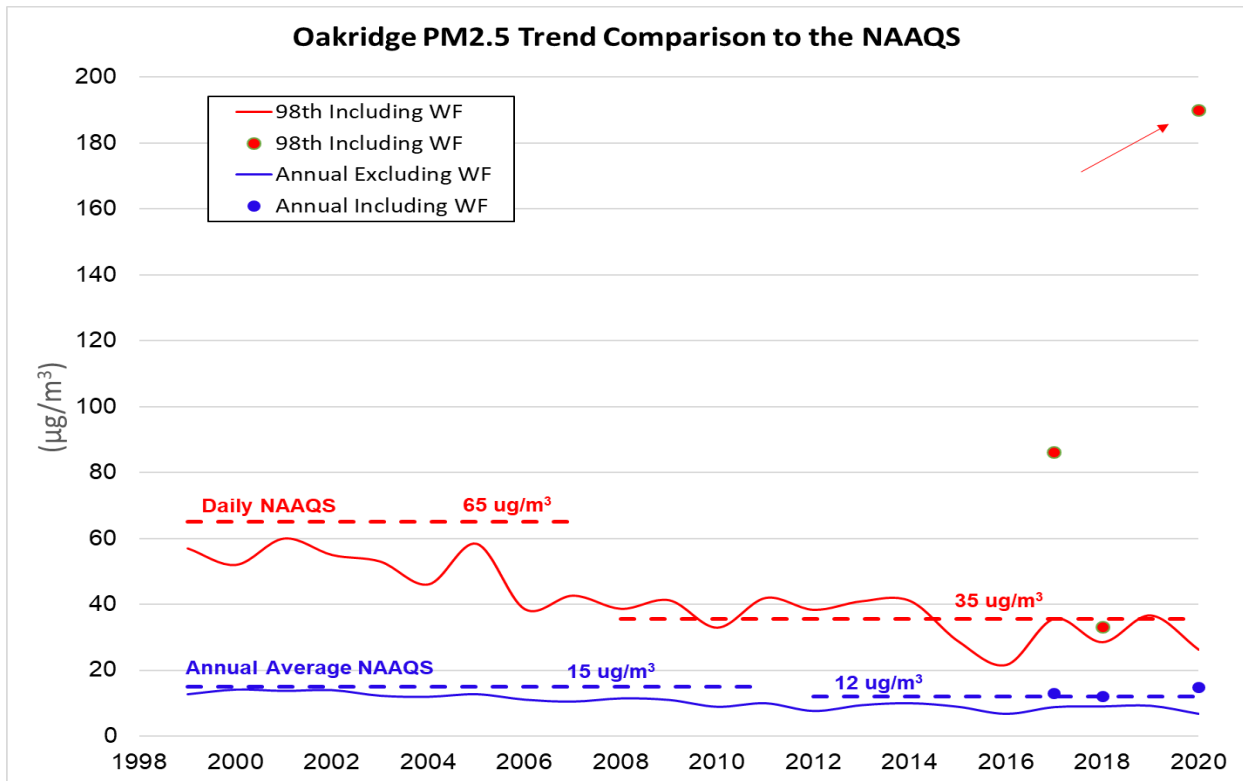


Figure 71. Oakridge PM2.5 trends.

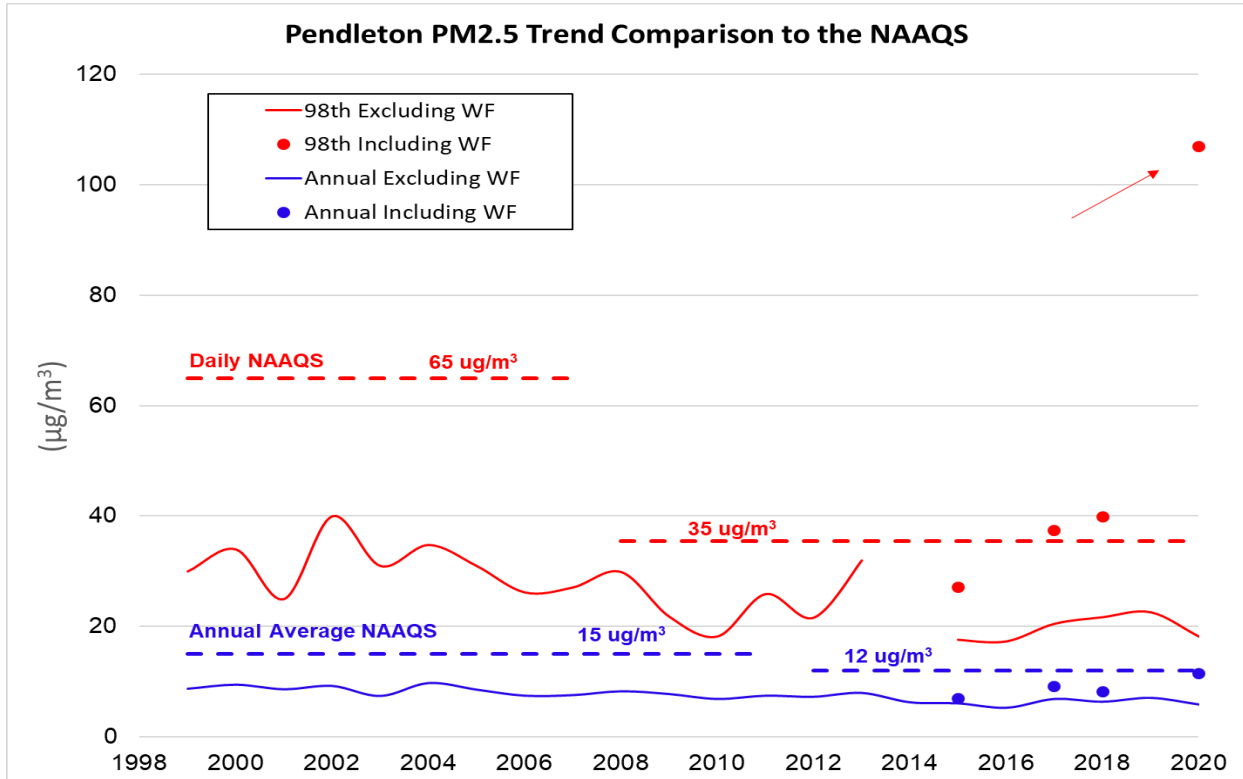


Figure 72. Pendleton PM2.5 trends.

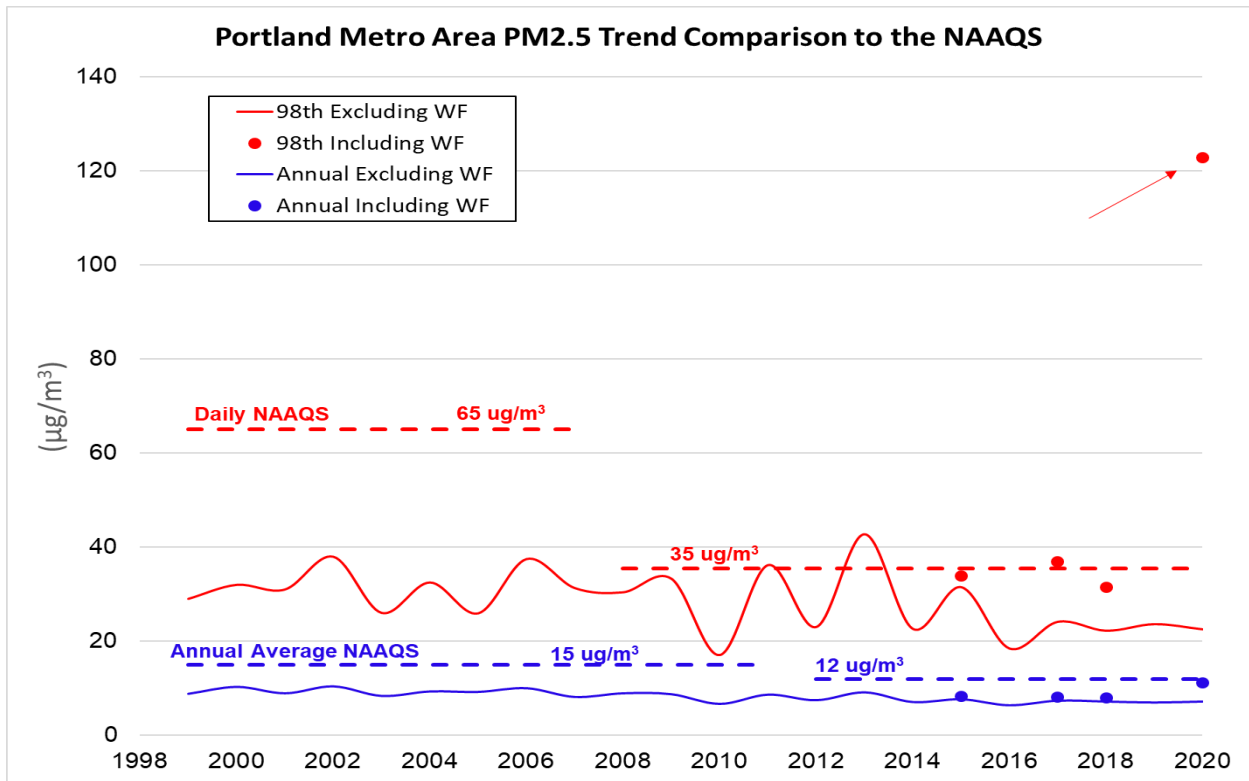


Figure 73. Portland Metro PM2.5 trends.

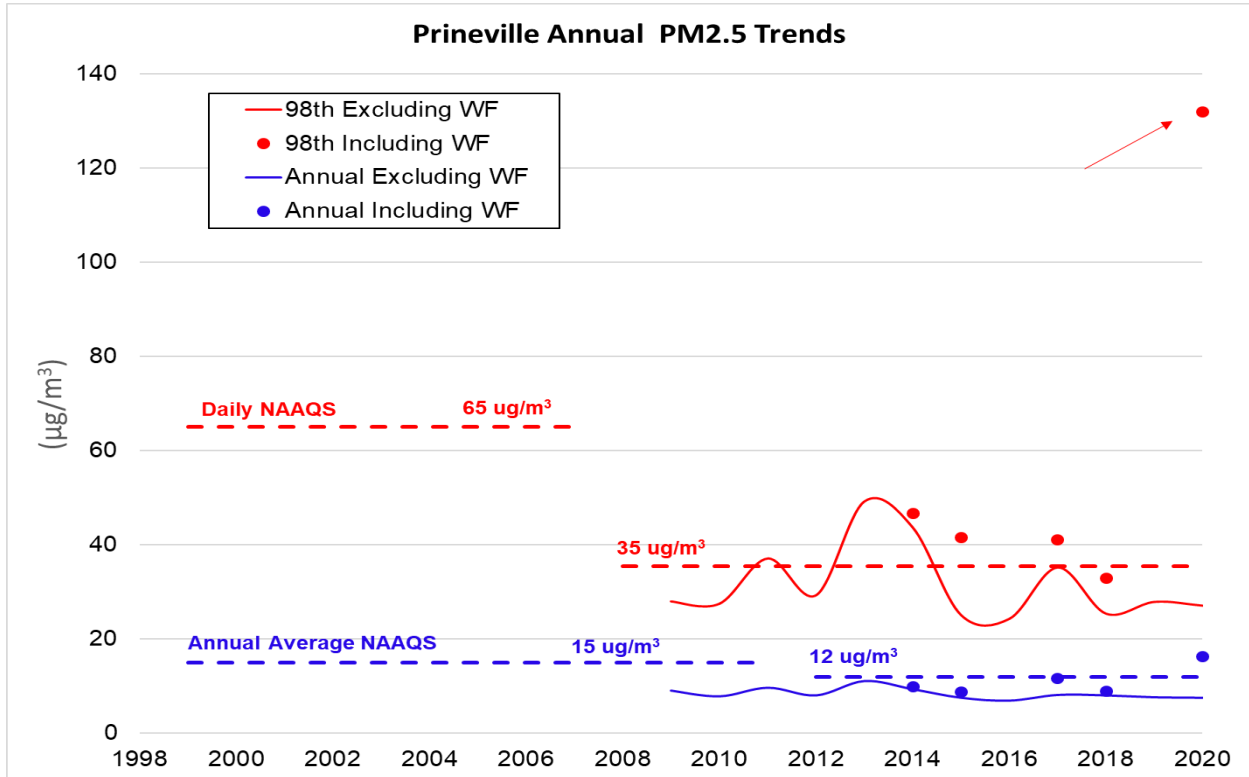


Figure 74. Prineville PM2.5 trends.

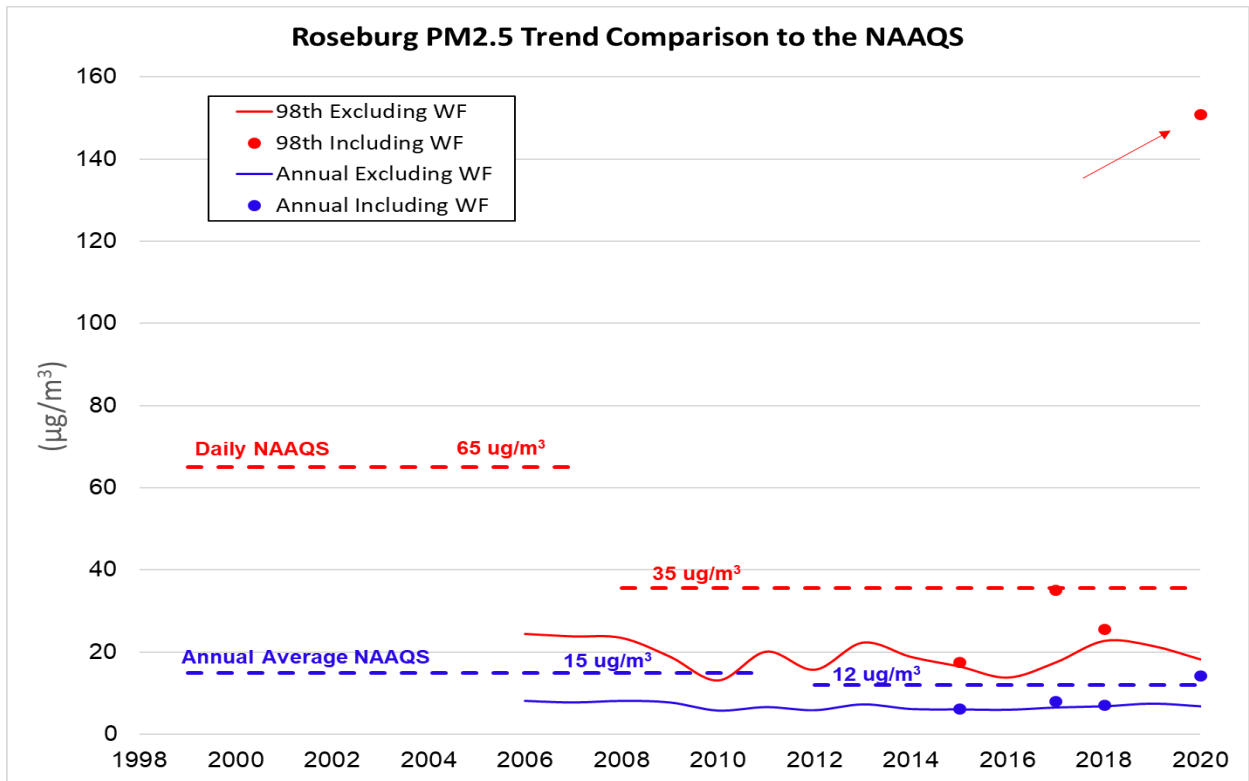


Figure 75. Roseburg PM2.5 trends.

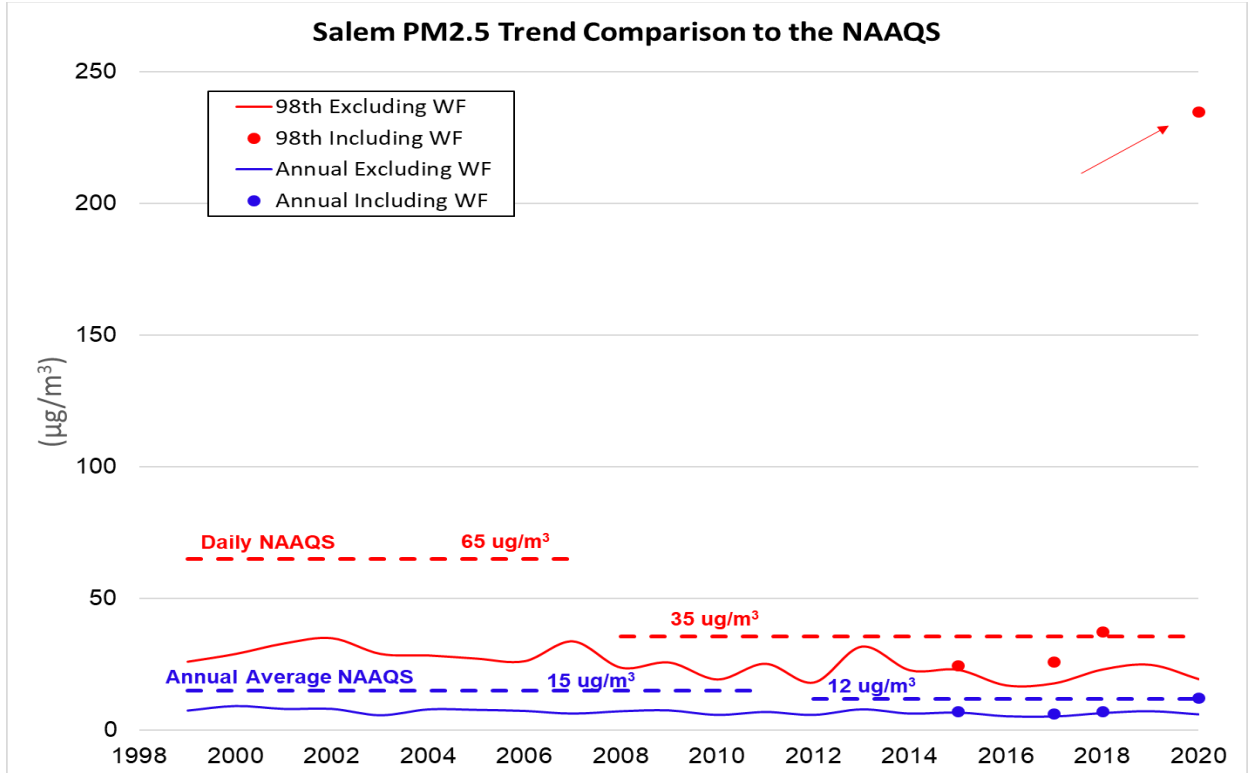


Figure 76. Salem PM2.5 trends.

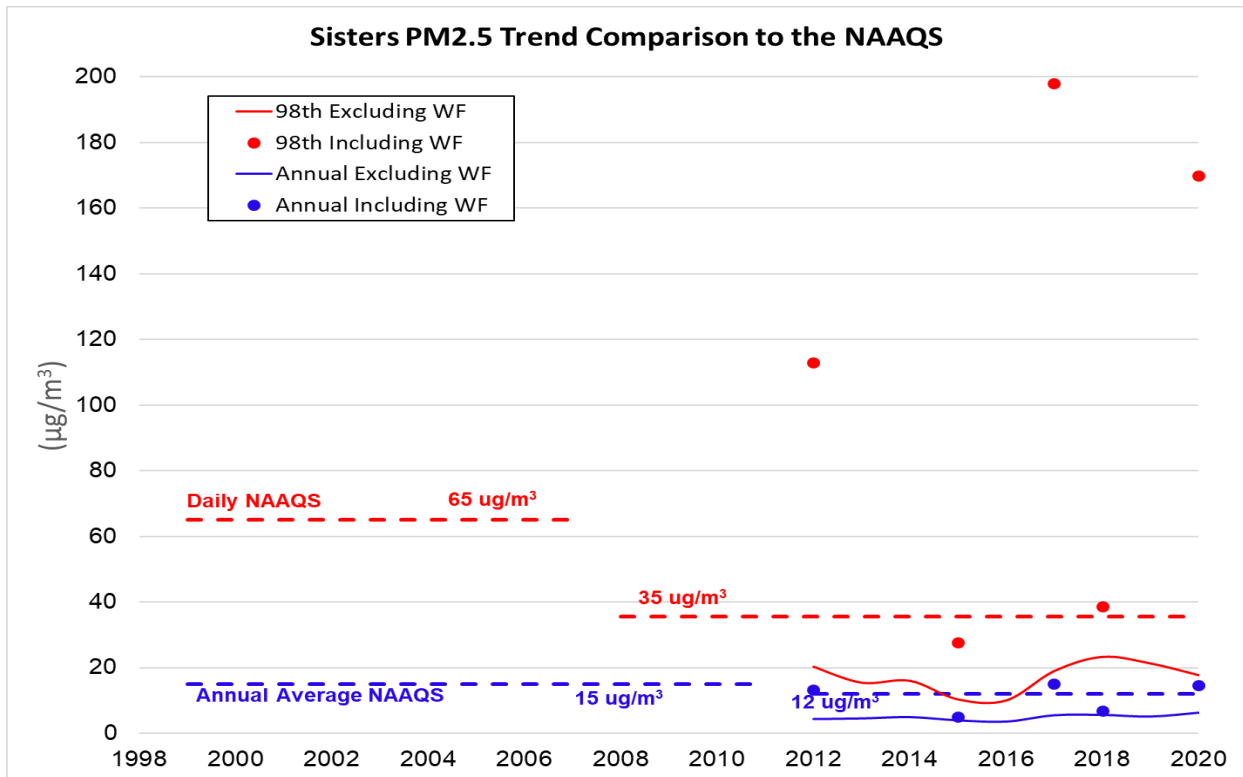


Figure 77. Sisters PM2.5 trends.

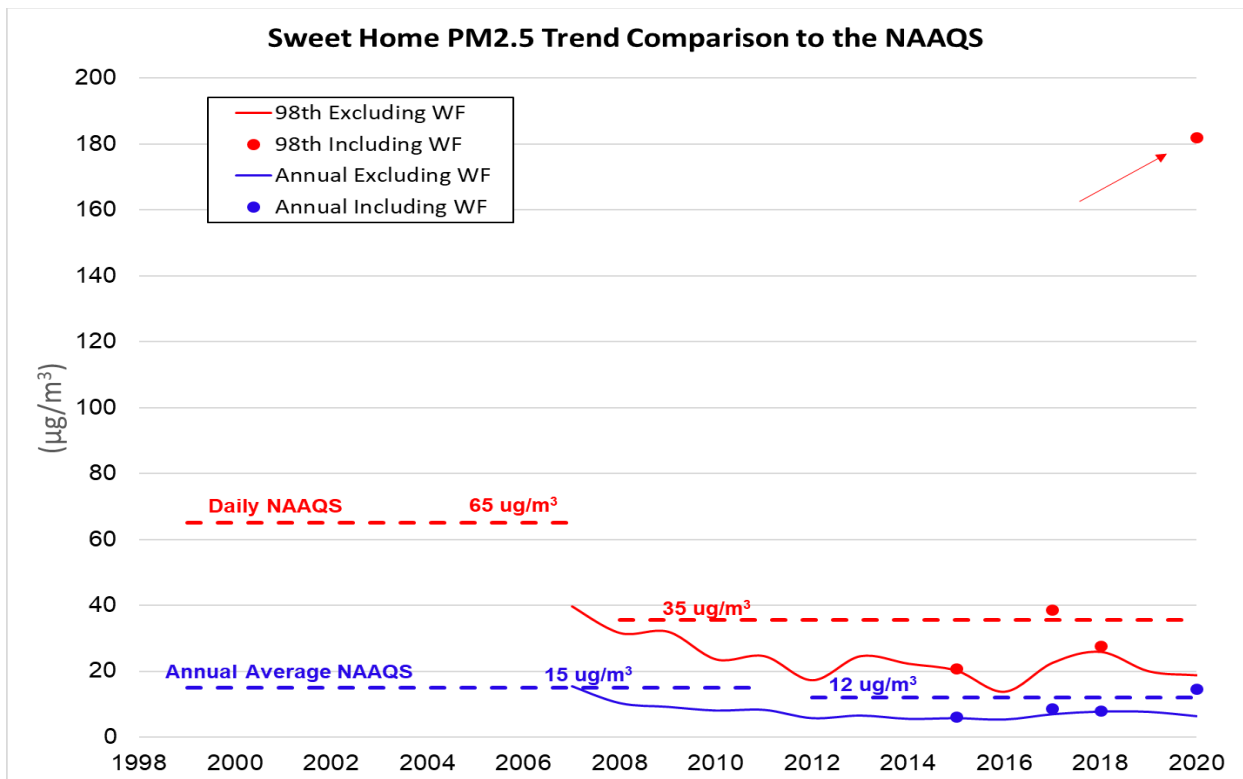


Figure 78. Sweet Home PM2.5 trends.

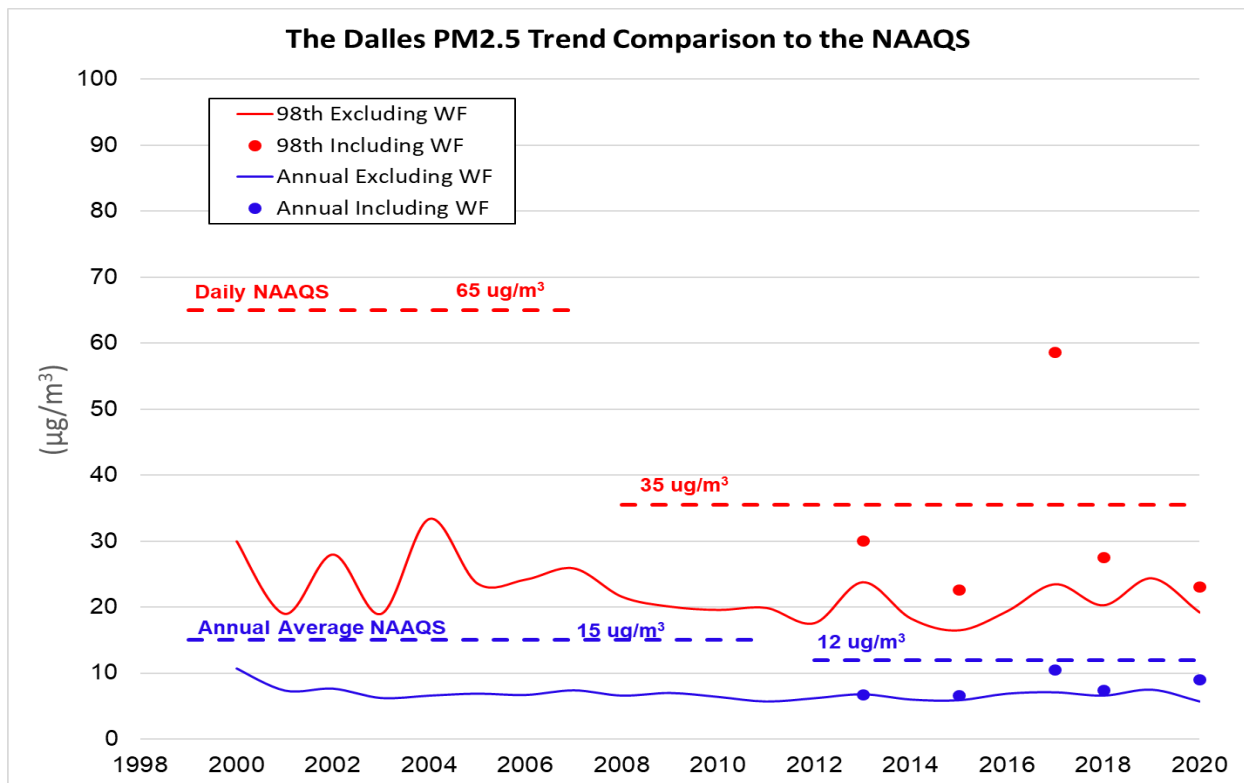


Figure 79. The Dalles PM2.5 trends.

The figures below show the three year average 98th Percentile PM2.5 (daily standard) and annual average PM2.5 (annual standard) levels with and without wildfire smoke impacts. It is useful to understand how much wildfire smoke contributed to raise PM2.5 concentrations above the National Ambient Air Quality Standard and what the levels would be with wildfire emissions excluded. Removing wildfire contributions show the effectiveness of local air quality improvement efforts in communities with PM2.5 reduction plans. Wildfire data would be excluded in determining airshed attainment status because it is considered an exceptional event that cannot be controlled locally.

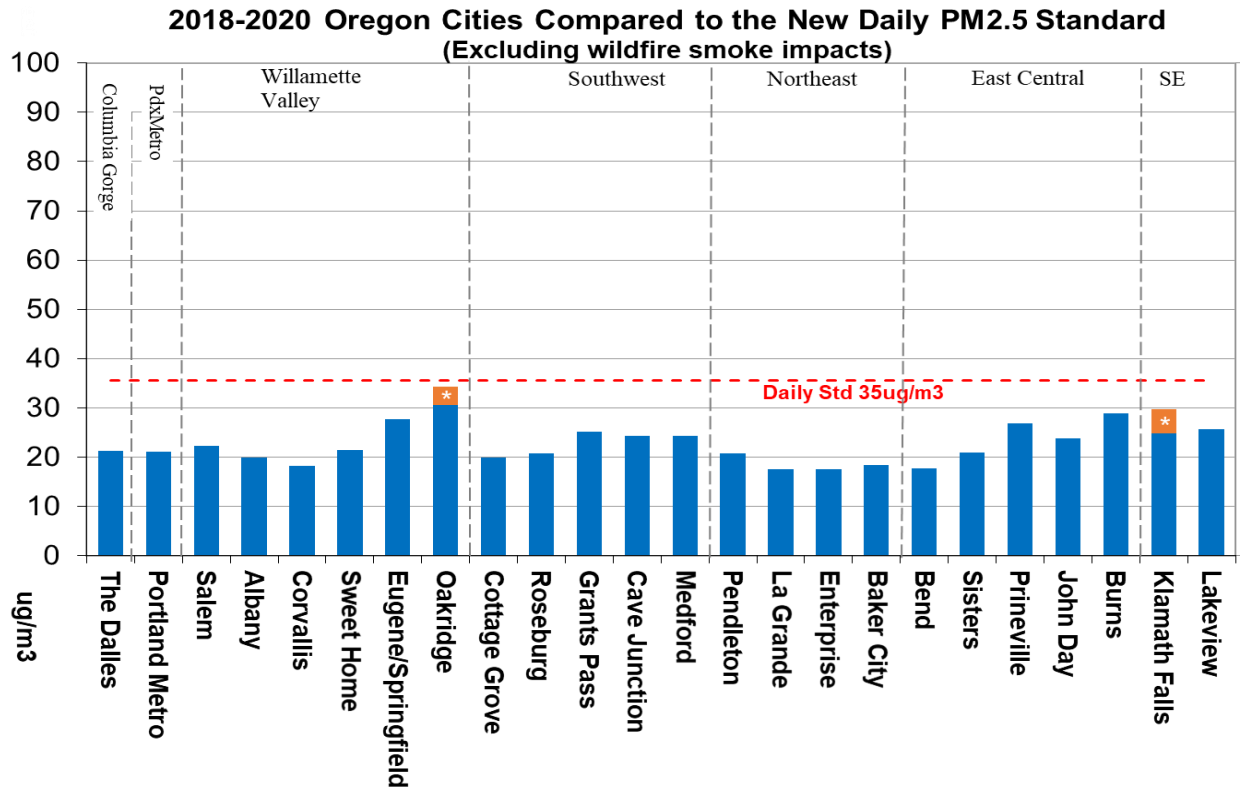
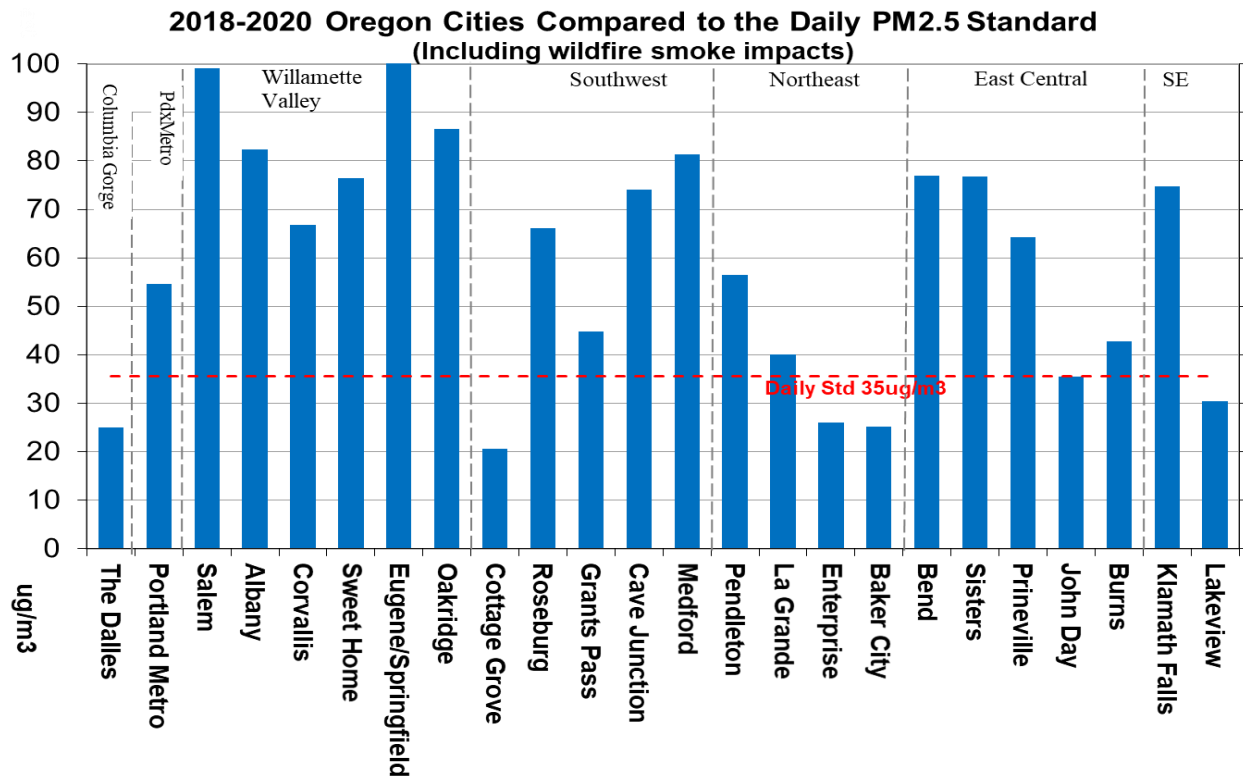


Figure 80. Oregon cities 2018-2020 daily PM2.5 comparison. The chart shows the three year average 98th percentile. Wildfire data excluded and included. *Exceptional Event value shown for Klamath Falls and Oakridge.

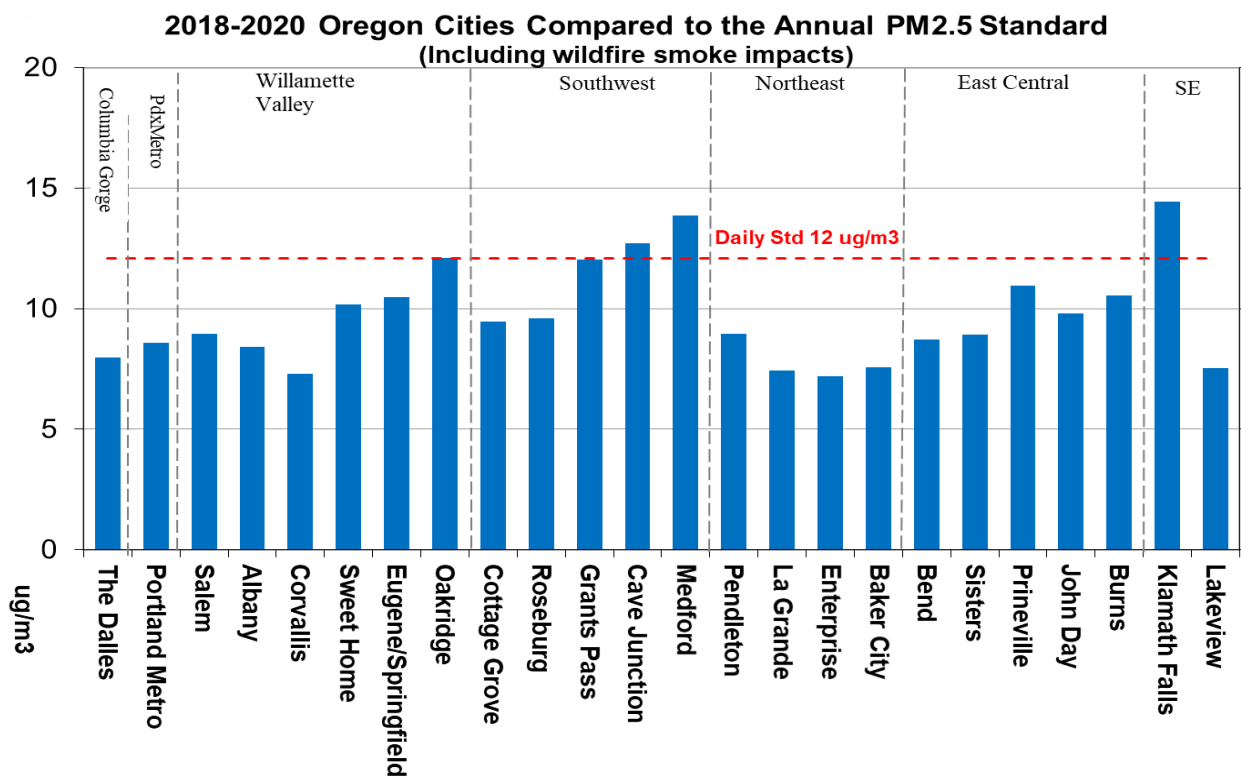
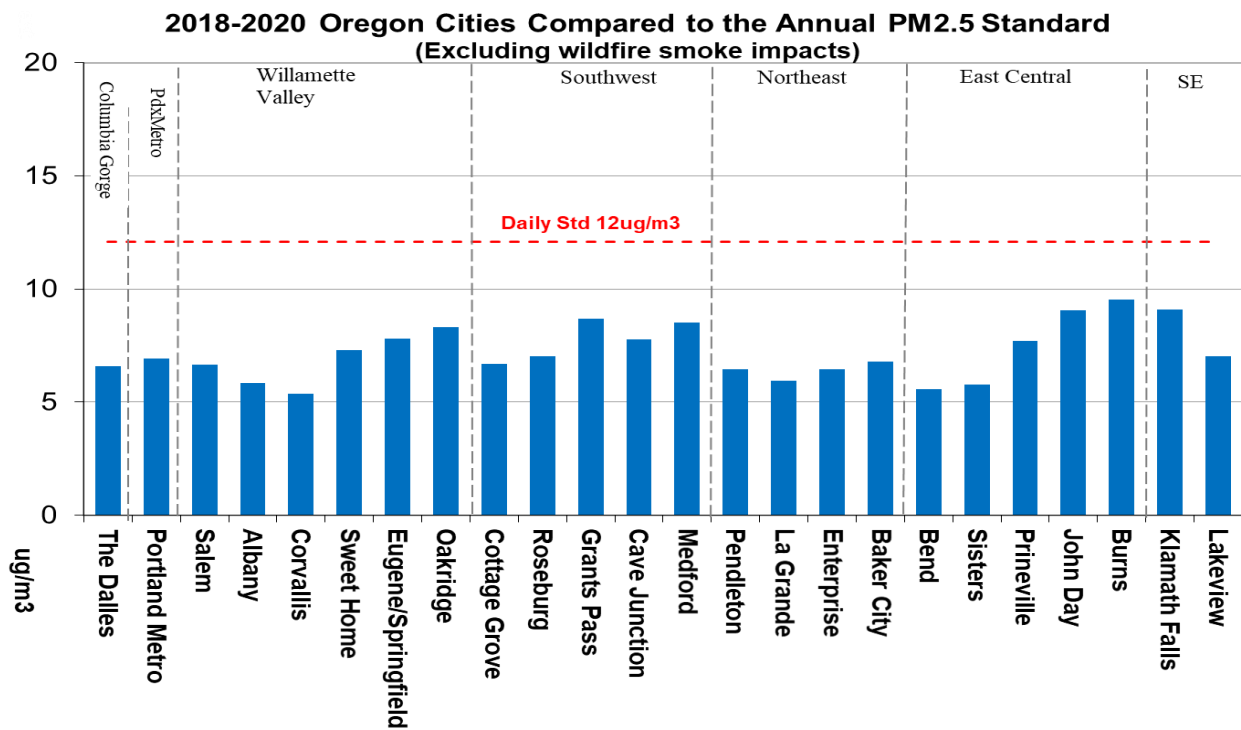


Figure 81. Oregon cities 2018-2020 annual average PM2.5 comparison.
The chart shows the three year average of the annual average with wildfire data included.

PM10 Trends

The PM10 trend chart shows the values in cities with the highest, average, and lowest concentrations. All cities are well below the National Ambient Air Quality Standard.

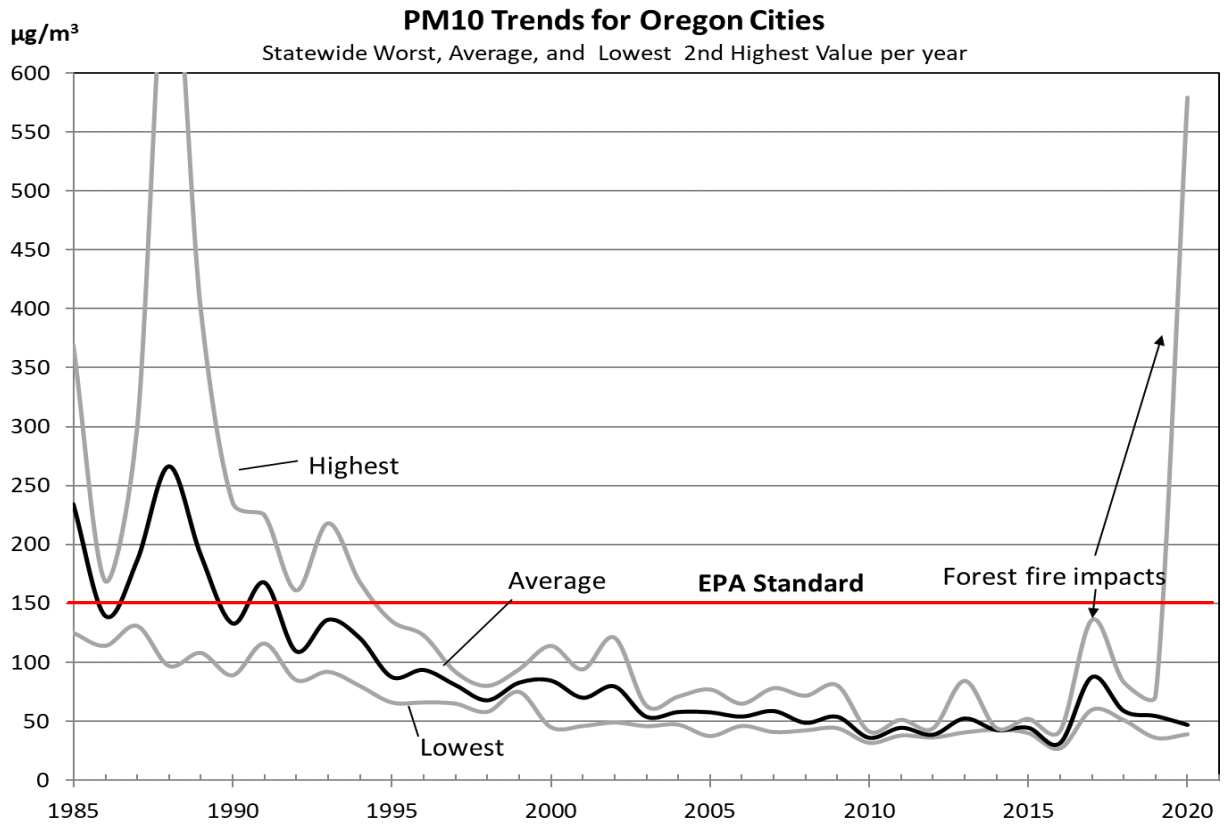


Figure 82. Oregon PM10 trends

Carbon Monoxide Trends

The figure below shows the CO trend in comparison to the National Ambient Air Quality Standard.

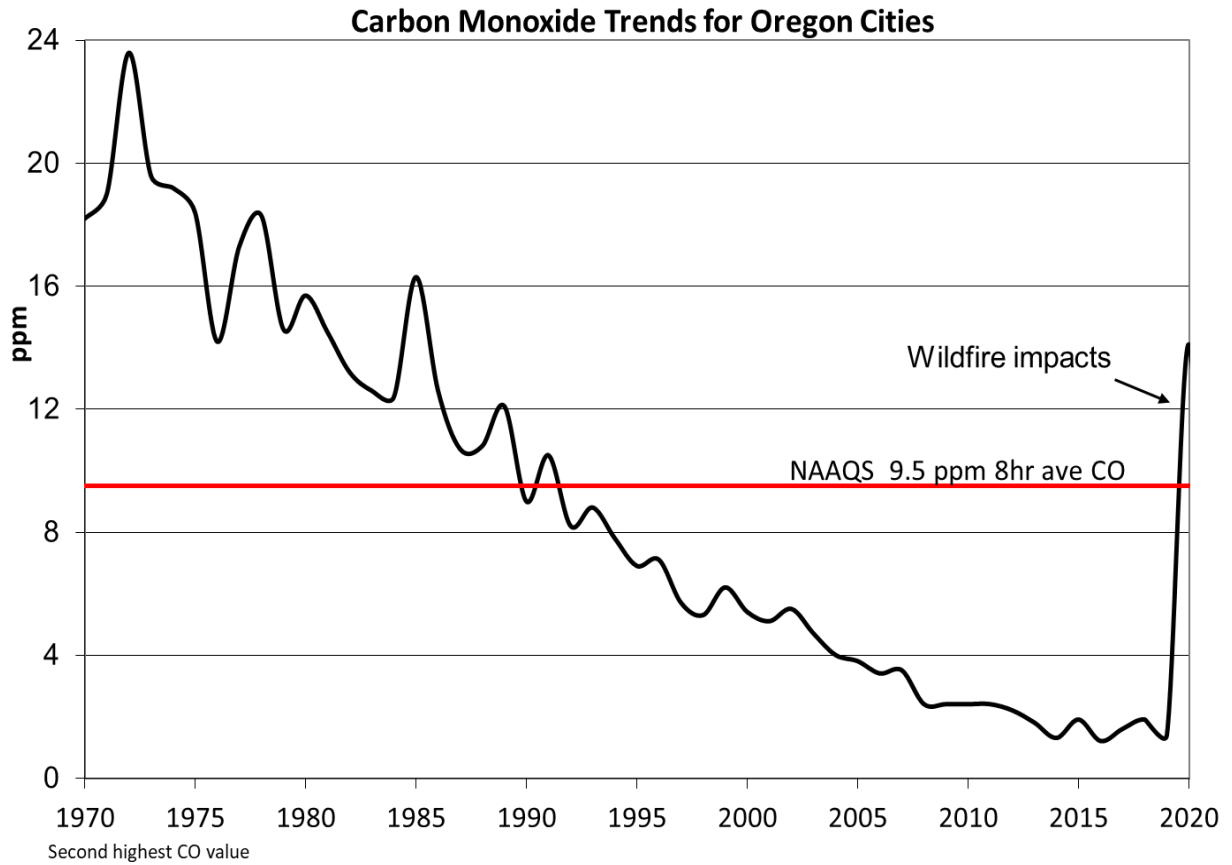


Figure 83. Oregon carbon monoxide Trend.
Trend chart uses the second highest annual, eight hour average.

Sulfur Dioxide Trends

The figure below shows the SO₂ trends in comparison to the federal standard.

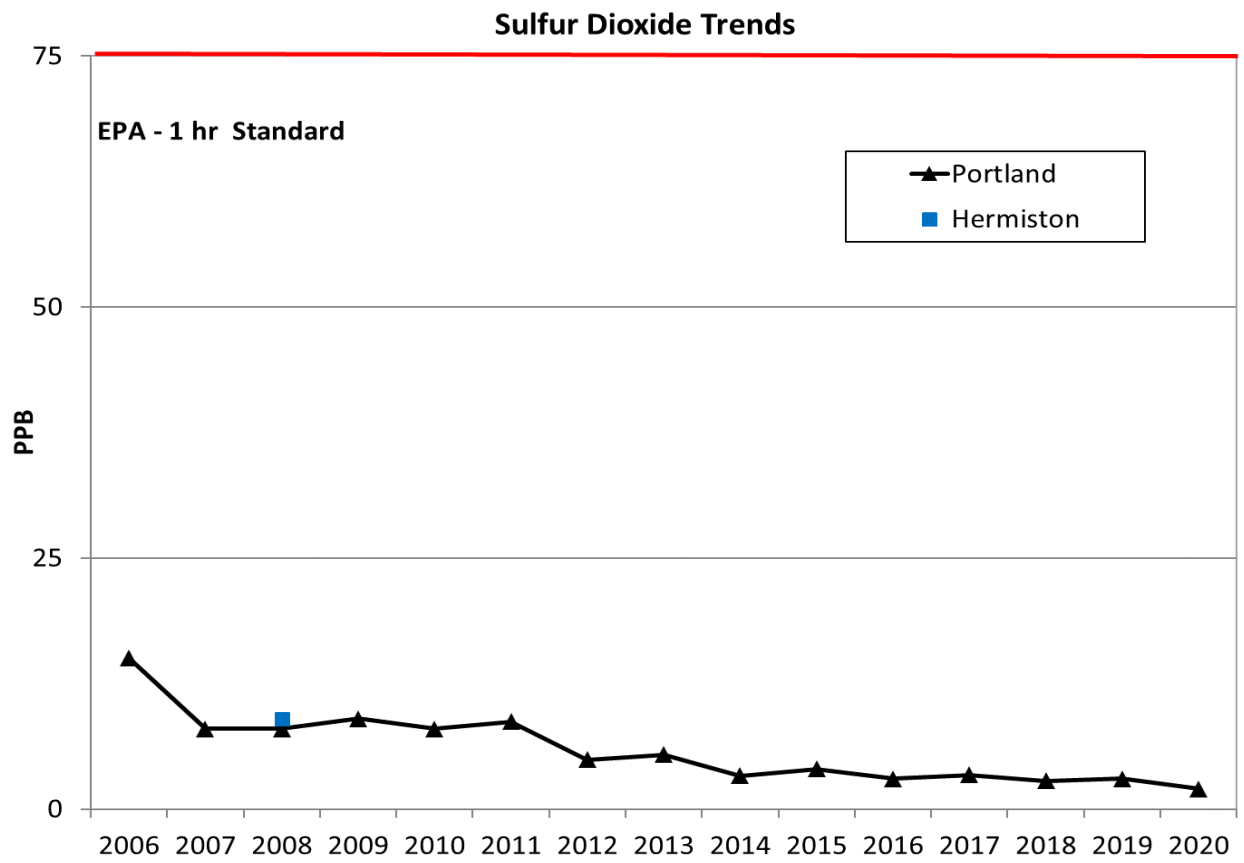


Figure 84. Oregon sulfur dioxide one hour average trends.

Nitrogen Dioxide Trends

The Figure below shows the NO₂ trends in comparison to the federal standard.

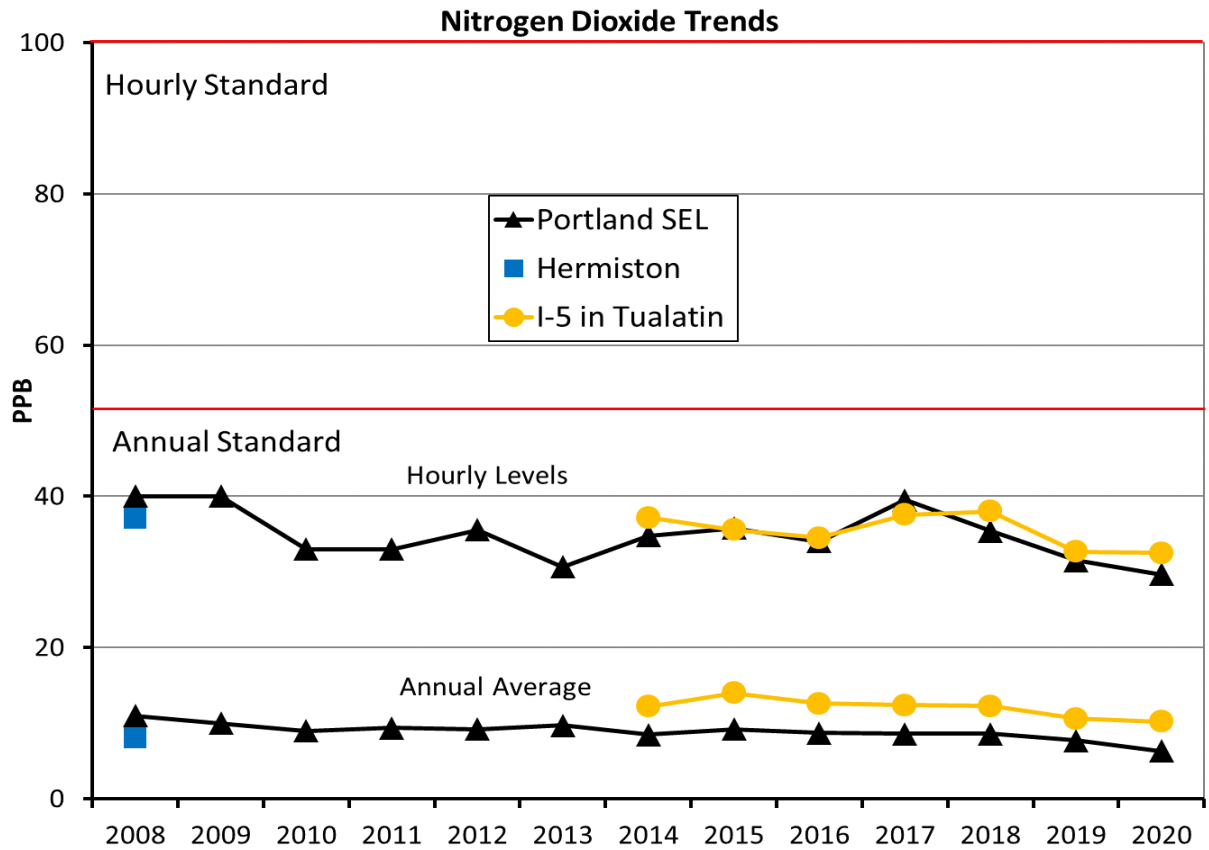


Figure 85. Oregon nitrogen dioxide one hour and annual average trends.

Air Toxics Trends

Oregon DEQ and LRAPA began sampling for air toxics in Oregon in 1999. The Figures below show the trends for some air toxics of concern. More air toxic information can be found in Appendix H and at EPA’s Air Data web site. The values are compared to the Oregon ambient concentration health benchmarks which are the levels where people exposed for a lifetime have an additional one in a million risk of cancer or of experiencing non-cancer health effects.

This information is for neighborhood monitoring only and does not include monitoring next to industrial facilities. That information is presented in separate reports specific to the monitoring project and facility. These graphs were made using the air toxics summary data from EPA’s Air Data Web page which summarizes the air toxics data that the state and local agencies load into EPA’s AQS database. Oregon DEQ loads all the sampled data below into EPA’s database.

Note that years with < 50% data completeness were not included. Years with data competition between 50% and 74% are denoted with an asterisk “ * ” in the graphs.

Note that MDL = Minimum Detection Limit. Values below the MDL are below the detection limit of the analysis method. EPA defines the MDL as “the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte”.

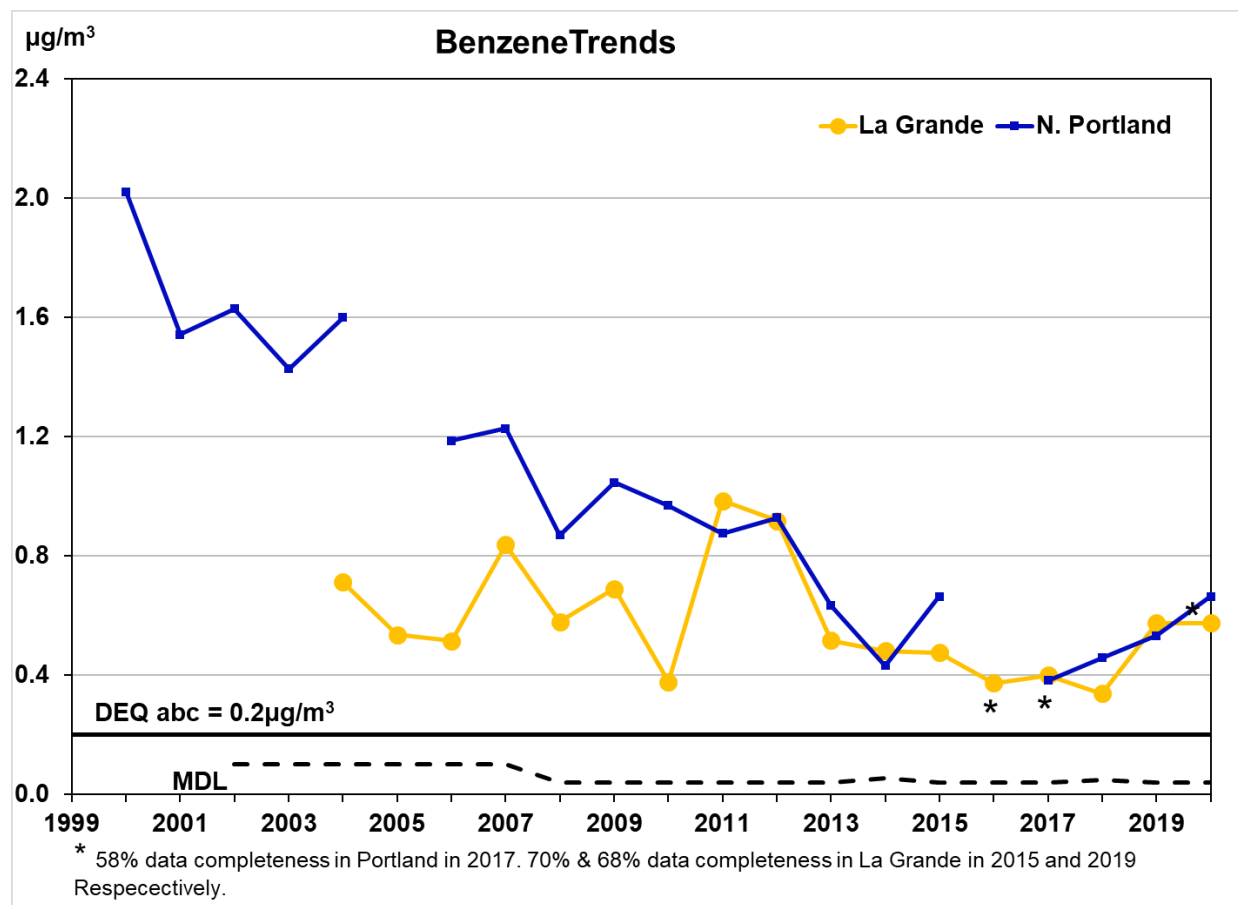


Figure 86. Oregon benzene trends.

Units are in Standard Temperature and Pressure (25°C). The MDL definition is above the graphs.

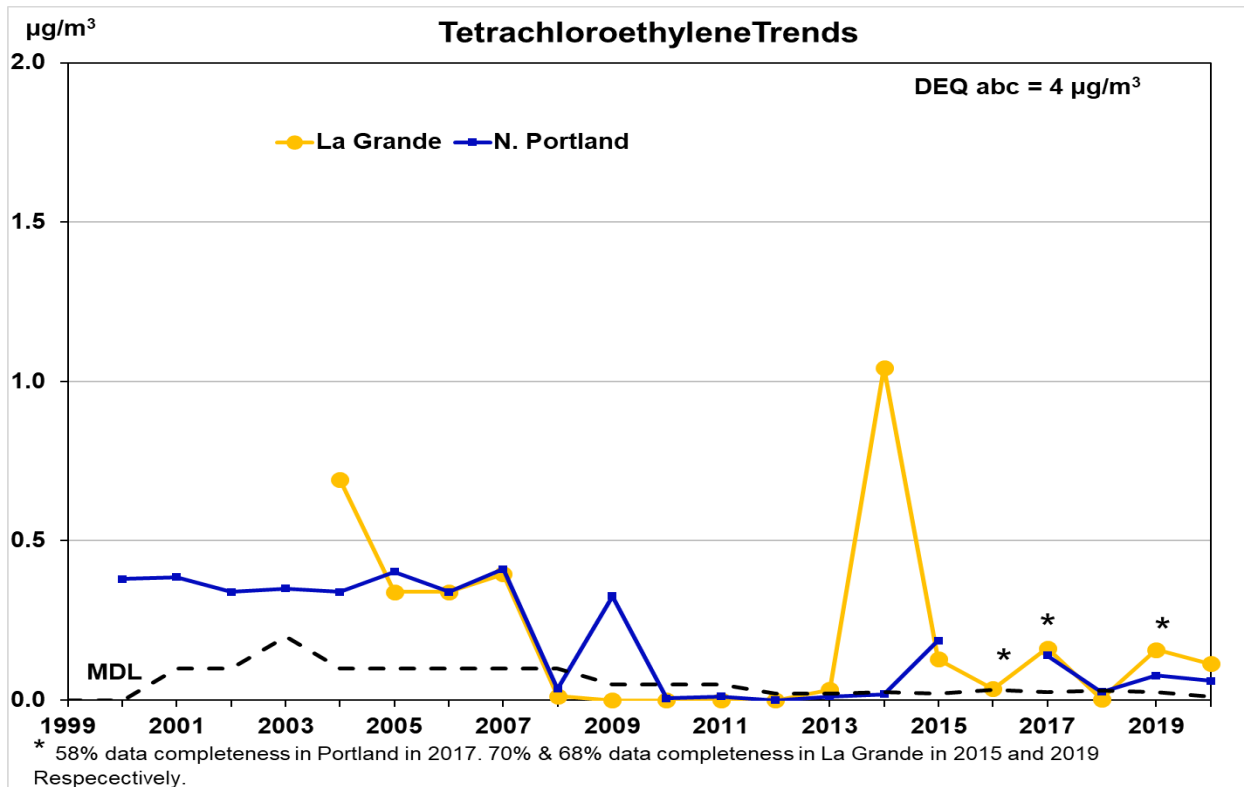


Figure 87. Oregon tetrachloroethylene (PERC) trends. Units are in Standard Temperature and Pressure (25°C). The MDL definition is above the graphs.

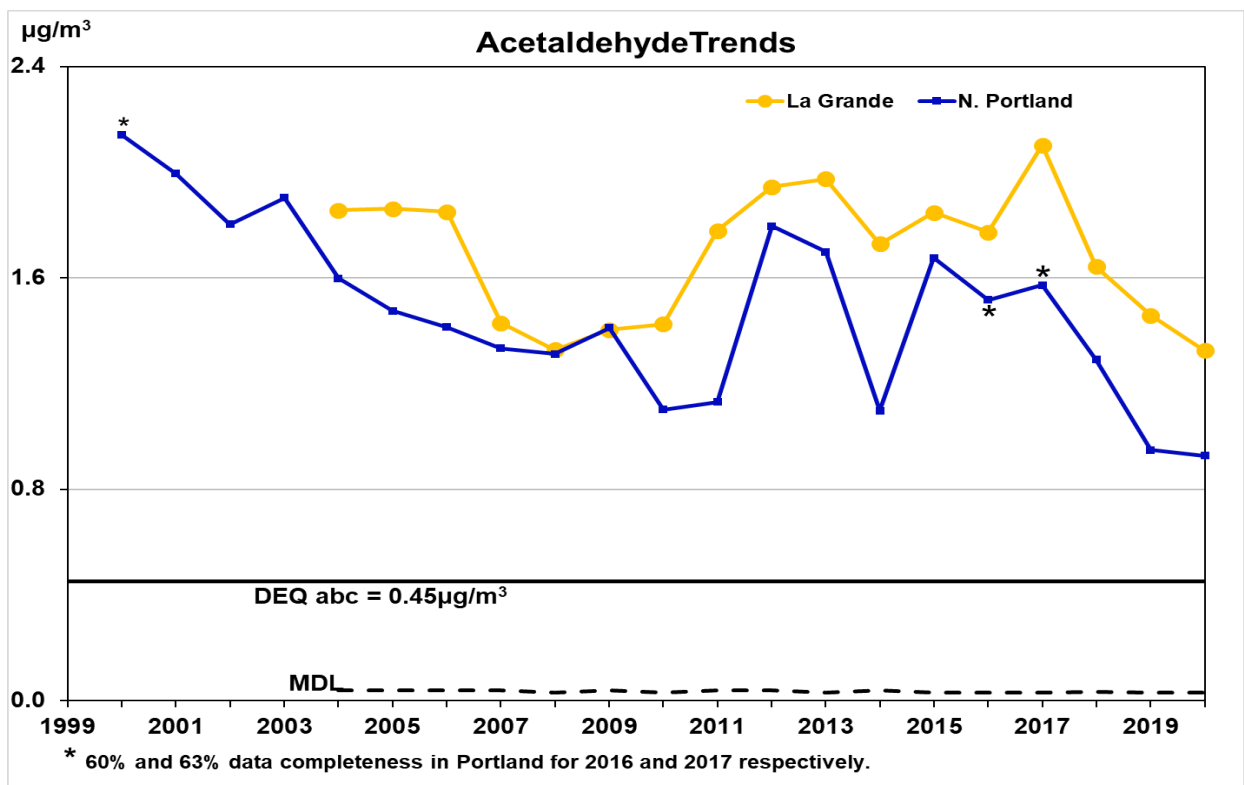


Figure 88. Oregon acetaldehyde trends. Units are in Standard Temperature and Pressure (25°C). The MDL definition is above the graphs.

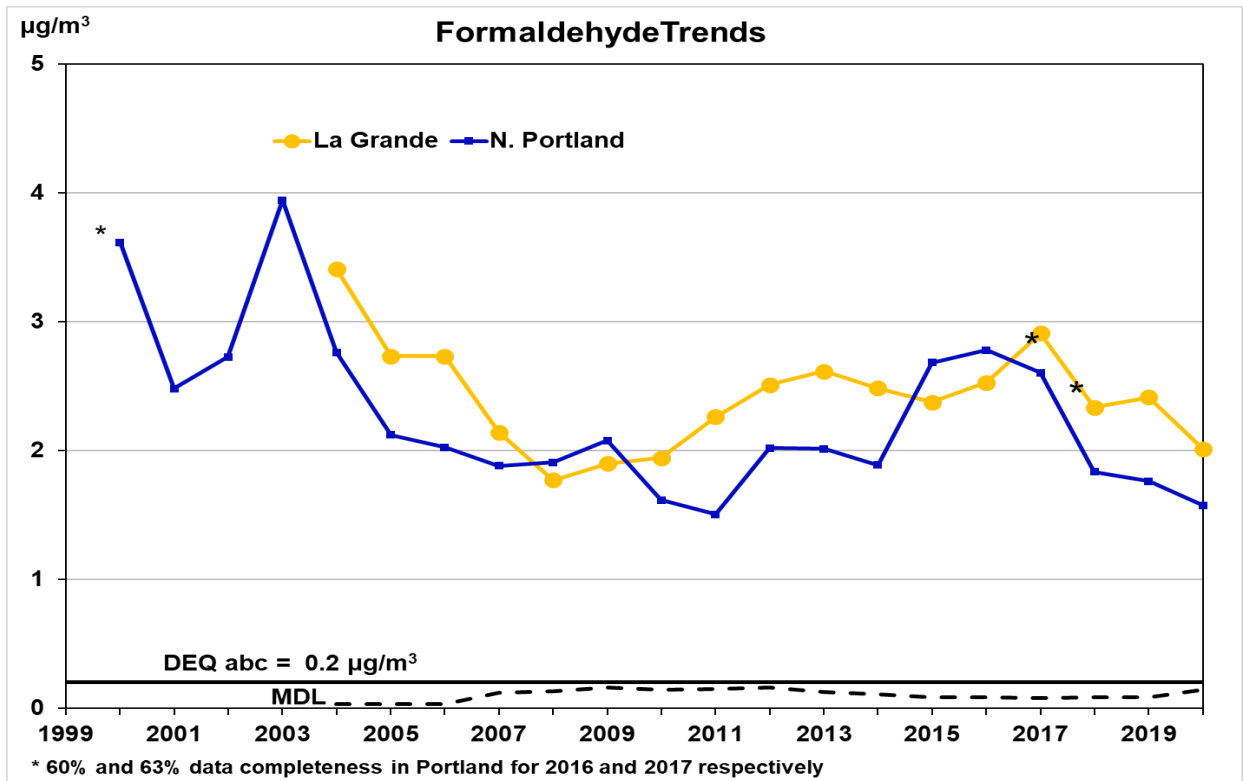


Figure 89. Oregon formaldehyde trends.

Units are in Standard Temperature and Pressure (25°C). The MDL definition is above the graphs.

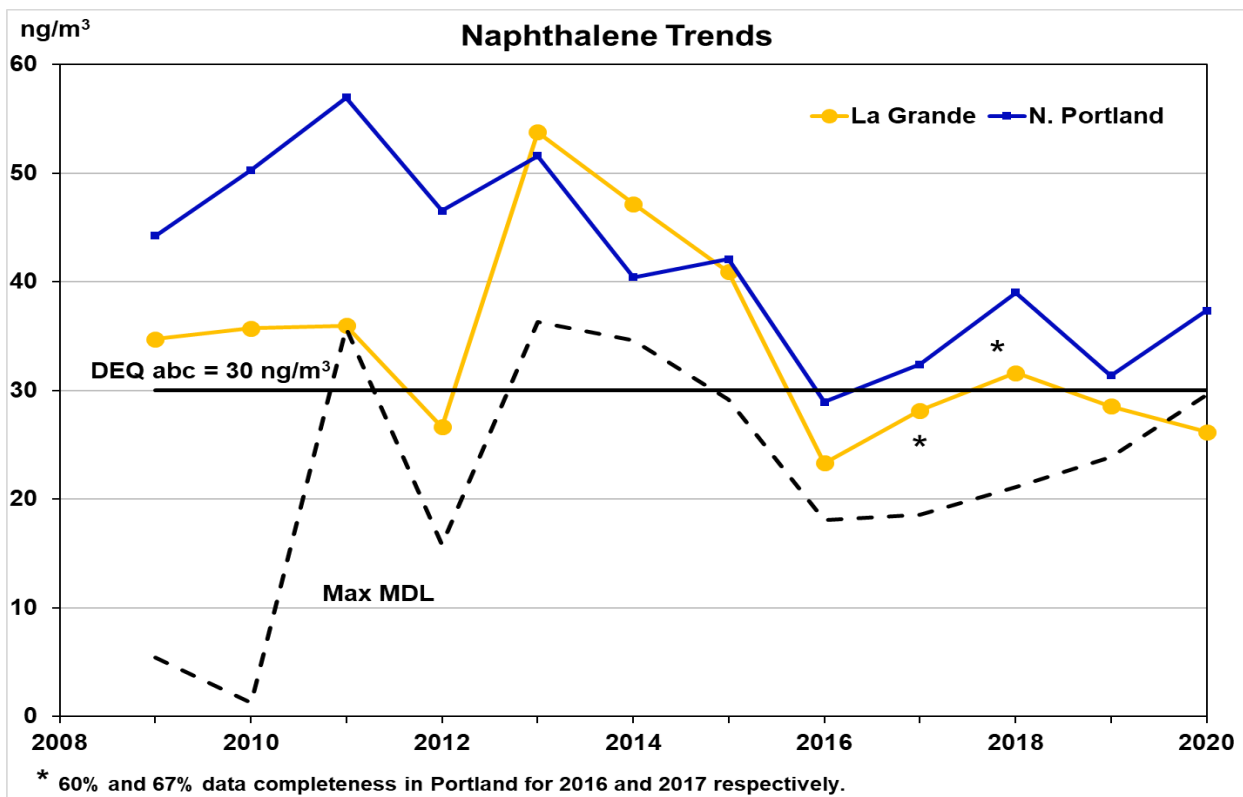


Figure 90. Oregon TSP naphthalene trends

Units are in Standard Temperature and Pressure (25°C). The MDL definition is above the graphs.

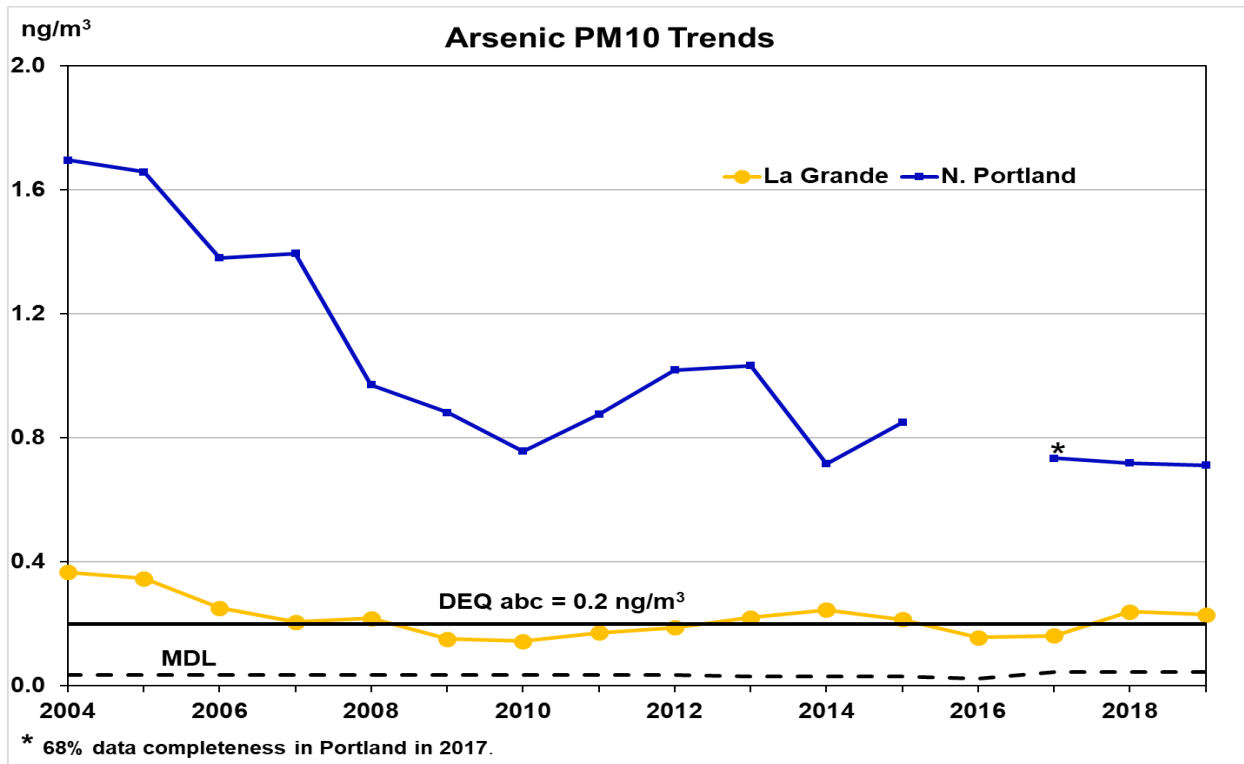


Figure 91. Oregon PM10 arsenic trends.

Units are in Standard Temperature and Pressure (25°C) until 2011, then they are in Local Temperature and Pressure. The MDL definition is above the graphs.

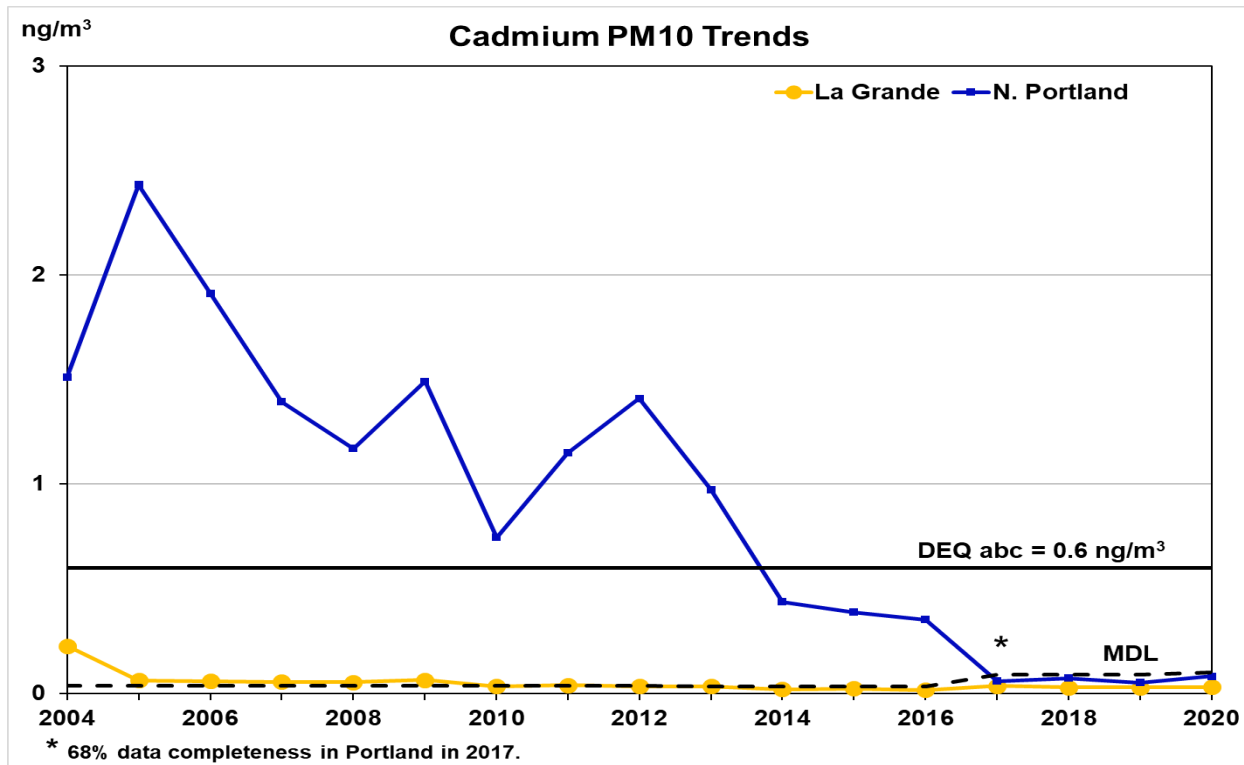


Figure 92. Oregon PM10 cadmium trends.

Units are in Standard Temperature and Pressure (25°C) until 2011, then they are in Local Temperature and Pressure. The MDL definition is above the graphs.

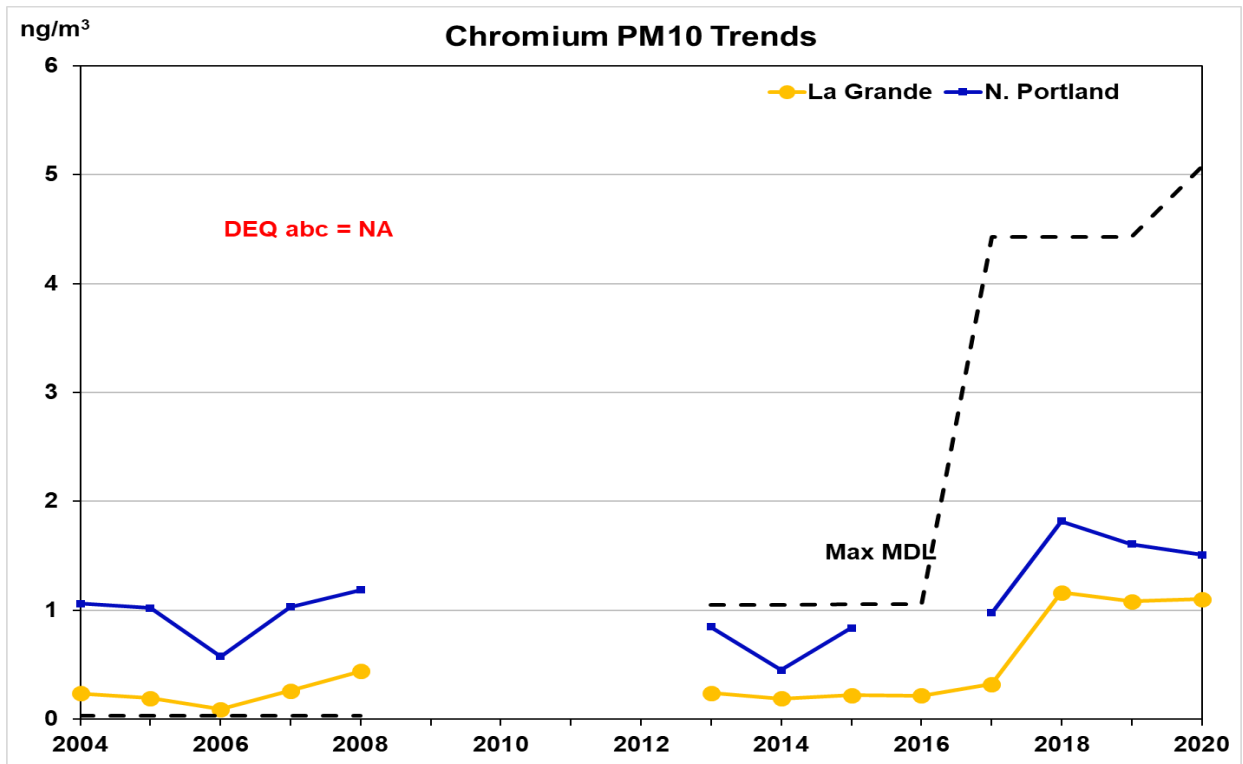


Figure 93. Oregon TSP hexavalent chromium trends
 Units are in Standard Temperature and Pressure (25°C) until 2011, then they are in Local Temperature and Pressure. The MDL definition is above the graphs.

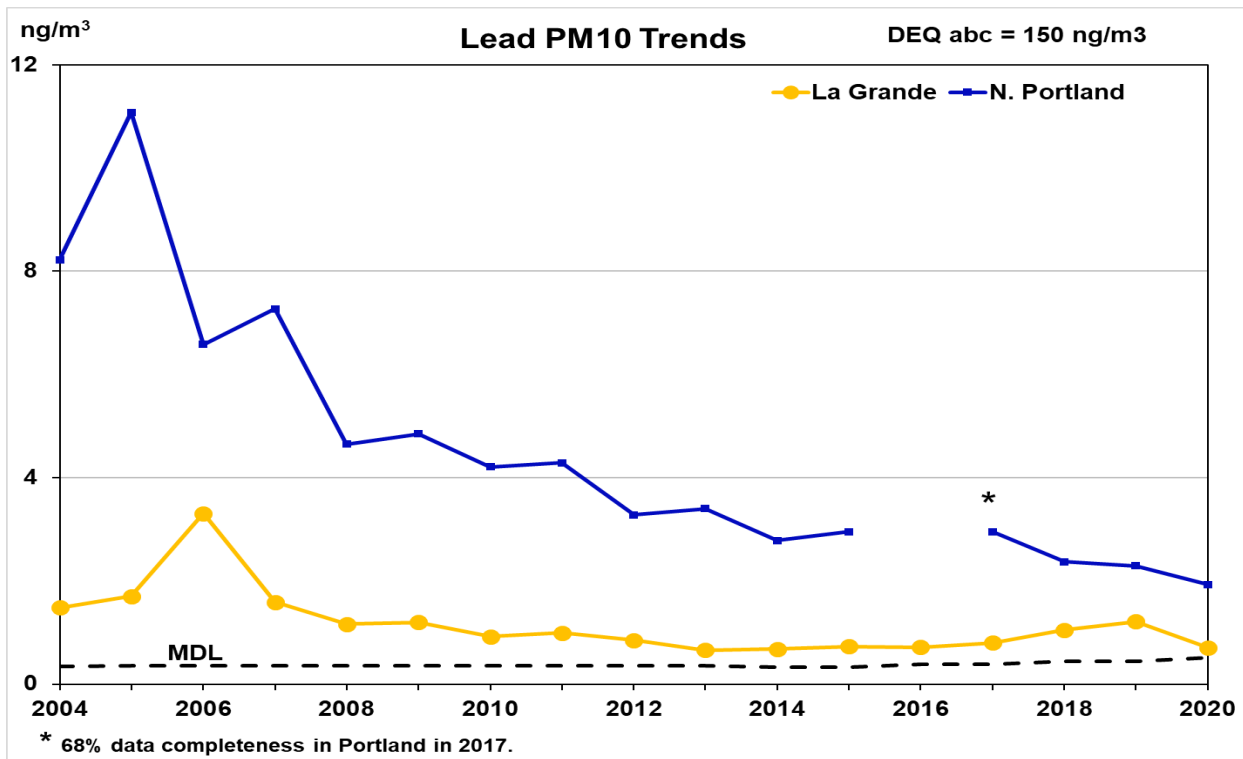


Figure 94. Oregon PM10 lead trends.
 Units are in Standard Temperature and Pressure (25°C) until 2011, then they are in Local Temperature and Pressure. The MDL definition is above the graphs.

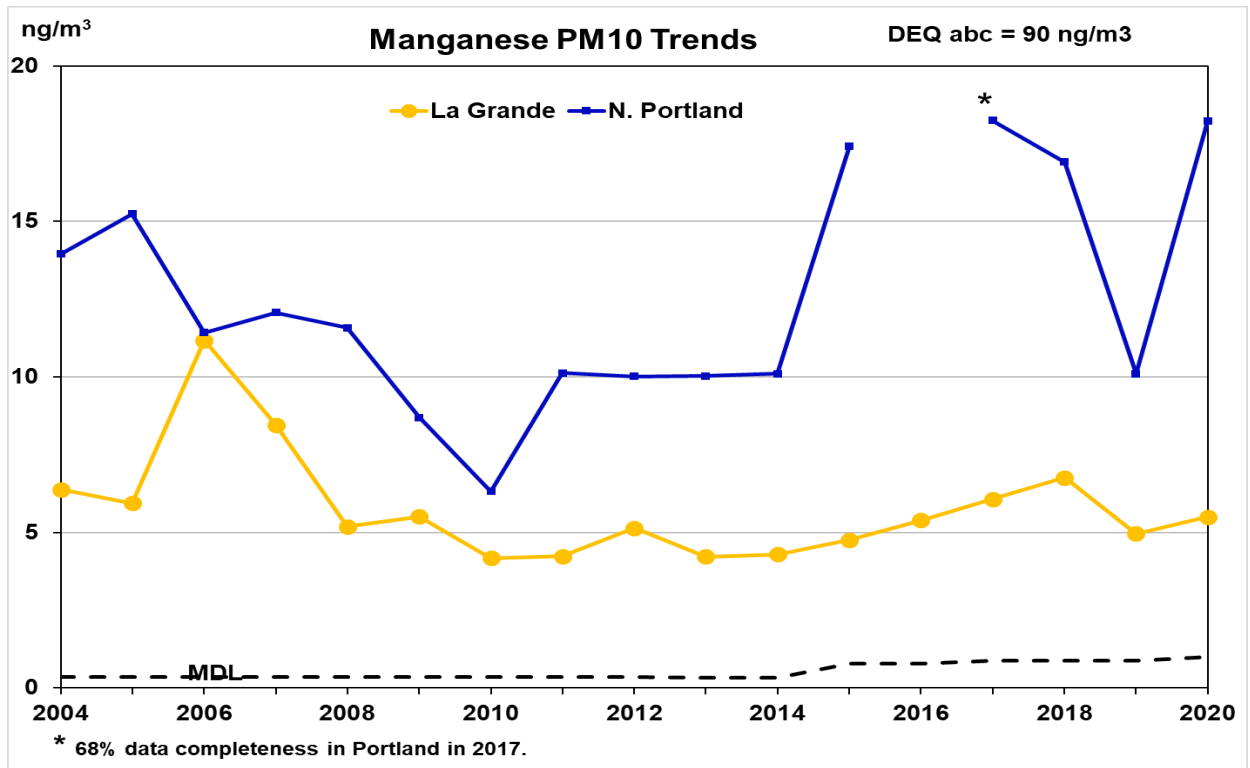


Figure 95. Oregon PM10 manganese trends. Units are in Standard Temperature and Pressure (25°C) until 2011, then they are in Local Temperature and Pressure. The MDL definition is above the graphs.

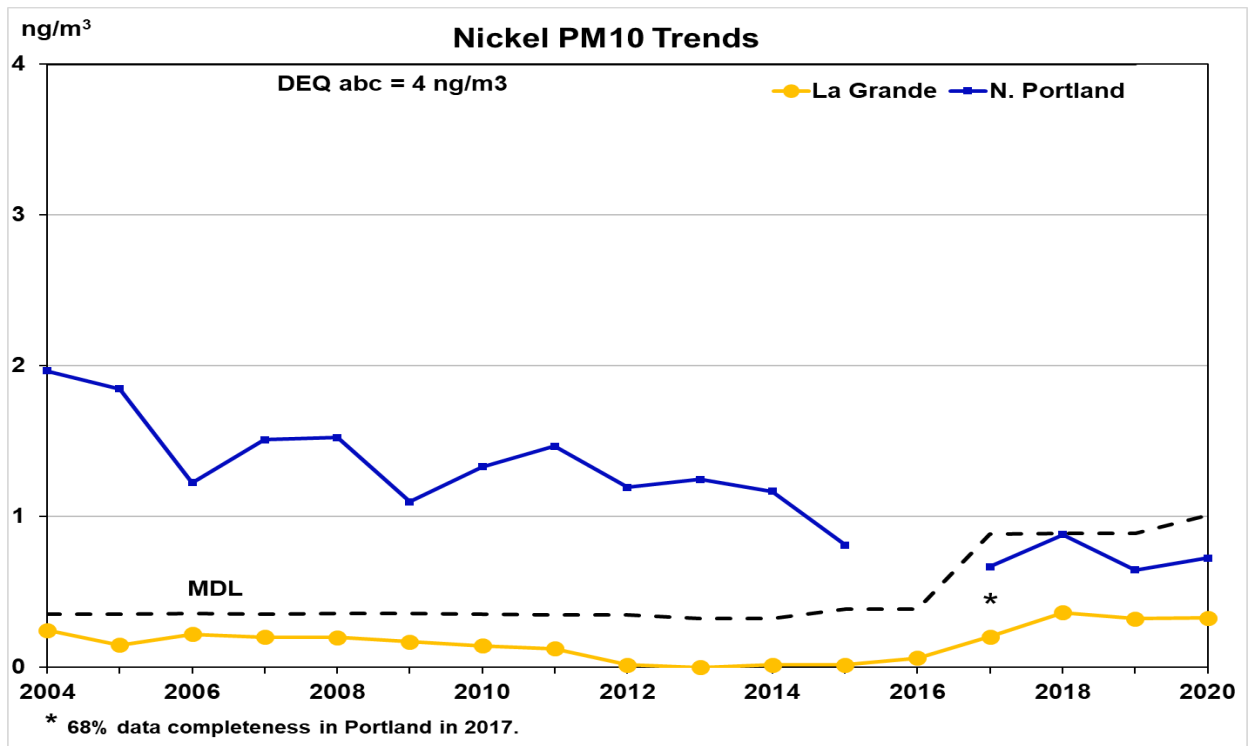


Figure 96. Oregon PM10 nickel trends. Units are in Standard Temperature and Pressure (25°C) until 2011, then they are in Local Temperature and Pressure. The MDL definition is above the graphs.

Oregon Greenhouse Gas (GHG) Emissions Trends

Oregonians produce greenhouse gas emissions directly from activities like driving cars and heating homes. We also indirectly contribute to greenhouse gas emissions when we purchase electricity, goods or food manufactured in other states or countries. These emissions are contributing to global climate change.

DEQ divides statewide greenhouse gas emissions into two categories:

- **Sector-based Emissions:** Emissions produced in Oregon from transportation, residential, commercial, industrial, and agriculture sectors, including electricity produced elsewhere but used in state.
- **Consumption-based Emissions:** Emissions produced around the world due to Oregon's consumption of energy, goods and services. Over half of Oregon's consumption-based emissions occur in other states or nations but still impact Oregonians because climate change is a global problem.

Trends:

Oregon's sector-based emissions are 10 percent above 1990 levels. Consumption-based emissions are 42 percent above 1990 levels. See chart below. Oregon has goals to reduce emissions 10 percent below 1990 levels by 2020 and 75 percent by 2050.

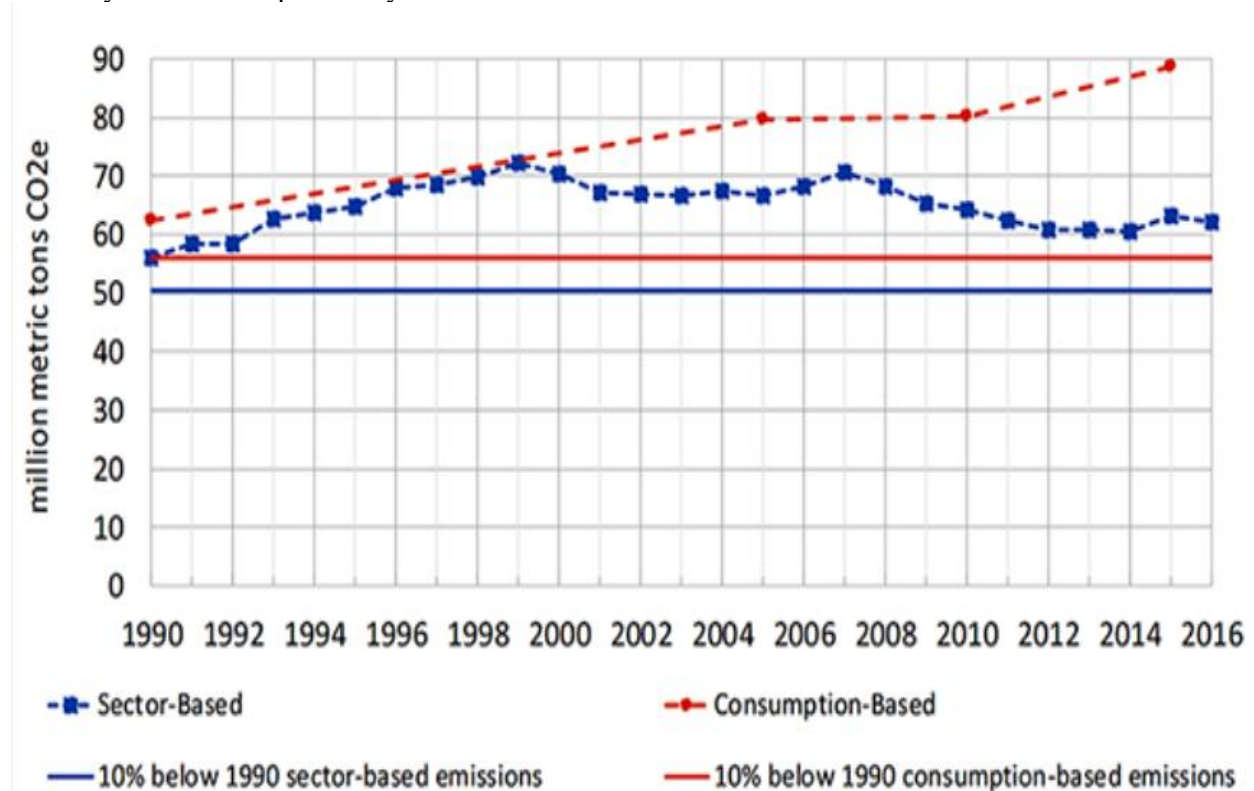


Figure 97. Oregon total greenhouse gas emissions by sector 1990-2016

DEQ publishes a comprehensive report every five years that evaluates Oregon's greenhouse gas emissions with data from the sector-based and consumption-based inventories. The latest report is the [Oregon's Greenhouse Gas Emissions through 2015](#) published May 2018. This report and more information can be found on DEQ's [Oregon Greenhouse Gas Reporting](#) web page.

Sector-based GHG Emission Trends:

Oregon's Sector-based emissions are human-caused greenhouse gas emissions produced within Oregon by economic sector. These emissions also includes the emissions associated with the electricity used in Oregon regardless of where it is generated. The chart below shows the Sector based greenhouse gas emissions for Oregon.

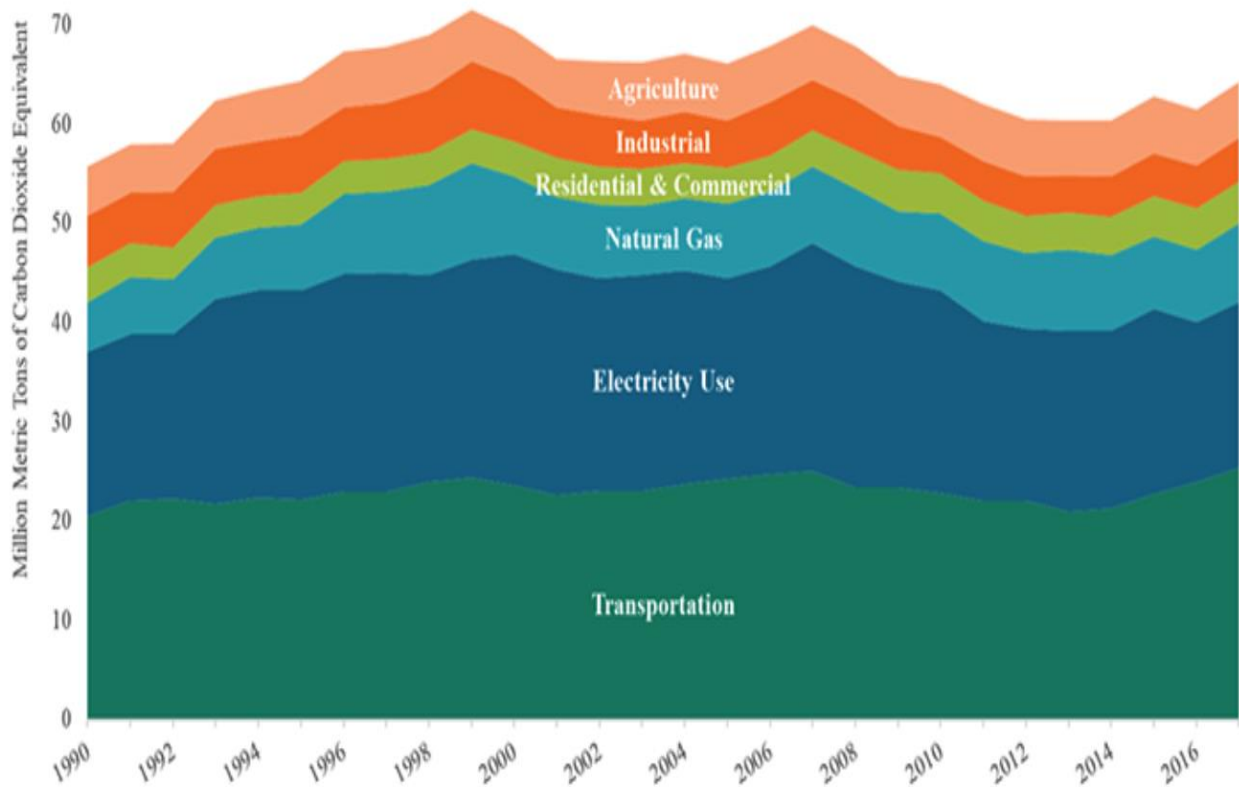


Figure 98. Oregon total Sector-based emissions by economic sector. Emissions from transportation and electricity use are Oregon's largest sources of greenhouse gas emissions.

Consumption-based GHG Emission Trends:

Oregon’s consumption-based greenhouse gas emissions are produced to meet the state’s consumption of goods and services like cars, food, fuels, appliances and clothing—most of which are produced in other states or overseas. This inventory accounts for total emissions from producing, using and disposing of a product. More than half of the consumption-based emissions occur in other states or nations but are driven by Oregon consumption. The chart below shows the 2015 emissions by consumption type.

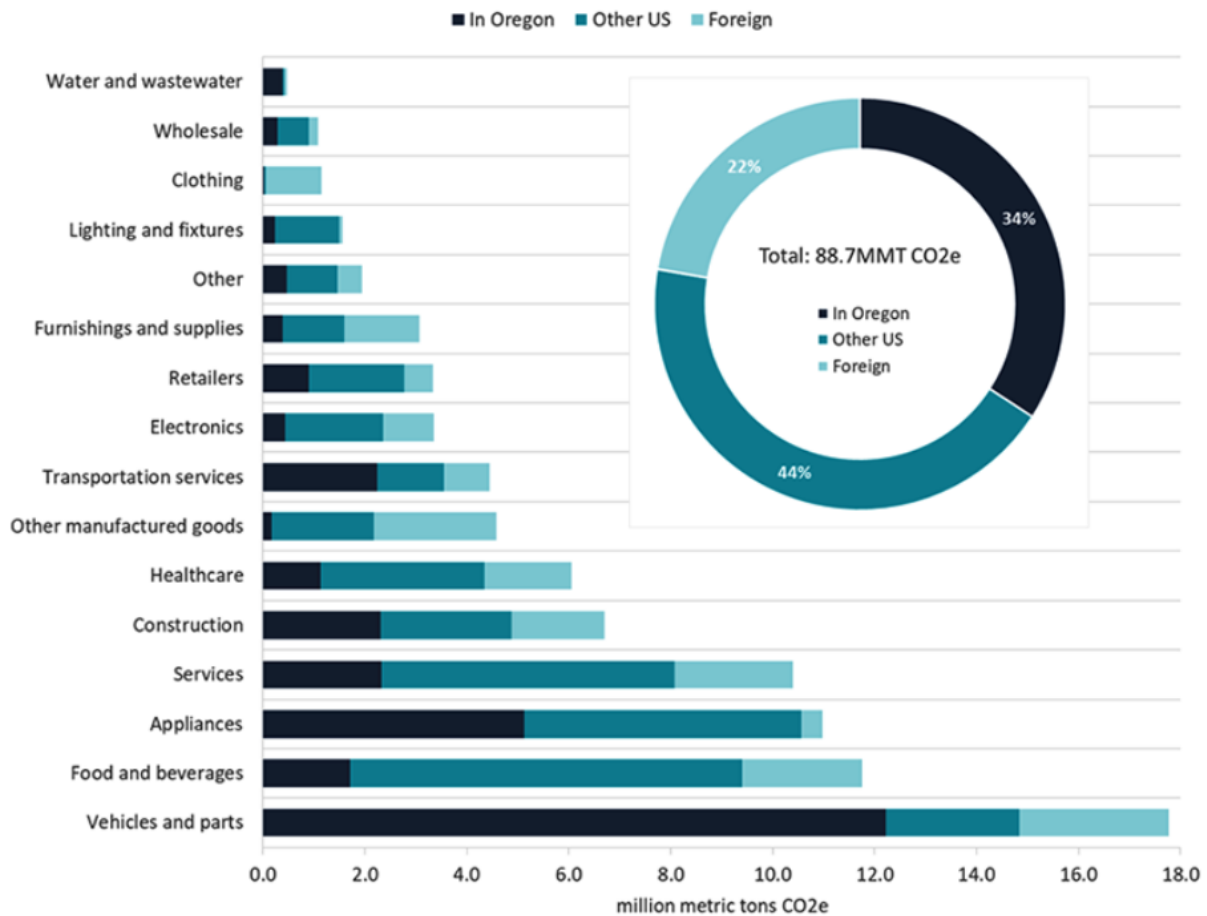


Figure 99. Oregon total Consumption-based GHG emissions by consumption type. *The consumption-based greenhouse gas emissions inventory tracks emissions produced in Oregon and around the world due to the products and services Oregonians consume.*

National Ambient Air Quality Standards (NAAQS)

The EPA has established primary NAAQS to protect public health and secondary NAAQS to protect public welfare such as agriculture. The following Table has the NAAQS standards for the criteria pollutants. EPA summarizes the NAAQS at: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Table 5. 2017 National Ambient Air Quality Standards (NAAQS).

| Pollutant | Averaging Time | National Ambient Air Quality Standard (NAAQS) Violation Determination | Primary NAAQS Exceedance Level | Secondary NAAQS Exceedance Level |
|------------------|----------------|--|--------------------------------|----------------------------------|
| Carbon monoxide | 1-hour | Not to be exceeded more than once/year. | 35 ppm | - |
| | 8-hour | Not to be exceeded more than once/year. | 9 ppm | - |
| Lead | Three Months | Rolling 3 Month Average | 0.15 $\mu\text{g}/\text{m}^3$ | 0.15 $\mu\text{g}/\text{m}^3$ |
| Nitrogen dioxide | Annual | Annual arithmetic mean | 53 ppb | 53 ppb |
| | 1-hour | 3yr average of the maximum daily 98 th percentile one hour average. | 100 ppb | - |
| Ozone | 8-hour | 3-year average of the annual 4th highest daily maximum 8-hour average. | 0.070 ppm | 0.070 ppm |
| PM2.5 | 24-hour | 3-year average of the 24 hour average daily 98 th percentile. | 35 $\mu\text{g}/\text{m}^3$ | 35 $\mu\text{g}/\text{m}^3$ |
| | Annual Average | 3-year average of the annual arithmetic mean | 12 $\mu\text{g}/\text{m}^3$ | 12 $\mu\text{g}/\text{m}^3$ |
| PM10 | 24-hour | Not to be exceeded more than once per year on average over 3 years. | 150 $\mu\text{g}/\text{m}^3$ | 150 $\mu\text{g}/\text{m}^3$ |
| Sulfur dioxide | 1-hour | 3yr average of the maximum daily 99 th percentile one hour average. | 75 ppb | - |
| | 3-hour | Not to be exceeded more than once per year. | - | 0.5 ppm |

Notes: $\mu\text{g}/\text{m}^3$ = micrograms of pollutant per cubic meter of air
 ppm = parts per million
 ppb = parts per billion

Exceedances vs. Violation

Exceedances occur when the NAAQS is surpassed but is not necessarily violated. Violations occur when the standards described in the table above are surpassed. An area can have multiple exceedances without violating the NAAQS. For example, an ozone violation is the three year average of the fourth highest, maximum daily eight hour average. For one year the fourth highest day may exceed the NAAQS but the other two years in the average may be below the NAAQS, bringing the three year average below the NAAQS. During wildfires or other events outside of the control of the community, a violation can be excused by EPA as an exceptional event.

Recent NAAQS Exceedances.

The following Tables summarize Oregon’s NAAQS exceedances for the last 10 years for PM2.5, PM10, CO, and Ozone. PM2.5 comparison to the NAAQS is determined by the 98th percentile.

Table 6. PM2.5 98th Percentile – Eastern Oregon.

| Year | Bend | Burns | Klamath Falls | La Grande | Lakeview | Pendleton | Prineville | The Dalles |
|--------------------|--------------|-------|---------------|-------------|----------|-----------|------------|-------------|
| 2011 | <i>17.8</i> | 39.4 | 37.1 | <i>26.0</i> | 37.8 | 25.9 | 37.1 | <i>19.9</i> |
| 2012 | <i>20.3</i> | 27.1 | 34.1 | <i>21.7</i> | 36.7 | 21.6 | 29.3 | <i>17.6</i> |
| 2013 | <i>17.7</i> | 38.0 | 46.5 | <i>32.9</i> | 93.6 | 32.0 | 49.2 | <i>30.1</i> |
| 2014 | <i>21.7</i> | 29.0 | 29.6 | <i>35.2</i> | 42.3 | 23.0 | 46.8 | <i>18.3</i> |
| 2015 | <i>17.0</i> | 25.8 | 25.2 | <i>26.2</i> | 32.7 | 17.6 | 41.7 | <i>16.7</i> |
| 2016 | <i>11.1</i> | 29.4 | 23.0 | <i>27.8</i> | 19.4 | 17.3 | 24.3 | <i>19.4</i> |
| 2017 | <i>16.4</i> | 33.8 | 31.6 | <i>18.7</i> | 56.3 | 20.5 | 35.2 | <i>23.5</i> |
| 2017 ^{fb} | <i>76.2</i> | 45.3 | 55.1 | <i>38.1</i> | 57.9 | 37.4 | 57.6 | <i>58.7</i> |
| 2018 | <i>20.7</i> | 28.3 | 27.9 | <i>20.8</i> | 28.7 | 21.7 | 25.4 | <i>20.3</i> |
| 2018 ^{fb} | <i>37.8</i> | 35.6 | 146 | <i>28.9</i> | 65.9 | 39.9 | 32.9 | <i>27.6</i> |
| 2019 | <i>13.6</i> | 29.5 | 32.3 | <i>15.5</i> | 26.2 | 22.6 | 27.9 | <i>24.4</i> |
| 2020 | <i>18.9</i> | 28.7 | 27.4 | <i>16.3</i> | 22.2 | 18.2 | 27.1 | <i>19.2</i> |
| 2020 ^{fb} | <i>176.0</i> | 62.1 | 45.8 | <i>73.1</i> | 36.3 | 107.0 | 132.0 | <i>23.1</i> |

Table 7. PM2.5 98th Percentile – Western Oregon.

| Year | Albany | Beaverton | Corvallis | Cottage Grove | Eugene/Springfield | Grants Pass | Hillsboro | Medford | Oakridge | Portland | Salem |
|--------------------|--------------|--------------|--------------|---------------|--------------------|-------------|-----------|---------|----------|----------|--------------|
| 2011 | <i>21.2</i> | <i>23.4</i> | <i>21.2</i> | 20.5 | 22.2 | 30.0 | 36.2 | 29.0 | 42.0 | 36.1 | <i>25.2</i> |
| 2012 | <i>16.4</i> | <i>17.9</i> | <i>15.4</i> | 17.0 | 25.4 | 17.8 | 17.8 | 31.0 | 38.4 | 15.7 | <i>18</i> |
| 2013 | <i>32.3</i> | <i>27.3</i> | <i>24.5</i> | 31.1 | 40.2 | 32.4 | 42.8 | 65.6 | 41.0 | 35.6 | <i>31.8</i> |
| 2014 | <i>22.9</i> | <i>20.4</i> | <i>16.3</i> | 21.3 | 31.6 | 25.7 | 27.7 | 31.3 | 41.1 | 22.1 | <i>22.7</i> |
| 2015 | <i>25.4</i> | <i>17.8</i> | <i>18.6</i> | 20.1 | 26.7 | 18.4 | 33.9 | 35.2 | 28.9 | 29.9 | <i>22.9</i> |
| 2016 | <i>17.1</i> | <i>12.8</i> | <i>16.3</i> | 18.3 | 25.9 | 15.2 | 18.4 | 20.8 | 21.7 | 13.6 | <i>16.9</i> |
| 2017 | <i>22.3</i> | <i>16.8</i> | <i>16.6</i> | 19.7 | 37.0 | 19.3 | 24.1 | 28.8 | 35.7 | 22.2 | <i>17.7</i> |
| 2017 ^{fb} | <i>30.2</i> | <i>34.5</i> | <i>25.0</i> | 37.7 | 41.6 | 115 | 33.0 | 111 | 86.2 | 25.7 | <i>26.1</i> |
| 2018 | <i>23.0</i> | <i>16.6</i> | <i>18.8</i> | 23.2 | 31.8 | 23.5 | 22.2 | 23.6 | 28.6 | 17.4 | <i>23.0</i> |
| 2018 ^{fb} | <i>26.2</i> | <i>23.7</i> | <i>23.1</i> | 23.7 | 38.9 | 75.1 | 31.5 | 144 | 33.2 | 20.3 | <i>37.4</i> |
| 2019 | <i>19.0</i> | <i>17.0</i> | <i>18.8</i> | 20.5 | 28.9 | 25.4 | 23.6 | 26.6 | 36.7 | 20.0 | <i>24.8</i> |
| 2019 ^{fb} | - | - | - | - | - | 29.7 | - | 37.0 | - | - | - |
| 2020 | <i>17.8</i> | <i>14.5</i> | <i>17.0</i> | 15.9 | 22.6 | 26.6 | 17.7 | 22.6 | 26.3 | 22.5 | <i>19.3</i> |
| 2020 ^{fb} | <i>199.0</i> | <i>123.0</i> | <i>159.0</i> | 16.8 | 240.0 | 29.4 | 29.5 | 63.1 | 190.0 | 30.5 | <i>235.0</i> |

Notes:

1. *Blue, italicized* values are from a non-Federal Reference Method and are informational.
2. ^{fb}Wildfire smoke impact data included
3. NAAQS is 35.5 µg/m³

Table 8. PM10 Number of Exceedances per year.

| Year | Klamath Falls | La Grande | Lakeview | Eugene/ Springfield | Grants Pass | Medford | Oakridge | Portland |
|--------------------|---------------|-----------|----------|------------------------|-------------|---------|----------|----------|
| 2011 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2017 ^{fb} | 0 | 0 | - | 3 | 0 | 1 | 4 | 0 |
| 2018 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 |
| 2020 ^{fb} | 6 | 0 | - | 10 | 6 | 0 | 9 | 0 |

^{fb}Wildfire smoke impact data included

Table 9. Carbon Monoxide Number of Exceedances per year.

| Year | Portland |
|--------------------|----------|
| 2011 | 0 |
| 2012 | 0 |
| 2013 | 0 |
| 2014 | 0 |
| 2015 | 0 |
| 2016 | 0 |
| 2017 | 0 |
| 2018 | 0 |
| 2019 | 0 |
| 2020 | 0 |
| 2020 ^{fb} | 3 |

^{fb}Wildfire smoke impact data included

Table 10. Ozone Number of Exceedances per year.

| Year | Bend | Eugene | Medford | Portland | Salem | Hermiston | The Dalles |
|---|------|--------|---------|----------|-------|-----------|------------|
| 2011 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| 2012 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| 2013 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| 2014 | 0 | 0 | 0 | 1 | 1 | 0 | - |
| 2015 | 0 | 1 | 1 | 0 | 1 | 0 | - |
| Standard lowered from 0.075 to 0.070ppm | | | | | | | |
| 2016 | - | 0 | 0 | 0 | 0 | 1 | 0 |
| 2017 | - | 5 | 5 | 9 | 6 | 7 | 1 |
| 2018 | - | 0 | 6 | 4 | 0 | 0 | 0 |
| 2019 | - | 0 | 1 | 1 | 0 | 0 | - |
| 2020 | - | 0 | 0 | 3 | 0 | 0 | - |

Appendix 1. Data Summaries

Oregon's Air Quality Monitors collect criteria pollutant data using EPA Federal Reference Methods. DEQ and LRAPA use other EPA approved methods for PM_{2.5} estimates for the AQI, and methods used for air toxics. The criteria data are summarized for comparison to the NAAQS. PM_{2.5} estimate and ozone AQI data are provided and Air Toxics are compared to Oregon Ambient Benchmark Concentration.

DEQ Air Monitoring Methods:

Appendix 1 -A&B. Particulate (PM₁₀ and PM_{2.5})

- A. The PM_{2.5} annual average is determined by averaging the quarterly means.
- B. The PM_{2.5} maximum daily sample is determined by taking the highest daily sample for the year.
- C. The PM_{2.5} 98th percentile is the value on the 98th percent highest day. (# of days sampled*0.98). E.g. 120 sample days*0.98 = 118; 120 is the highest day, 118th day is the third highest day.
- D. The PM₁₀ maximum daily sample is determined by taking the highest 24 hour sample for the year.
- E. The PM₁₀ 2nd highest daily sample is determined by taking the 2nd highest sample for the year.

Appendix 1-C. Ozone (O₃)

- A. Maximum daily, eight hour ozone average is calculated using a rolling eight hour average.
- B. Fourth highest eight hour average is determined from the data in C.

Appendix 1-D. Oxides of Nitrogen (NO₂ and NO)

- A. The one hour value is calculated using the 98th percentile of the maximum daily, hourly average.
- B. The annual standard is determined by averaging the annual one hour values.

Appendix 1-E. Sulfur Dioxide (SO₂)

- A. The one hour value is calculated using the 99th percentile of the maximum daily, hourly average.
- B. The maximum three hour average is calculated using three consecutive hours.

Appendix 1-F. Carbon Monoxide (CO)

- A. Maximum eight hour CO average is determined by calculating an eight hour rolling average.
- B. Second highest eight hour average CO is determined from the data in A. Only one maximum per CO episode is used to count to the second highest.

Appendix 1-G. Air Quality Index based on PM_{2.5} and ozone

- A. PM_{2.5} FRM filter data is used first if available.
- B. Where PM_{2.5} FRM filter data is unavailable, nephelometer data is used to estimate PM_{2.5}.
- C. The maximum eight hour average daily ozone is used to calculate the daily ozone AQI.
- D. Where ozone and PM_{2.5} are both available, the higher AQI of the two is used for the day.

Appendix 1-H. Air Toxics (Hazardous Air Pollution)

- A. Air toxic levels are compared to benchmark levels.
- B. The annual averages are determined by taking the arithmetic mean of the quarterly averages. Where the values are below the minimum detection limit (MDL), the MDL is halved prior to inclusion in the average. If the quarterly average is below the MDL, the MDL is used.

The lists of the Federal Reference Methods and codes are at: <http://www.epa.gov/ttnamti1/>

Table 11. Ambient Air Quality Monitoring Methods

| Pollutant | Method Code | Method Description |
|----------------------------|--------------------|---|
| PM2.5 | 117, 118, 145 | Low volume filter sampler and pre and post filter weighing. |
| | 170 | FEM Beta Attenuation |
| | 238 | FEM Light Scattering |
| PM10 | 127 | Low volume filter sampler and pre and post filter weighing. |
| | 141 | High volume filter sampler and pre and post filter weighing. |
| | 122 | FEM Beta Attenuation |
| | 239 | FEM Light Scattering |
| PM10 Lead | 811 | Low volume filter sampler and XRF analysis |
| Ozone | 047, 087, 214 | Ultraviolet photometry (214 method starting in 2019) |
| NO2 | 590, 186, 200 | Chemiluminescent Detection |
| SO2 | 592, 100 | Ultraviolet fluorescence spectrometer |
| CO | 588, 093 | Nondispersive infrared trace monitor |
| Visibility | 027 | Beta Light Scattering |
| PM2.5 Est | 027/145 | Beta Light Scattering correlated with PM2.5 filter sampling |
| | 791/145 | |
| Air Toxics | | |
| Carbonyls | 156 | Cartridge-DNPH-Silica-SEP-PAK/ HPLC photodiode Array |
| Volatile Organic Compounds | 176 | 6L Sub-ambient Canister sampling, GC/MS analysis |
| Poly Aromatic Hydrocarbon | 118 | TSP High Volume sampling on PUF/XAD media, Soxhlet Extraction, GCMS analysis. |
| PM10 Metals | 501 | High Volume PM10 with ICP/MS analysis on a Quartz Filter |
| Diesel Particulate | 886 | Aethalometer (optical absorption) black carbon surrogate |

APPENDIX 1A PM2.5

PM2.5 Data Summary

| Portland Area | | | | | |
|--|--------------------|----------------------------------|--------------------|---|---|
| City and Station | Year | Sample days: Actual/ Expected | Arithmetic mean | Maximum ($\mu\text{g}/\text{m}^3$) | 98 th Percentile ($\mu\text{g}/\text{m}^3$) |
| Hillsboro (HHF) Hare Field EPA # 410670004 ^{PB} forest fire data included * forest fire flagged data removed | 2011 | 111/121 | 8.6 | 54 (12/05) | 36 (01/03) |
| | 2012 | 109/122 | 7.2 | 39 (01/13) | 22 (11/11) |
| | 2013 | 119/122 | 9.1 | 55 (12/12) | 43 (11/30) |
| | 2014 | 117/122 | 7.0 | 37 (01/26) | 23 (12/31) |
| | 2015 ^{PB} | 120/121 | 8.3 | 58 (08/22) | 34 (11/29) |
| | 2015* | 119/121 | 7.6 | 34 (11/29) | 32 (01/03) |
| | 2016 | 120/122 | 5.9 | 21 (12/17) | 18 (10/12) |
| | 2017 ^{PB} | 119/122 | 8.2 | 40 (08/02) | 33 (08/08) |
| | 2017* | 115/122 | 7.3 | 36 (01/13) | 24 (01/16) |
| | 2018 ^{PB} | 116/122 | 8.0 | 52 (08/21) | 32 (11/13) |
| | 2018* | 114/122 | 7.2 | 32 (11/13) | 22 (12/22) |
| | 2019 | 114/121 | 6.7 | 36 (12/05) | 24 (11/02) |
| | 2020 ^{PB} | 117/122 | 10.9 | 297 (09/15) | 30 (09/18) |
| | 2020* | 114/122 | 6.1 | 28 (11/02) | 18 (12/08) |
| S.E. Portland (SEL) SE Lafayette and 57 th EPA # 410510080 ^{PB} forest fire data included * forest fire flagged data removed | 2011 | 111/121 | 8.3 | 42 (02/11) | 36 (12/11) |
| | 2012 | 118/122 | 7.4 | 35 (01/28) | 23 (09/18) |
| | 2013 | 120/122 | 8.7 | 42 (11/30) | 36 (01/19) |
| | 2014 | 120/122 | 6.3 | 30 (02/10) | 15 (01/17) |
| | 2015 ^{PB} | 121/121 | 7.2 | 56 (08/22) | 29 (01/03) |
| | 2015* | 120/121 | 6.8 | 30 (11/23) | 24 (01/24) |
| | 2016 | 122/122 | 5.6 | 28 (12/26) | 14 (02/21) |
| | 2017 ^{PB} | 119/122 | 7.9 | 53 (09/16) | 34 (08/29) |
| | 2017* | 115/122 | 6.8 | 24 (12/21) | 22 (10/16) |
| | 2018 ^{PB} | 120/122 | 7.4 | 48 (08/21) | 20 (11/13) |
| | 2018* | 118/122 | 6.8 | 20 (11/13) | 17 (11/07) |
| | 2019 | 121/121 | 6.5 | 30 (11/23) | 20 (11/05) |
| | 2020 ^{PB} | 120/122 | 10.7 | 334 (09/15) | 31 (11/02) |
| | 2020* | 118/122 | 7.1 | 31 (11/02) | 23 (03/22) |
| Tualatin Bradbury Court (I-5 site) EPA # 410670005 ^{PB} forest fire data included * forest fire flagged data removed | 2016 | 108/122 | 6.3 | 22 (10/12) | 18 (12/17) |
| | 2017 ^{PB} | 118/122 | 7.9 | 50 (09/16) | 36 (08/29) |
| | 2017* | 115/122 | 6.9 | 24 (12/15) | 20 (10/31) |
| | 2018 ^{PB} | 121/122 | 7.7 | 47 (08/21) | 19 (11/13) |
| | 2018* | 119/122 | 7.1 | 19 (11/13) | 17 (10/20) |
| | 2019 | 120/121 | 6.8 | 32 (11/23) | 21 (11/08) |
| | 2020 ^{PB} | 119/122 | 11.2 | 373 (09/15) | 28 (11/02) |
| 2020* | 117/122 | 6.8 | 28 (11/02) | 18 (09/09) | |

APPENDIX 1A PM2.5

| Eugene Area | | | | | |
|--|--------------------|----------------------------------|--------------------|---|---|
| City and Station | Year | Sample days: Actual/ Expected | Arithmetic mean | Maximum ($\mu\text{g}/\text{m}^3$) | 98 th Percentile ($\mu\text{g}/\text{m}^3$) |
| Eugene Amazon Park (AMZ) EPA # 410390060 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 119/121 | 6.5 | 25 (02/02) | 21 (12/05) |
| | 2012 | 121/122 | 6.4 | 32 (01/13) | 25 (02/06) |
| | 2013 | 122/122 | 7.8 | 52 (12/09) | 39 (11/27) |
| | 2014 | 123/122 | 7.2 | 36 (01/26) | 31 (11/16) |
| | 2015 ^{fb} | 121/121 | 7.4 | 55 (08/22) | 27 (11/26) |
| | 2016 | 122/122 | 5.4 | 38 (01/01) | 20 (01/04) |
| | 2017 ^{fb} | 119/122 | 9.0 | 145 (09/04) | 42 (01/16) |
| | 2017* | 115/122 | 6.9 | 42 (01/06) | 37 (12/12) |
| | 2018 ^{fb} | 121/122 | 7.5 | 40 (08/21) | 32 (11/13) |
| | 2018* | 120/122 | 7.2 | 34 (12/07) | 29 (11/10) |
| | 2019 | 120/121 | 7.3 | 30 (11/23) | 25 (12/05) |
| | 2020 ^{fb} | 121/122 | 14.9 | 528 (09/12) | 240 (09/09) |
| 2020* | 118/122 | 6.2 | 26 (12/05) | 17 (02/21) | |
| Eugene Hwy 99 (E99) Pacific Hwy 99 N EPA# 410390059 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 115/121 | 6.8 | 27 (01/03) | 22 (10/18) |
| | 2012 | 118/122 | 6.5 | 30 (02/06) | 21 (10/18) |
| | 2013 | 122/122 | 8.3 | 55 (12/09) | 40 (11/24) |
| | 2014 | 120/122 | 7.2 | 44 (01/26) | 31 (11/16) |
| | 2015 ^{fb} | 122/121 | 8.0 | 55 (08/22) | 27 (11/26) |
| | 2016 | 119/122 | 5.7 | 18 (01/04) | 16 (02/09) |
| | 2017 ^{fb} | 120/122 | 10.9 | 330 (09/04) | 43 (01/16) |
| | 2017* | 117/122 | 7.2 | 43 (01/16) | 32 (12/12) |
| | 2018 ^{fb} | 122/122 | 8.7 | 46 (11/13) | 39 (11/19) |
| | 2018* | 121/122 | 8.4 | 46 (11/13) | 32 (12/07) |
| | 2019 | 121/121 | 8.0 | 31 (01/12) | 29 (11/02) |
| | 2020 ^{fb} | 121/122 | 14.9 | 454 (09/12) | 218 (09/09) |
| 2020* | 118/122 | 7.0 | 31 (11/02) | 23 (12/05) | |

APPENDIX 1A PM2.5

| Western Oregon | | | | | |
|--|--------------------|----------------------------------|--------------------|---|---|
| City and Station | Year | Sample days: Actual/ Expected | Arithmetic mean | Maximum ($\mu\text{g}/\text{m}^3$) | 98 th Percentile ($\mu\text{g}/\text{m}^3$) |
| Cottage Grove City Shops (CGS) EPA # 410399004 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 119/121 | 7.1 | 32 (02/02) | 21 (12/23) |
| | 2012 | 119/122 | 6.7 | 25 (01/13) | 17 (11/02) |
| | 2013 | 120/122 | 7.5 | 38 (12/09) | 25 (11/27) |
| | 2014 ^{fb} | 124/122 | 6.9 | 34 (11/19) | 21 (12/04) |
| | 2015 ^{fb} | 118/121 | 7.3 | 40 (08/22) | 20 (02/23) |
| | 2016 | 121/122 | 5.8 | 26 (01/01) | 18 (11/02) |
| | 2017 ^{fb} | 117/122 | 8.8 | 116 (09/04) | 38 (09/07) |
| | 2017* | 111/122 | 6.8 | 28 (01/16) | 20 (12/28) |
| | 2018 ^{fb} | 123/122 | 7.8 | 44 (08/21) | 24 (11/13) |
| | 2018* | 122/122 | 7.5 | 26 (12/07) | 23 (11/19) |
| | 2019 | 120/121 | 7.3 | 29 (12/11) | 21 (11/23) |
| | 2020 ^{fb} | 121/122 | 13.4 | 499 (09/12) | 17 (10/27) |
| 2020* | 119/122 | 6.5 | 17 (10/27) | 16 (11/26) | |
| Grants Pass Parkside School (GPP) EPA # 410330114 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 61/61 | 7.6 | 32 (12/23) | 30 (11/11) |
| | 2012 | 61/61 | 7.1 | 19 (01/04) | 18 (11/17) |
| | 2013 ^{fb} | 61/61 | 11.9 | 90 (08/02) | 36 (11/24) |
| | 2013* | 59/61 | 10.1 | 36 (11/24) | 32 (12/12) |
| | 2014 | 61/61 | 7.4 | 43 (11/19) | 26 (01/05) |
| | 2015 ^{fb} | 57/60 | 8.2 | 24 (08/28) | 18 (08/22) |
| | 2016 | 61/61 | 5.8 | 17 (12/20) | 15 (10/21) |
| | 2017 ^{fb} | 58/61 | 15.8 | 283 (09/04) | 115 (08/29) |
| | 2017* | 54/61 | 7.4 | 24 (01/01) | 19 (08/11) |
| | 2018 ^{fb} | 61/61 | 11.9 | 99 (08/06) | 75 (07/25) |
| | 2018* | 58/61 | 9.0 | 31 (11/16) | 24 (11/10) |
| | 2019 ^{fb} | 59/60 | 9.7 | 46 (07/26) | 30 (01/15) |
| 2019* | 60/61 | 9.0 | 30 (01/15) | 25 (12/17) | |
| 2020 ^{fb} | 60/61 | 14.5 | 395 (09/12) | 29 (10/06) | |
| 2020* | 59/61 | 8.1 | 29 (10/06) | 27 (11/23) | |
| Medford Grant & Belmont (MGB) 902 Grant Ave. EPA # 410290133 Welch & Jackson EPA # 410292129 Moved to Welch and Jackson In 2018 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 113/121 | 9.4 | 43 (12/11) | 29 (12/23) |
| | 2012 | 119/122 | 9.3 | 33 (01/28) | 31 (01/13) |
| | 2013 ^{fb} | 121/122 | 14.2 | 157 (07/30) | 66 (12/12) |
| | 2013* | 118/122 | 12.0 | 66 (12/12) | 43 (01/19) |
| | 2014 ^{fb} | 122/122 | 9.3 | 39 (01/02) | 31 (01/20) |
| | 2014* | 121/122 | 9.1 | 39 (01/02) | 28 (12/31) |
| | 2015 ^{fb} | 119/121 | 12.1 | 112 (08/01) | 46 (08/22) |
| | 2015* | 115/121 | 9.6 | 36 (11/23) | 35 (11/14) |
| | 2016 | 120/122 | 7.2 | 25 (12/17) | 21 (01/04) |
| | 2017 ^{fb} | 117/122 | 15.5 | 151 (09/04) | 111 (08/29) |
| | 2017* | 110/122 | 10.2 | 37 (12/15) | 29 (01/16) |
| | 2018 ^{fb} | 120/122 | 17.4 | 180 (08/09) | 144 (08/06) |
| | 2018* | 105/122 | 9.2 | 26 (01/14) | 24 (11/16) |
| | 2019 ^{fb} | 117/119 | 8.7 | 105 (07/26) | 37 (01/03) |
| | 2019* | 119/121 | 7.5 | 37 (01/03) | 27 (12/29) |
| 2020 ^{fb} | 120/122 | 15.5 | 526 (09/12) | 63 (10/09) | |
| 2020* | 112/122 | 8.9 | 25 (12/05) | 23 (11/20) | |

APPENDIX 1A PM2.5

| City and Station | Year | Sample days: Actual/ Expected | Arithmetic mean | Maximum ($\mu\text{g}/\text{m}^3$) | 98 th Percentile ($\mu\text{g}/\text{m}^3$) |
|---|--------------------|----------------------------------|--------------------|---|---|
| Oakridge | 2011 | 119/121 | 10.0 | 48 (12/23) | 42 (02/02) |
| Willamette Cntr. (OAK) | 2012 | 116/122 | 7.6 | 50 (01/13) | 38 (02/06) |
| School St. | 2013 | 120/122 | 9.8 | 55 (12/09) | 41 (01/19) |
| EPA # 410392013 | 2014 | 122/122 | 10.0 | 46 (01/05) | 41 (11/16) |
| ^{fb} forest fire data included | 2015 | 121/121 | 8.9 | 39 (11/29) | 29 (02/23) |
| * forest fire flagged data removed | 2016 | 120/122 | 6.7 | 31 (12/08) | 22 (02/24) |
| | 2017 ^{fb} | 125/122 | 13.0 | 200 (09/04) | 86 (09/01) |
| | 2017* | 116/122 | 8.8 | 42 (12/12) | 36 (01/07) |
| | 2018 ^{fb} | 114/122 | 12.2 | 62 (08/21) | 33 (11/13) |
| | 2018* | 114/122 | 9.0 | 35 (02/13) | 29 (12/07) |
| | 2019 | 354/365 | 9.2 | 42 (01/12) | 37 (10/30) |
| | 2020 ^{fb} | 340/366 | 14.9 | 577 (09/12) | 190 (09/09) |
| | 2020* | 329/366 | 6.7 | 39 (12/03) | 26 (10/08) |
| Eastern Oregon | | | | | |
| Burns | 2011 | 116/121 | 10.0 | 47 (01/06) | 39 (11/11) |
| Washington Park (BWS) | 2012 | 121/122 | 8.6 | 49 (09/21) | 27 (11/11) |
| EPA # 410250003 | 2013 | 119/122 | 9.9 | 39 (12/12) | 38 (12/09) |
| ^{fb} forest fire data included | 2014 ^{fb} | 119/122 | 9.0 | 61(08/06) | 29 (12/04) |
| * forest fire flagged data removed | 2015 ^{fb} | 360/365 | 8.3 | 46 (08/29) | 26 (01/28) |
| | 2016 | 118/122 | 8.2 | 30 (11/17) | 29 (11/05) |
| | 2017 ^{fb} | 122/122 | 11.1 | 90 (09/07) | 45 (09/04) |
| | 2017* | 119/122 | 9.8 | 52 (01/16) | 34 (12/27) |
| | 2018 ^{fb} | 116/122 | 10.1 | 88 (08/21) | 36 (01/05) |
| | 2018* | 115/122 | 9.2 | 36 (12/16) | 28 (11/16) |
| | 2019 | 350/365 | 10.2 | 48 (02/01) | 30 (01/31) |
| | 2020 ^{fb} | 352/366 | 11.8 | 254 (09/12) | 65 (09/17) |
| | 2020* | 342/366 | 9.2 | 38 (12/08) | 30 (12/03) |
| Klamath Falls | 2011 | 115/121 | 11.1 | 38 (11/26) | 37 (02/11) |
| Peterson School (KFP) | 2012 | 115/122 | 10.7 | 43 (08/28) | 34 (08/31) |
| 4856 Clinton St. | 2013* | 112/122 | 11.6 | 50 (01/16) | 46 (12/09) |
| EPA # 410350004 | 2014 | 118/122 | 8.8 | 31 (08/03) | 30 (01/20) |
| ^{fb} forest fire data included | 2015 ^{fb} | 112/121 | 10.2 | 85 (08/01) | 44 (08/19) |
| * forest fire flagged data removed | 2015* | 108/121 | 8.2 | 38 (11/29) | 25 (11/14) |
| | 2016 | 118/122 | 6.8 | 29 (12/08) | 23 (01/07) |
| | 2017 ^{fb} | 122/122 | 11.7 | 102 (09/04) | 55 (08/20) |
| | 2017* | 115/122 | 8.5 | 32 (12/12) | 32 (12/15) |
| | 2018 ^{fb} | 117/122 | 20.6 | 156 (08/03) | 146 (07/31) |
| | 2018* | 103/122 | 10.7 | 28 (12/13) | 22 (02/13) |
| | 2019 | 63/63 | | 27 (10/12) | 25 (01/03) |
| | 2020 ^{fb} | 61/61 | 14.6 | 300 (09/12) | 46 (08/25) |
| | 2020* | 57/61 | 8.5 | 29 (11/29) | 25 (01/22) |

APPENDIX 1A PM2.5

| Eastern Oregon | | | | | |
|--|--------------------|----------------------------------|--------------------|---|--|
| City and Station | Year | Sample days: Actual/ Expected | Arithmetic mean | Maximum ($\mu\text{g}/\text{m}^3$) | 99 th Percentile ($\mu\text{g}/\text{m}^3$) |
| Lakeview Center and M Street (LCM) EPA # 410370001 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 110/121 | 9.1 | 58 (01/03) | 38 (01/27) |
| | 2012 | 113/122 | 9.7 | 42 (11/15) | 37 (01/10) |
| | 2013 | 121/122 | 14.6 | 104 (01/19) | 94 (01/16) |
| | 2014 | 120/122 | 8.6 | 47 (01/20) | 42 (01/14) |
| | 2015 | 115/121 | 8.4 | 45 (11/29) | 33 (01/06) |
| | 2016 | 106/122 | 6.3 | 70 (12/29) | 19 (02/09) |
| | 2017 ^{fb} | 108/122 | 11.0 | 64 (12/12) | 58 (09/04) |
| | 2017* | 107/122 | 8.3 | 64 (12/12) | 56 (12/08) |
| | 2018 ^{fb} | 101/122 | 12.8 | 112 (07/31) | 66 (08/24) |
| | 2018* | 91/122 | 7.8 | 30 (11/13) | 29 (12/07) |
| | 2019 | 121/121 | 6.6 | 38 (01/03) | 26 (01/30) |
| | 2020 ^{fb} | 110/122 | 8.2 | 67 (09/15) | 36 (09/06) |
| | 2020* | 106/122 | 6.7 | 26 (12/08) | 22 (10/30) |
| Prineville Davidson Park (PDP) EPA # 410130100 ^{fb} forest fire data included * forest fire flagged data removed | 2011 | 99/121 | 9.6 | 40 (02/02) | 37 (12/17) |
| | 2012 | 119/122 | 8.0 | 37 (11/26) | 29 (09/21) |
| | 2013 | 122/122 | 11.0 | 56 (12/27) | 49 (11/27) |
| | 2014 ^{fb} | 119/122 | 9.9 | 69 (07/19) | 47 (02/10) |
| | 2014* | 118/122 | 9.4 | 48 (01/17) | 44 (11/16) |
| | 2015 ^{fb} | 108/121 | 8.9 | 83 (08/13) | 42 (08/22) |
| | 2015* | 104/121 | 7.5 | 42 (01/06) | 25 (01/21) |
| | 2016 | 116/122 | 6.9 | 41 (12/17) | 24 (12/11) |
| | 2017 ^{fb} | 112/122 | 11.7 | 131(09/07) | 58 (09/04) |
| | 2017* | 107/122 | 8.5 | 50 (12/15) | 35 (12/18) |
| | 2018 ^{fb} | 113/122 | 8.9 | 60 (08/21) | 33 (10/17) |
| | 2018* | 110/122 | 8.0 | 33 (10/17) | 25 (11/19) |
| | 2019 | 116/121 | 7.6 | 33 (09/06) | 28 (12/05) |
| 2020 ^{fb} | 115/122 | 16.4 | 593 (09/12) | 132 (09/18) | |
| 2020* | 112/122 | 7.5 | 30 (12/29) | 27 (11/29) | |

APPENDIX 1B PM10

PM10 Data Summary

| City and Station | Year | Sample days: Actual/ Expected | Days >150 | 24-Hour Averages (µg/m ³) | |
|---|--------------------|----------------------------------|--------------|---------------------------------------|--------------------|
| | | | | Maximum (date) | 2nd Highest (date) |
| <u>Eugene</u> | 2011 | 65/61 | 0 | 58 (09/06) | 38 (01/03) |
| Eugene Hwy 99 N (E99) | 2012 | 61/61 | 0 | 47 (08/13) | 43 (09/06) |
| EPA# 410390059 | 2013 | 60/61 | 0 | 59 (08/20) | 42 (11/24) |
| ^{Pb} forest fire data included | 2014 | 61/61 | 0 | 46 (11/19) | 37 (09/08) |
| * forest fire flagged data removed | 2015 ^{Pb} | 60/60 | 0 | 97 (08/22) | 53 (07/29) |
| | 2016 | 60/61 | 0 | 57 (08/22) | 42 (09/13) |
| | 2017 ^{Pb} | 355/365 | 3 | 239 (09/04) | 226 (09/03) |
| | 2017* | 338/365 | 0 | 57 (01/16) | 52 (12/09) |
| | 2018 ^{Pb} | 339/365 | 0 | 134 (08/21) | 83 (08/20) |
| | 2019 | 354/365 | 0 | 77 (08/26) | 31 (08/27) |
| | 2020 ^{Pb} | 356/366 | 11 | 588 (09/13) | 579 (09/12) |
| | 2020* | 344/366 | 0 | 59 (08/14) | 58 (09/02) |
| <u>La Grande</u> | 2011 | 56/61 | 0 | 32 (09/24) | 32 (09/12) |
| Ash Street (LAS) | 2012 | 57/61 | 0 | 37 (08/07) | 36 (08/13) |
| EPA # 410610119 | 2013 | 62/61 | 0 | 76 (01/22) | 35 (12/06) |
| ^{Pb} forest fire data included | 2014 | 60/61 | 0 | 50 (11/19) | 43 (11/13) |
| | 2015 ^{Pb} | 60/60 | 0 | 69 (08/22) | 41 (08/28) |
| Moved to Hall and N Street (Sept, 2016) | 2016 | 45/61 | 0 | 45 (11/02) | 27 (12/20) |
| Hall and North St. (LHN) | 2017 ^{Pb} | 56/61 | 0 | 64 (08/11) | 55 (08/05) |
| EPA # 410610123 | 2018 ^{Pb} | 61/61 | 0 | 54 (07/14) | 51 (08/06) |
| | 2019 | 61/61 | 0 | 48 (03/16) | 36 (11/05) |
| | 2020 | 58/61 | 0 | 49 (08/25) | 39 (02/21) |
| <u>Klamath Falls</u> | | | | | |
| Peterson School (KFP) | 2019 | 361/365 | 0 | 62 (10/12) | 58 (10/15) |
| EPA # 410350004 | | | | | |
| <u>Medford</u> | 2012 ^{Pb} | 44/61 | 0 | 37 (01/28) | 36 (08/13) |
| Welch & Jackson (MWJ) | 2013 ^{Pb} | 58/61 | 0 | 91 (08/08) | 84 (08/14) |
| EPA # 410292129 | 2014 | 54/61 | 0 | 41 (01/05) | 35 (12/31) |
| ^{Pb} forest fire data included | 2015 ^{Pb} | 57/60 | 0 | 61 (08/22) | 52 (08/28) |
| * forest fire flagged data removed | 2016 | 53/61 | 0 | 33 (12/20) | 28 (01/07) |
| | 2017 ^{Pb} | 58/61 | 1 | 175 (09/04) | 136 (08/29) |
| | 2017* | 53/61 | 0 | 47 (01/31) | 39 (12/09) |
| | 2018 ^{Pb} | 55/61 | 0 | 99 (07/25) | 66 (07/19) |
| | 2019 ^{Pb} | 58/61 | 0 | 118 (07/26) | 54 (01/03) |
| | 2020 ^{Pb} | 60/61 | 0 | 62 (10/06) | 46 (09/18) |

APPENDIX 1B PM10

| City and Station | Year | Sample days: Actual/ Expected | Days >150 | 24-Hour Averages ($\mu\text{g}/\text{m}^3$) | |
|---|--------------------|----------------------------------|--------------|---|--------------------|
| | | | | Maximum (date) | 2nd Highest (date) |
| Oakridge | 2011 | 59/61 | 0 | 53 (12/23) | 49 (02/02) |
| Willamette Center Trailer (OAK) | 2012 | 63/61 | 0 | 47 (02/03) | 44 (01/04) |
| EPA# 410392013 | 2013 | 61/61 | 0 | 53 (12/30) | 41 (01/22) |
| * forest fire flagged data removed | 2014 | 61/61 | 0 | 55 (01/05) | 43 (08/27) |
| ^{Pb} forest fire data included | 2015 | 60/60 | 0 | 37 (02/17) | 32 (02/23) |
| | 2016 | 60/61 | 0 | 30 (12/08) | 25 (02/24) |
| | 2017* | 336/365 | 0 | 55 (12/07) | 44 (12/13) |
| | 2017 ^{Pb} | 352/365 | 4 | 210 (09/04) | 173 (09/05) |
| | 2018 ^{Pb} | 354/365 | 0 | 76 (08/21) | 60 (08/22) |
| | 2019 | 354/365 | 0 | 53 (05/04) | 49 (06/14) |
| | 2020 ^{Pb} | 351/366 | 8 | 592 (09/12) | 424 (09/13) |
| | 2020* | 341/366 | 0 | 40 (12/03) | 38 (02/20) |
| Portland Area | 2011 | 111/121 | 0 | 56 (02/11) | 51 (12/23) |
| SE Portland (SEL) | 2012 | 111/122 | 0 | 45 (01/28) | 34 (09/18) |
| SE Lafayette | 2013 | 120/122 | 0 | 44 (12/12) | 43 (12/12) |
| EPA# 410510080 | 2014 | 120/122 | 0 | 37 (02/10) | 30 (09/11) |
| | 2015 ^{Pb} | 119/121 | 0 | 68 (08/22) | 33 (11/24) |
| | 2016 | 119/122 | 0 | 34 (08/19) | 32 (12/26) |
| | 2017 ^{Pb} | 120/122 | 0 | 70 (09/16) | 59 (08/02) |
| | 2018 ^{Pb} | 117/122 | 0 | 54 (08/15) | 27 (02/07) |
| ^{Pb} forest fire data included | 2019 | 119/122 | 0 | 33 (11/23) | 29 (12/05) |
| * forest fire flagged data removed | 2020 | 119/122 | 0 | 35 (09/09) | 35 (11/02) |
| N. Portland (PNR) | 2011 | 59/61 | 0 | 38 (12/23) | 35 (12/11) |
| N. Emerson (N. Roselawn) | 2012 | 58/61 | 0 | 36 (01/28) | 35 (09/18) |
| EPA # 410510246 | 2013 | 61/61 | 0 | 43 (11/30) | 40 (12/12) |
| ^{Pb} forest fire data included | 2014 | 60/61 | 0 | 18 (09/14) | 17 (11/19) |
| Site shut down, restarted as PHS in | 2015 ^{Pb} | 58/60 | 0 | 73 (08/22) | 45 (11/24) |
| 2017 | 2017 ^{Pb} | 46/61 | 0 | 52 (09/16) | 29 (08/29) |
| N. Portland (PHS) | 2018 | 61/61 | 0 | 29 (02/07) | 27 (10/17) |
| Humboldt School | 2019 | 61/61 | 0 | 29 (11/23) | 28 (12/05) |
| EPA # 410512010 | 2020 | 58/61 | 0 | 21 (12/29) | 20 (02/03) |
| Hillsboro (HHF) | | | | | |
| Hare Field | 2019 | 56/61 | 0 | 35 (12/05) | 32 (07/14) |
| EPA # 410670004 | | | | | |
| Gresham (GLC) | | | | | |
| Learning Center | 2017 ^{Pb} | 57/61 | 0 | 90 (09/16) | 62 (09/04) |
| EPA # 410512008 | 2017* | 54/61 | 0 | 34 (12/21) | 34 (01/07) |

APPENDIX 1C Ozone

Ozone Data Summary

| Station Location and Number | Year | Sample days: Actual/ Expected | 8 Hr Aver. Maximum (ppm) | 4th Highest 8hr Aver. (ppm) | # of Days >Std | 3 Yr Aver. of 4th High (ppb) |
|---|-------------------|-------------------------------|--------------------------|-----------------------------|----------------|------------------------------|
| Eugene Area | 2011 | 153/153 | 72 (09/10) | 59 (09/09) | 0 | 59 |
| Eugene | 2012 | 153/153 | 65 (08/12) | 59 (05/13) | 0 | 58 |
| Amazon Park (AMZ) | 2013 | 153/153 | 57 (07/09) | 53 (05/03) | 0 | 57 |
| EPA# 410390060 | 2014 | 153/153 | 61 (07/15) | 58 (08/26) | 0 | 56 |
| [Ⓟ] Wildfire smoke – this can elevate ozone concentrations | 2015 [Ⓟ] | 152/153 | 78 (07/02) | 68 (07/30) | 1 | 59 |
| | 2016 | 153/153 | 64 (08/19) | 57 (08/13) | 0 | 61 |
| | 2017 [Ⓟ] | 153/153 | 91 (08/02) | 70 (08/08) | 3 | 65 |
| | 2018 [Ⓟ] | 148/153 | 65 (07/25) | 60 (08/21) | 0 | 62 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 153/153 | 62 (08/27) | 54 (05/10) | 0 | 61 |
| | 2020* | 142/153 | 66 (08/15) | 55 (07/27) | 0 | 56 |
| Saginaw (SAG) | 2011 | 152/153 | 68 (09/10) | 59 (08/20) | 0 | 61 |
| 79980 Delight Valley | 2012 | 152/153 | 65 (09/17) | 62 (09/13) | 0 | 60 |
| School Road | 2013 | 153/153 | 59 (07/09) | 56 (07/26) | 0 | 59 |
| EPA# 410391007 | 2014 | 153/153 | 62 (07/15) | 58 (08/01) | 0 | 58 |
| [Ⓟ] Wildfire smoke – this can elevate ozone concentrations | 2015 | 153/153 | 80 (07/02) | 71 (08/19) | 1 | 61 |
| | 2016 | 153/153 | 63 (08/19) | 56 (07/28) | 0 | 61 |
| | 2017 [Ⓟ] | 153/153 | 91 (08/02) | 73 (08/01) | 4 | 66 |
| | 2018 [Ⓟ] | 153/153 | 68 (07/25) | 60 (07/12) | 0 | 63 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 153/153 | 65 (08/27) | 55 (07/25) | 0 | 62 |
| | 2020* | 139/153 | 62 (08/15) | 52 (08/14) | 0 | 55 |
| Hermiston | 2011 | 152/153 | 63 (09/09) | 58 (09/11) | 0 | 60 |
| Municipal | 2012 | 150/153 | 73 (05/15) | 68 (08/07) | 0 | 63 |
| Airport (HMA) | 2013 | 151/153 | 66 (07/19) | 62 (05/07) | 0 | 62 |
| EPA # 410591003 | 2014 | 146/153 | 67 (07/12) | 64 (08/03) | 0 | 64 |
| [Ⓟ] Wildfire smoke – this can elevate ozone concentrations | 2015 | 151/153 | 73 (07/03) | 70 (08/19) | 0 | 65 |
| | 2016 | 137/153 | 74 (06/07) | 63 (07/14) | 1 | 65 |
| | 2017 [Ⓟ] | 153/153 | 80 (08/08) | 73 (08/09) | 7 | 68 |
| | 2018 [Ⓟ] | 97/153 | 66 (07/13) | 60 (05/22) | 0 | 65 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 152/153 | 65 (08/06) | 59 (06/01) | 0 | 64 |
| | 2020* | 141/153 | 60 (07/30) | 56 (09/10) | 0 | 58 |

*Parts per million

76

The 8 hr standard is the 3-year average of the 4th highest value.

APPENDIX 1C Ozone

| Station Location and Number | Year | Sample days: Actual/ Expected | 8 Hr Aver. Maximum (ppm) | 4th Highest 8hr Aver. (ppm) | # of Days >Std | 3 Yr Aver. of 4th High (ppb) |
|---|-------------------|-------------------------------|--------------------------|-----------------------------|----------------|------------------------------|
| Medford Area | 2011 | 153/153 | 63 (09/07) | 57 (09/10) | 0 | 61 |
| Talent (TAL) | 2012 | 153/153 | 73 (08/14) | 66 (07/11) | 0 | 61 |
| 7112 Rapp Lane | 2013 | 149/153 | 70 (07/09) | 67 (08/06) | 0 | 63 |
| EPA# 410290201 | 2014 | 152/153 | 64 (07/16) | 59 (07/10) | 0 | 64 |
| [Ⓟ] Wildfire smoke – this can elevate ozone concentrations | 2015 [Ⓟ] | 140/153 | 86 (08/01) | 69 (07/03) | 1 | 64 |
| | 2016 | 131/153 | 50 (05/13) | 49 (05/11) | 0 | 58 |
| | 2017 [Ⓟ] | 150/153 | 83 (08/02) | 78 (08/03) | 5 | 65 |
| | 2018 [Ⓟ] | 153/153 | 76 (07/23) | 74 (07/24) | 6 | 67 |
| *The monitor malfunctioned during the extreme smoke | 2019 [Ⓟ] | 153/153 | 80 (07/26) | 62 (06/15) | 1 | 71 |
| | 2020* | 146/153 | 67 (09/15) | 60 (09/06) | 0 | 65 |
| Salem Area | 2011 | 153/153 | 68 (09/10) | 58 (09/09) | 0 | 61 |
| Cascade Jr High (CJH) | 2012 | 150/153 | 68 (09/14) | 63 (08/04) | 0 | 59 |
| Turner | 2013 | 150/153 | 62 (08/21) | 55 (05/10) | 0 | 58 |
| EPA# 410470004 | 2014 | 145/153 | 81 (09/15) | 62 (07/12) | 1 | 59 |
| [Ⓟ] Wildfire smoke – this can elevate ozone concentrations | 2015 | 153/153 | 78 (08/18) | 65 (06/27) | 1 | 60 |
| | 2016 | 150/153 | 69 (08/18) | 65 (08/12) | 0 | 64 |
| | 2017 [Ⓟ] | 152/153 | 85 (08/03) | 78 (08/28) | 6 | 69 |
| | 2018 [Ⓟ] | 150/153 | 70 (08/14) | 66 (07/25) | 0 | 69 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 149/153 | 66 (08/28) | 55 (08/27) | 0 | 66 |
| | 2020* | 142/153 | 63 (05/28) | 57 (07/30) | 0 | 59 |
| State Hospital (SSH) | | | | | | - |
| EPA# 410470041 | 2018 [Ⓟ] | 109/153 | 58 (07/16) | 55 (07/15) | 0 | - |
| *The monitor malfunctioned during the extreme smoke | 2019 | 151/153 | 64 (08/28) | 52 (08/27) | 0 | - |
| | 2020* | 142/153 | 68 (07/27) | 53 (07/26) | 0 | 5 |
| Portland Metro Area | 2011 | 153/153 | 68 (09/07) | 63 (09/10) | 0 | 66 |
| Carus (SPR) | 2012 | 153/153 | 73 (08/17) | 65 (05/13) | 0 | 64 |
| 13575 Spangler Road | 2013 | 153/153 | 65 (09/11) | 59 (05/06) | 0 | 62 |
| Canby | 2014 | 153/153 | 72 (08/11) | 62 (09/14) | 0 | 62 |
| EPA# 410050004 | 2015 | 147/153 | 73 (08/18) | 69 (07/30) | 0 | 63 |
| [Ⓟ] Wildfire smoke – this can elevate ozone concentrations | 2016 | 153/153 | 63 (08/19) | 64 (07/28) | 0 | 65 |
| | 2017 [Ⓟ] | 147/153 | 116 (08/03) | 83 (08/28) | 8 | 72 |
| | 2018 [Ⓟ] | 149/153 | 76 (08/22) | 70 (08/07) | 3 | 72 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 152/153 | 71 (08/28) | 65 (08/05) | 1 | 72 |
| | 2020* | 139/153 | 77 (08/15) | 70 (07/30) | 3 | 68 |

*Parts per million

The 8 hr standard is the 3-year average of the 4th highest value.

APPENDIX 1C Ozone

| Station Location And Number | Year | Sample days: Actual/ Expected | 8-Hour Average Maximum (ppb) | 4th Highest 8-Hour Average (ppb) | # Of Days >Std** | 3 Year Avg Of 4th High (ppb) |
|---|--------------------|----------------------------------|---------------------------------|--|------------------------|------------------------------------|
| SE Portland (SEL) | 2011 | 362/365 | 76 (09/11) | 57 (09/07) | 1 | 57 |
| SE 57 & SE Lafayette | 2012 | 364/366 | 63 (08/16) | 61 (05/14) | 0 | 57 |
| EPA# 410510080 | 2013 | 359/365 | 58 (06/30) | 53 (05/06) | 0 | 57 |
| ^{fb} Wildfire smoke – this can elevate ozone concentrations | 2014 | 364/365 | 75 (08/11) | 55 (05/01) | 0 | 56 |
| | 2015 | 363/365 | 62 (08/18) | 57 (08/01) | 0 | 55 |
| | 2016 | 357/366 | 60 (08/12) | 55 (08/12) | 0 | 55 |
| | 2017 ^{fb} | 317/365 | 87 (08/02) | 68 (08/09) | 1 | 60 |
| | 2018 ^{fb} | 353/365 | 76 (08/08) | 67 (07/15) | 2 | 63 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 330/365 | 66 (08/28) | 58 (07/21) | 0 | 64 |
| | 2020* | 355/366 | 75 (07/27) | 59 (07/30) | 1 | 61 |
| Sauvie Island (SIS) | 2011 | 152/153 | 57 (09/11) | 51 (09/07) | 0 | 53 |
| Social Security | 2012 | 144/153 | 57 (05/13) | 53 (05/14) | 0 | 51 |
| Beach | 2013 | 150/153 | 52 (08/21) | 47 (05/04) | 0 | 50 |
| EPA# 410090004 | 2014 | 153/153 | 56 (05/01) | 50 (05/13) | 0 | 50 |
| ^{fb} Wildfire smoke – this can elevate ozone concentrations | 2015 | 150/153 | 63 (07/30) | 58 (07/01) | 0 | 52 |
| | 2016 | 152/153 | 58 (08/18) | 51 (08/12) | 0 | 54 |
| | 2017 ^{fb} | 149/153 | 86 (08/02) | 64 (08/04) | 2 | 57 |
| | 2018 ^{fb} | 152/153 | 55 (08/21) | 53 (08/08) | 0 | 56 |
| | 2019 | 150/153 | 65 (06/12) | 51 (08/04) | 0 | 56 |
| | 2020* | 144/153 | 57 (07/30) | 51 (05/27) | 0 | 51 |
| Tualatin | 2014 | 231/365 | 72 (08/11) | 53 (09/07) | 1 | - |
| Near Road I-5 | 2015 | 361/365 | 67 (08/23) | 52 (07/04) | 0 | - |
| EPA# 410670005 | 2016 | 355/366 | 57 (06/05) | 48 (04/18) | 0 | 51 |
| ^{fb} Wildfire smoke – this can elevate ozone concentrations | 2017 ^{fb} | 315/365 | 85 (08/03) | 71 (08/02) | 4 | 57 |
| | 2018 ^{fb} | 336/365 | 56 (07/15) | 54 (08/15) | 0 | 57 |
| *The monitor malfunctioned during the extreme smoke | 2019 | 152/153 | 65 (08/28) | 50 (05/11) | 0 | 58 |
| | 2020* | 140/153 | 76 (07/27) | 59 (07/30) | 1 | 54 |

*Parts per million

78

The 8 hr standard is the 3-year average of the 4th highest value.

APPENDICES 1D Nitrogen Dioxide, 1E Sulfur Dioxide, 1F Carbon Monoxide

Nitrogen Dioxide Data Summary

| Station Location And Number | Year | Sample days: Actual/ Expected | Annual Arithmetic Mean (ppb) | 98th Percentile Of Daily Maximum (ppb) | 3Yr Aver. of 98 th Percentile Daily Max (ppb) |
|--|------|-------------------------------|------------------------------|--|--|
| Portland SE Lafayette at 57th (SEL) EPA # 410510080 | 2011 | 348/365 | 9 | 33 | 35 |
| | 2012 | 348/366 | 9 | 36 | 34 |
| | 2013 | 351/365 | 10 | 33 | 33 |
| | 2014 | 340/365 | 8 | 35 | 34 |
| | 2015 | 365/365 | 9 | 36 | 34 |
| | 2016 | 366/366 | 9 | 34 | 35 |
| | 2017 | 346/365 | 9 | 40 | 36 |
| | 2018 | 337/365 | 9 | 35 | 36 |
| | 2019 | 352/365 | 8 | 32 | 36 |
| | 2020 | 354/366 | 6 | 30 | 32 |
| Tualatin Bradbury Ct. (TBC) (25meters from I-5) EPA# 410670005 | 2015 | 332/365 | 14 | 36 | - |
| | 2016 | 363/366 | 13 | 35 | - |
| | 2017 | 361/365 | 12 | 38 | 36 |
| | 2018 | 341/365 | 12 | 38 | 37 |
| | 2019 | 326/365 | 11 | 33 | 36 |
| | 2020 | 342/366 | 10 | 30 | 34 |

Sulfur Dioxide Data Summary

| Station Location And Number | Year | Sample days: Actual/ Expected | One Hr Aver. 99 th Percentile (ppb) | 3 Hr Aver. Maximum (ppb) | 3 Hr Aver. 2 nd Highest (ppb) |
|--|------|-------------------------------|--|--------------------------|--|
| Portland SE Lafayette at 57th (SEL) EPA # 410510080 | 2011 | 343/365 | 9 | 6 | 6 |
| | 2012 | 334/366 | 10 | 5 | 5 |
| | 2013 | 342/365 | 5 | 6 | 6 |
| | 2014 | 343/365 | 3 | 4 | 4 |
| | 2015 | 359/365 | 4 | 8 | 8 |
| | 2016 | 353/366 | 3 | 3 | 3 |
| | 2017 | 332/365 | 3 | 4 | 4 |
| | 2018 | 330/365 | 3 | 3 | 3 |
| | 2019 | 345/365 | 3 | 3 | 3 |
| | 2020 | 351/366 | 2 | 2 | 2 |

APPENDICES 1D Nitrogen Dioxide, 1E Sulfur Dioxide, 1F Carbon Monoxide

Carbon Monoxide Data Summary

| Station Location And Number | Year | Sample days: Actual/ Expected | Days > std | 8-Hr Aver. | |
|--|-------------------|----------------------------------|---------------|---------------|-------------------------------|
| | | | | Maximum (ppm) | 2 ND Highest (ppm) |
| Portland | 2011 | 365/365 | 0 | 2.6 | 2.4 |
| SE Lafayette at 57th | 2012 | 349/366 | 0 | 2.3 | 2.2 |
| (SEL) | 2013 | 337/365 | 0 | 2.0 | 1.8 |
| EPA # 410510080 | 2014 | 356/365 | 0 | 1.3 | 1.3 |
| | 2015 | 365/365 | 0 | 2.0 | 1.9 |
| | 2016 | 311/366 | 0 | 1.5 | 1.5 |
| [Ⓜ] <i>Wildfires smoke includes</i> | 2017 | 215/365 | 0 | 1.7 | 1.6 |
| <i>elevated carbon monoxide</i> | 2018 | 361/365 | 0 | 1.6 | 1.6 |
| <i>* Wildfire data removed</i> | 2019 | 244/365 | 0 | 1.6 | 1.4 |
| | 2020 [Ⓜ] | 360/366 | 3 | 14.2 | 14.1 |
| | 2020* | 351/366 | 0 | 1.5 | 1.4 |
| Tualatin Bradbury Ct. | 2015 | 336/365 | 0 | 1.3 | 1.3 |
| (TBC) | 2016 | 317/366 | 0 | 1.3 | 1.3 |
| (25meters from I-5) | 2017 | 296/365 | 0 | 1.4 | 1.3 |
| EPA# 410670005 | 2018 | 325/365 | 0 | 1.0 | 1.0 |
| [Ⓜ] <i>Wildfires smoke includes</i> | 2019 | 355/365 | 0 | 1.0 | 1.0 |
| <i>elevated carbon monoxide</i> | 2020 [Ⓜ] | 337/366 | 3 | 14.3 | 12.9 |
| <i>* Wildfire data removed</i> | 2020* | 328/366 | 0 | 1.0 | 0.9 |

APPENDIX G Air Quality Index

Air Quality Index Summary

Number of days in each health category by year.

| Portland Metro | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|--|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Portland (Includes: PM2.5, Ozone, CO, NO ₂ , & SO ₂) | 2011 | 310 | 49 | 6 | 0 | 0 | 0 | 0 |
| | 2012 | 330 | 35 | 0 | 0 | 0 | 0 | 1 |
| | 2013 | 282 | 77 | 5 | 0 | 0 | 0 | 1 |
| | 2014 | 332 | 32 | 1 | 0 | 0 | 0 | 0 |
| | 2015 | 305 | 58 | 0 | 2 | 0 | 0 | 0 |
| | 2016 | 340 | 26 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 309 | 41 | 9 | 5 | 1 | 0 | 0 |
| | 2018 | 301 | 54 | 9 | 1 | 0 | 0 | 0 |
| | 2019 | 320 | 44 | 1 | 0 | 0 | 0 | 0 |
| | 2020 | 305 | 50 | 3 | 0 | 2 | 6 | 0 |
| Beaverton (PM2.5 only) | 2011 | 337 | 24 | 0 | 0 | 0 | 0 | 4 |
| | 2012 | 354 | 12 | 0 | 0 | 0 | 0 | 0 |
| | 2013 | 307 | 53 | 5 | 0 | 0 | 0 | 0 |
| | 2014 | 349 | 16 | 0 | 0 | 0 | 0 | 0 |
| | 2015 | 338 | 24 | 1 | 1 | 0 | 0 | 1 |
| | 2016 | 357 | 9 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 334 | 23 | 7 | 0 | 0 | 0 | 1 |
| | 2018 | 328 | 28 | 6 | 0 | 0 | 0 | 3 |
| | 2019 | 345 | 17 | 0 | 0 | 0 | 0 | 3 |
| | 2020 | 343 | 14 | 1 | 1 | 4 | 3 | 0 |
| Forest Grove (PM2.5 only) | 2019 | 141 | 39 | 0 | 0 | 0 | 0 | 185 |
| | 2020 | 317 | 23 | 0 | 3 | 4 | 1 | 18 |
| Gresham (PM2.5 only) | 2020 | 139 | 10 | 1 | 2 | 2 | 4 | 208 |
| Hillsboro (PM2.5 only) | 2011 | 308 | 50 | 7 | 0 | 0 | 0 | 0 |
| | 2012 | 334 | 29 | 1 | 0 | 0 | 0 | 2 |
| | 2013 | 281 | 71 | 8 | 1 | 0 | 0 | 4 |
| | 2014 | 324 | 40 | 1 | 0 | 0 | 0 | 0 |
| | 2015 | 309 | 54 | 1 | 1 | 0 | 0 | 0 |
| | 2016 | 331 | 33 | 0 | 0 | 0 | 0 | 2 |
| | 2017 | 298 | 60 | 5 | 0 | 0 | 0 | 2 |
| | 2018 | 306 | 51 | 6 | 0 | 0 | 0 | 2 |
| | 2019 | 316 | 46 | 1 | 0 | 0 | 0 | 2 |
| | 2020 | 328 | 29 | 0 | 2 | 2 | 3 | 1 |

APPENDIX G Air Quality Index

| | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|--|-------|------|----------|-----|-----------|----------------|-----------|--------------|
| Coast | | | | | | | | |
| Brookings | 2020 | 109 | 8 | 1 | 4 | 0 | 0 | 244 |
| Coos Bay | 2020 | 323 | 13 | 1 | 6 | 0 | 0 | 23 |
| Florence | 2019 | 262 | 4 | 0 | 0 | 0 | 0 | 99 |
| | 2020 | 350 | 7 | 1 | 5 | 0 | 2 | 1 |
| Tillamook | 2020 | 144 | 5 | 2 | 4 | 0 | 0 | 211 |
| Willamette Valley | | | | | | | | |
| Albany (PM2.5 only) | 2011 | 329 | 30 | 1 | 0 | 0 | 0 | 5 |
| | 2012 | 354 | 12 | 0 | 0 | 0 | 0 | 0 |
| | 2013 | 305 | 56 | 4 | 0 | 0 | 0 | 0 |
| | 2014 | 335 | 28 | 2 | 0 | 0 | 0 | 0 |
| | 2015 | 305 | 43 | 2 | 3 | 0 | 0 | 12 |
| | 2016 | 343 | 23 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 320 | 39 | 3 | 3 | 0 | 0 | 0 |
| | 2018 | 328 | 34 | 3 | 0 | 0 | 0 | 0 |
| | 2019 | 322 | 43 | 0 | 0 | 0 | 0 | 0 |
| | 2020 | 325 | 30 | 0 | 1 | 6 | 4 | 0 |
| Corvallis (PM2.5 only) *Site closed in summer | 2011 | 343 | 18 | 0 | 0 | 0 | 0 | 4 |
| | 2012 | 348 | 7 | 0 | 0 | 0 | 0 | 11 |
| | 2013 | 302 | 52 | 1 | 0 | 0 | 0 | 10 |
| | 2014 | 344 | 19 | 1 | 0 | 0 | 0 | 1 |
| | 2015 | 333 | 30 | 1 | 1 | 0 | 0 | 0 |
| | 2016* | 185 | 9 | 0 | 0 | 0 | 0 | 172* |
| | 2017 | 319 | 36 | 2 | 0 | 0 | 0 | 8 |
| | 2018 | 340 | 23 | 2 | 0 | 0 | 0 | 0 |
| | 2019 | 332 | 33 | 0 | 0 | 0 | 0 | 0 |
| | 2020 | 330 | 25 | 0 | 3 | 5 | 3 | 0 |
| Eugene/ Springfield (PM2.5 and Ozone) | 2011 | 324 | 41 | 0 | 0 | 0 | 0 | 0 |
| | 2012 | 333 | 32 | 1 | 0 | 0 | 0 | 0 |
| | 2013 | 282 | 69 | 0 | 1 | 0 | 0 | 0 |
| | 2014 | 301 | 59 | 5 | 0 | 0 | 0 | 0 |
| | 2015 | 282 | 77 | 4 | 2 | 0 | 0 | 0 |
| | 2016 | 335 | 30 | 0 | 0 | 0 | 0 | 1 |
| | 2017 | 290 | 57 | 10 | 5 | 2 | 1 | 0 |
| | 2018 | 290 | 69 | 6 | 0 | 0 | 0 | 0 |
| | 2019 | 292 | 71 | 2 | 0 | 0 | 0 | 0 |
| | 2020 | 289 | 66 | 1 | 0 | 2 | 8 | 0 |

APPENDIX G Air Quality Index

| Willamette Valley | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|-------------------------------|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Salem (PM2.5 and Ozone) | 2011 | 355 | 10 | 0 | 0 | 0 | 0 | 0 |
| | 2012 | 340 | 24 | 0 | 0 | 0 | 0 | 2 |
| | 2013 | 283 | 71 | 5 | 0 | 0 | 0 | 6 |
| | 2014 | 322 | 42 | 1 | 0 | 0 | 0 | 0 |
| | 2015 | 311 | 51 | 1 | 2 | 0 | 0 | 0 |
| | 2016 | 326 | 35 | 0 | 0 | 0 | 0 | 5 |
| | 2017 | 301 | 53 | 6 | 2 | 0 | 0 | 3 |
| | 2018 | 294 | 37 | 7 | 1 | 0 | 0 | 26 |
| | 2019 | 300 | 56 | 0 | 0 | 0 | 0 | 9 |
| | 2020 | 303 | 53 | 0 | 1 | 1 | 8 | 0 |
| Sweet Home (PM2.5 only) | 2011 | 329 | 32 | 1 | 0 | 0 | 0 | 3 |
| | 2012 | 355 | 9 | 0 | 0 | 0 | 0 | 2 |
| | 2013 | 284 | 70 | 5 | 0 | 0 | 0 | 6 |
| | 2014 | 336 | 27 | 0 | 0 | 0 | 0 | 2 |
| | 2015 | 332 | 31 | 0 | 2 | 0 | 0 | 0 |
| | 2016 | 346 | 19 | 0 | 0 | 0 | 0 | 1 |
| | 2017 | 299 | 57 | 4 | 5 | 0 | 0 | 0 |
| | 2018 | 299 | 65 | 1 | 0 | 0 | 0 | 0 |
| | 2019 | 297 | 68 | 0 | 0 | 0 | 0 | 0 |
| | 2020 | 320 | 36 | 1 | 1 | 2 | 6 | 0 |
| SW OR | | | | | | | | |
| Cottage Grove (PM2.5 only) | 2011 | 349 | 16 | 0 | 0 | 0 | 0 | 0 |
| | 2012 | 348 | 18 | 0 | 0 | 0 | 0 | 0 |
| | 2013 | 296 | 65 | 3 | 0 | 0 | 0 | 1 |
| | 2014 | 323 | 40 | 1 | 1 | 0 | 0 | 0 |
| | 2015 | 329 | 34 | 1 | 1 | 0 | 0 | 0 |
| | 2016 | 346 | 20 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 295 | 60 | 3 | 7 | 0 | 0 | 0 |
| | 2018 | 318 | 45 | 1 | 0 | 0 | 0 | 1 |
| | 2019 | 311 | 53 | 0 | 0 | 0 | 0 | 1 |
| | 2020 | 314 | 42 | 0 | 1 | 2 | 7 | 0 |
| Oakridge (PM2.5 only) | 2011 | 296 | 54 | 15 | 0 | 0 | 0 | 0 |
| | 2012 | 339 | 19 | 6 | 0 | 0 | 0 | 2 |
| | 2013 | 272 | 80 | 13 | 0 | 0 | 0 | 0 |
| | 2014 | 277 | 75 | 13 | 0 | 0 | 0 | 0 |
| | 2015 | 286 | 71 | 6 | 1 | 0 | 0 | 1 |
| | 2016 | 330 | 36 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 267 | 74 | 13 | 8 | 2 | 0 | 1 |
| | 2018 | 286 | 74 | 2 | 1 | 0 | 0 | 2 |
| | 2019 | 283 | 73 | 4 | 0 | 0 | 0 | 5 |
| | 2020 | 297 | 57 | 3 | 1 | 4 | 4 | 0 |

APPENDIX G Air Quality Index

| SW Oregon | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|-------------------------------------|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Roseburg (PM2.5 only) | 2011 | 336 | 23 | 1 | 0 | 0 | 0 | 5 |
| | 2012 | 354 | 8 | 0 | 0 | 0 | 0 | 4 |
| | 2013 | 301 | 64 | 0 | 0 | 0 | 0 | 0 |
| | 2014 | 330 | 34 | 0 | 0 | 0 | 0 | 1 |
| | 2015 | 326 | 35 | 1 | 0 | 0 | 0 | 3 |
| | 2016 | 314 | 14 | 0 | 0 | 0 | 0 | 27 |
| | 2017 | 303 | 49 | 4 | 3 | 0 | 0 | 6 |
| | 2018 | 293 | 43 | 2 | 0 | 0 | 0 | 27 |
| | 2019 | 288 | 59 | 0 | 0 | 0 | 0 | 18 |
| | 2020 | 313 | 43 | 1 | 1 | 2 | 6 | 0 |
| Grants Pass (PM2.5 only) | 2011 | 326 | 34 | 1 | 0 | 0 | 0 | 4 |
| | 2012 | 343 | 20 | 0 | 0 | 0 | 0 | 3 |
| | 2013 | 262 | 91 | 2 | 6 | 2 | 1 | 1 |
| | 2014 | 323 | 40 | 2 | 0 | 0 | 0 | 0 |
| | 2015 | 307 | 55 | 2 | 1 | 0 | 0 | 0 |
| | 2016 | 322 | 39 | 0 | 0 | 0 | 0 | 5 |
| | 2017 | 265 | 81 | 2 | 9 | 4 | 1 | 3 |
| | 2018 | 252 | 85 | 9 | 14 | 0 | 0 | 5 |
| | 2019 | 264 | 55 | 3 | 2 | 0 | 0 | 41 |
| | 2020 | 285 | 44 | 2 | 6 | 1 | 4 | 24 |
| Cave Junction (PM2.5 only) | 2011 | 337 | 18 | 0 | 0 | 0 | 0 | 10 |
| | 2012 | 357 | 7 | 0 | 0 | 0 | 0 | 2 |
| | 2013 | 267 | 83 | 6 | 7 | 1 | 1 | 0 |
| | 2014 | 327 | 38 | 0 | 0 | 0 | 0 | 0 |
| | 2015 | 275 | 71 | 3 | 1 | 0 | 0 | 15 |
| | 2016 | 337 | 29 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 273 | 75 | 4 | 7 | 4 | 0 | 2 |
| | 2018 | 261 | 71 | 18 | 15 | 0 | 0 | 0 |
| | 2019 | 293 | 69 | 3 | 0 | 0 | 0 | 0 |
| | 2020 | 282 | 59 | 5 | 12 | 0 | 7 | 1 |
| Applegate Valley (PM2.5 only) | 2011 | 350 | 7 | 0 | 0 | 0 | 0 | 8 |
| | 2012 | 356 | 2 | 0 | 0 | 0 | 0 | 8 |
| | 2013 | 311 | 37 | 1 | 8 | 2 | 0 | 6 |
| | 2014 | 349 | 16 | 0 | 0 | 0 | 0 | 0 |
| | 2015 | 330 | 27 | 3 | 2 | 0 | 0 | 3 |
| | 2016 | 360 | 5 | 0 | 0 | 0 | 0 | 1 |
| | 2017 | 298 | 39 | 5 | 9 | 5 | 1 | 8 |
| | 2018 | 288 | 40 | 6 | 19 | 0 | 0 | 12 |
| | 2019 | 345 | 13 | 3 | 2 | 0 | 0 | 2 |
| | 2020 | 327 | 20 | 7 | 5 | 0 | 7 | 0 |

APPENDIX G Air Quality Index

| SW Oregon | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|---------------------------|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Shady Cove (PM2.5 only) | 2011 | 360 | 1 | 0 | 0 | 0 | 0 | 4 |
| | 2012 | 364 | 0 | 0 | 0 | 0 | 0 | 2 |
| | 2013 | 308 | 46 | 4 | 5 | 0 | 0 | 2 |
| | 2014 | 341 | 20 | 1 | 0 | 0 | 0 | 3 |
| | 2015 | 333 | 15 | 9 | 6 | 1 | 1 | 0 |
| | 2016 | 346 | 5 | 0 | 0 | 0 | 0 | 15 |
| | 2017 | 294 | 32 | 9 | 11 | 1 | 0 | 18 |
| | 2018 | 303 | 25 | 9 | 27 | 1 | 0 | 0 |
| | 2019 | 358 | 7 | 0 | 0 | 0 | 0 | 0 |
| | 2020 | 329 | 23 | 1 | 4 | 1 | 1 | 7 |
| Medford (PM2.5 and Ozone) | 2011 | 283 | 74 | 4 | 0 | 0 | 0 | 4 |
| | 2012 | 286 | 79 | 1 | 0 | 0 | 0 | 0 |
| | 2013 | 222 | 126 | 10 | 5 | 2 | 0 | 0 |
| | 2014 | 276 | 88 | 1 | 0 | 0 | 0 | 0 |
| | 2015 | 248 | 99 | 11 | 7 | 0 | 0 | 0 |
| | 2016 | 312 | 54 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 238 | 98 | 14 | 9 | 5 | 1 | 0 |
| | 2018 | 232 | 87 | 8 | 22 | 3 | 0 | 13 |
| | 2019 | 295 | 63 | 3 | 4 | 0 | 0 | 0 |
| | 2020 | 270 | 83 | 2 | 4 | 3 | 4 | 0 |
| Ashland (PM2.5 only) | 2016 | 163 | 8 | 0 | 0 | 0 | 0 | 195 |
| | 2017 | 300 | 43 | 7 | 11 | 1 | 2 | 1 |
| | 2018 | 300 | 26 | 11 | 20 | 4 | 0 | 4 |
| | 2019 | 351 | 9 | 1 | 4 | 0 | 0 | 0 |
| | 2020 | 322 | 32 | 1 | 4 | 3 | 4 | 0 |
| Central OR | | | | | | | | |
| Bend (PM2.5 only) | 2011 | 349 | 16 | 0 | 0 | 0 | 0 | 0 |
| | 2012 | 343 | 15 | 3 | 0 | 0 | 0 | 5 |
| | 2013 | 332 | 33 | 0 | 0 | 0 | 0 | 0 |
| | 2014 | 335 | 29 | 1 | 0 | 0 | 0 | 0 |
| | 2015 | 329 | 33 | 2 | 1 | 0 | 0 | 0 |
| | 2016 | 335 | 5 | 1 | 0 | 0 | 0 | 25 |
| | 2017 | 291 | 48 | 4 | 8 | 3 | 0 | 11 |
| | 2018 | 307 | 47 | 5 | 4 | 0 | 0 | 2 |
| | 2019 | 345 | 13 | 0 | 0 | 0 | 0 | 7 |
| | 2020 | 320 | 33 | 5 | 0 | 2 | 6 | 0 |

APPENDIX G Air Quality Index

| | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|--|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Prineville (PM2.5 only) | 2011 | 293 | 56 | 7 | 0 | 0 | 0 | 9 |
| | 2012 | 313 | 45 | 2 | 0 | 0 | 0 | 6 |
| | 2013 | 255 | 97 | 11 | 2 | 0 | 0 | 0 |
| | 2014 | 289 | 66 | 4 | 6 | 0 | 0 | 0 |
| | 2015 | 290 | 63 | 6 | 2 | 0 | 0 | 4 |
| | 2016 | 288 | 59 | 1 | 0 | 0 | 0 | 18 |
| | 2017 | 260 | 81 | 8 | 8 | 0 | 0 | 8 |
| | 2018 | 289 | 71 | 3 | 2 | 0 | 0 | 0 |
| | 2019 | 296 | 69 | 0 | 0 | 0 | 0 | 0 |
| | 2020 | 297 | 61 | 0 | 2 | 3 | 3 | 0 |
| Redding (PM2.5 only) | 2020 | 325 | 18 | 0 | 0 | 3 | 5 | 15 |
| Sisters (PM2.5 only) | 2012 | 334 | 10 | 1 | 11 | 2 | 3 | 4 |
| | 2013 | 348 | 16 | 0 | 0 | 0 | 0 | 1 |
| | 2014 | 350 | 15 | 0 | 0 | 0 | 0 | 0 |
| | 2015 | 332 | 31 | 0 | 2 | 0 | 0 | 0 |
| | 2016 | 346 | 1 | 0 | 0 | 0 | 0 | 19 |
| | 2017 | 286 | 29 | 2 | 15 | 8 | 0 | 22 |
| | 2018 | 317 | 33 | 7 | 3 | 0 | 0 | 5 |
| | 2019 | 351 | 9 | 4 | 1 | 0 | 0 | 0 |
| | 2020 | 307 | 25 | 3 | 1 | 1 | 7 | 22 |
| Madras Summer (PM2.5 only) Annual | 2011 | 145 | 19 | 1 | 0 | 0 | 0 | 12 |
| | 2012 | 63 | 7 | 0 | 0 | 0 | 0 | 0 |
| | 2013 | 76 | 16 | 0 | 0 | 0 | 0 | 0 |
| | 2014 | 61 | 19 | 0 | 2 | 0 | 0 | 0 |
| | 2015 | 75 | 13 | 3 | 1 | 0 | 0 | 0 |
| | 2016 | 119 | 1 | 0 | 0 | 0 | 0 | 2 |
| | 2017 | 58 | 25 | 5 | 3 | 1 | 0 | 0 |
| | 2018 | 135 | 46 | 6 | 1 | 0 | 0 | 177 |
| | 2019 | 290 | 73 | 2 | 0 | 0 | 0 | 0 |
| | 2020 | 297 | 53 | 3 | 0 | 3 | 5 | 5 |
| John Day (PM2.5 only) | 2011 | 289 | 59 | 4 | 0 | 0 | 0 | 13 |
| | 2012 | 302 | 58 | 2 | 1 | 0 | 0 | 3 |
| | 2013 | 221 | 127 | 3 | 0 | 0 | 0 | 14 |
| | 2014 | 266 | 91 | 1 | 1 | 0 | 0 | 6 |
| | 2015 | 279 | 75 | 4 | 5 | 0 | 0 | 2 |
| | 2016 | 285 | 56 | 0 | 0 | 0 | 0 | 25 |
| | 2017 | 257 | 89 | 9 | 3 | 0 | 0 | 7 |
| | 2018 | 251 | 104 | 1 | 2 | 0 | 0 | 7 |
| | 2019 | 255 | 93 | 1 | 0 | 0 | 0 | 16 |
| | 2020 | 248 | 109 | 1 | 5 | 1 | 1 | 1 |

APPENDIX G Air Quality Index

| SE Oregon | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|-------------------------------|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Burns (PM2.5 only) | 2011 | 292 | 64 | 8 | 0 | 0 | 0 | 1 |
| | 2012 | 314 | 49 | 1 | 0 | 0 | 0 | 2 |
| | 2013 | 266 | 89 | 8 | 0 | 0 | 0 | 2 |
| | 2014 | 277 | 83 | 3 | 2 | 0 | 0 | 0 |
| | 2015 | 282 | 80 | 3 | 0 | 0 | 0 | 0 |
| | 2016 | 279 | 77 | 1 | 0 | 0 | 0 | 8 |
| | 2017 | 248 | 109 | 6 | 2 | 0 | 0 | 9 |
| | 2018 | 251 | 104 | 1 | 2 | 0 | 0 | 7 |
| | 2019 | 265 | 95 | 5 | 0 | 0 | 0 | 0 |
| | 2020 | 251 | 102 | 2 | 8 | 0 | 1 | 2 |
| Klamath Falls (PM2.5 only) | 2011 | 274 | 75 | 11 | 0 | 0 | 0 | 5 |
| | 2012 | 280 | 70 | 9 | 0 | 0 | 0 | 7 |
| | 2013 | 220 | 118 | 21 | 3 | 0 | 0 | 3 |
| | 2014 | 274 | 89 | 2 | 0 | 0 | 0 | 0 |
| | 2015 | 263 | 92 | 8 | 2 | 0 | 0 | 0 |
| | 2016 | 292 | 71 | 0 | 0 | 0 | 0 | 3 |
| | 2017 | 246 | 93 | 13 | 8 | 1 | 0 | 4 |
| | 2018 | 219 | 105 | 11 | 25 | 3 | 0 | 2 |
| | 2019 | 287 | 78 | 0 | 0 | 0 | 0 | 0 |
| | 2020 | 264 | 75 | 12 | 3 | 1 | 1 | 10 |
| Lakeview (PM2.5 only) | 2011 | 296 | 50 | 13 | 5 | 0 | 0 | 1 |
| | 2012 | 292 | 48 | 8 | 2 | 0 | 0 | 16 |
| | 2013 | 262 | 63 | 18 | 20 | 0 | 0 | 2 |
| | 2014 | 302 | 48 | 12 | 1 | 0 | 0 | 2 |
| | 2015 | 294 | 68 | 3 | 0 | 0 | 0 | 0 |
| | 2016 | 318 | 41 | 0 | 1 | 0 | 0 | 6 |
| | 2017 | 288 | 57 | 17 | 1 | 0 | 0 | 2 |
| | 2018 | 277 | 59 | 13 | 9 | 0 | 0 | 7 |
| | 2019 | 311 | 51 | 1 | 0 | 0 | 0 | 2 |
| | 2020 | 293 | 55 | 13 | 4 | 0 | 0 | 1 |
| NE Oregon | 2011 | 349 | 16 | 0 | 0 | 0 | 0 | 0 |
| The Dalles (PM2.5 only) | 2012 | 350 | 15 | 0 | 0 | 0 | 0 | 1 |
| | 2013 | 322 | 35 | 3 | 1 | 0 | 0 | 4 |
| | 2014 | 331 | 33 | 1 | 0 | 0 | 0 | 0 |
| | 2015 | 326 | 30 | 0 | 2 | 0 | 0 | 7 |
| | 2016 | 319 | 31 | 0 | 0 | 0 | 0 | 16 |
| | 2017 | 287 | 59 | 6 | 8 | 1 | 0 | 4 |
| | 2018 | 293 | 33 | 4 | 2 | 0 | 0 | 33 |
| | 2019 | 297 | 53 | 0 | 0 | 0 | 0 | 15 |
| | 2020 | 323 | 31 | 0 | 0 | 3 | 4 | 5 |

APPENDIX G Air Quality Index

| NE Oregon | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|--|-------|------|----------|-----|-----------|----------------|-----------|--------------|
| Hermiston (Ozone - summer only) *PM2.5 & ozone | 2011 | 150 | 2 | 0 | 0 | 0 | 0 | 1 |
| | 2012 | 130 | 19 | 0 | 0 | 0 | 0 | 4 |
| | 2013 | 140 | 11 | 0 | 0 | 0 | 0 | 2 |
| | 2014 | 132 | 11 | 0 | 0 | 0 | 0 | 10 |
| | 2015 | 133 | 18 | 0 | 0 | 0 | 0 | 2 |
| | 2016 | 115 | 19 | 1 | 0 | 0 | 0 | 18 |
| | 2017 | 103 | 43 | 6 | 1 | 0 | 0 | 0 |
| | 2018 | 90 | 7 | 0 | 0 | 0 | 0 | 56 |
| | 2019* | 143 | 11 | 0 | 0 | 0 | 0 | 1 |
| | 2020 | 214 | 23 | 0 | 0 | 0 | 1 | 128 |
| Pendleton (PM2.5 only) | 2011 | 317 | 44 | 1 | 0 | 0 | 0 | 3 |
| | 2012 | 339 | 24 | 0 | 0 | 0 | 0 | 3 |
| | 2013 | 298 | 58 | 6 | 0 | 0 | 0 | 3 |
| | 2014 | 312 | 40 | 0 | 0 | 0 | 0 | 13 |
| | 2015 | 312 | 47 | 2 | 2 | 0 | 0 | 2 |
| | 2016 | 341 | 25 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 279 | 74 | 7 | 2 | 1 | 0 | 2 |
| | 2018 | 276 | 40 | 5 | 3 | 1 | 0 | 40 |
| | 2019 | 298 | 60 | 1 | 0 | 0 | 0 | 6 |
| | 2020 | 324 | 34 | 0 | 1 | 3 | 4 | 0 |
| La Grande (PM2.5 only) | 2011 | 318 | 39 | 3 | 1 | 0 | 0 | 4 |
| | 2012 | 332 | 31 | 1 | 0 | 0 | 0 | 2 |
| | 2013 | 286 | 73 | 6 | 0 | 0 | 0 | 0 |
| | 2014 | 291 | 66 | 6 | 0 | 0 | 0 | 2 |
| | 2015 | 285 | 59 | 8 | 3 | 0 | 0 | 10 |
| | 2016 | 329 | 35 | 0 | 0 | 0 | 0 | 2 |
| | 2017 | 308 | 49 | 5 | 3 | 0 | 0 | 0 |
| | 2018 | 322 | 35 | 5 | 1 | 0 | 0 | 2 |
| | 2019 | 344 | 19 | 0 | 0 | 0 | 0 | 2 |
| | 2020 | 334 | 23 | 1 | 5 | 3 | 0 | 0 |
| Enterprise (PM2.5 only) | 2011 | 342 | 18 | 0 | 0 | 0 | 0 | 5 |
| | 2012 | 340 | 13 | 1 | 0 | 0 | 0 | 12 |
| | 2013 | 323 | 41 | 0 | 0 | 0 | 0 | 1 |
| | 2014 | 329 | 33 | 3 | 0 | 0 | 0 | 0 |
| | 2015 | 322 | 34 | 3 | 5 | 0 | 0 | 1 |
| | 2016 | 318 | 31 | 0 | 0 | 0 | 0 | 17 |
| | 2017 | 291 | 50 | 6 | 3 | 0 | 0 | 15 |
| | 2018 | 272 | 46 | 2 | 0 | 0 | 0 | 45 |
| | 2019 | 333 | 29 | 1 | 0 | 0 | 0 | 2 |
| | 2020 | 323 | 36 | 0 | 7 | 0 | 0 | 0 |

APPENDIX G Air Quality Index

| NE Oregon | | Good | Moderate | USG | Unhealthy | Very Unhealthy | Hazardous | Missing days |
|----------------------------|------|------|----------|-----|-----------|----------------|-----------|--------------|
| Baker City (PM2.5 only) | 2011 | 324 | 26 | 0 | 0 | 0 | 0 | 15 |
| | 2012 | 349 | 15 | 2 | 0 | 0 | 0 | 0 |
| | 2013 | 302 | 63 | 0 | 0 | 0 | 0 | 0 |
| | 2014 | 317 | 48 | 0 | 0 | 0 | 0 | 0 |
| | 2015 | 326 | 29 | 8 | 2 | 0 | 0 | 0 |
| | 2016 | 339 | 27 | 0 | 0 | 0 | 0 | 0 |
| | 2017 | 307 | 52 | 3 | 3 | 0 | 0 | 0 |
| | 2018 | 313 | 35 | 1 | 1 | 0 | 0 | 15 |
| | 2019 | 328 | 32 | 0 | 0 | 0 | 0 | 5 |
| | 2020 | 327 | 32 | 2 | 5 | 0 | 0 | 0 |

APPENDIX 1H Air Toxics

Air Toxics Trends Summary

Urban National Air Toxics Trends Site

| Pollutant | | Acet aldehyde | | Form aldehyde | | Benzene | | 1,3-butadiene | | Perchloro ethylene | | Arsenic | | Cadmium | | Chromium (VI) TSP | | Lead | | Mang anese | | Nickel | |
|----------------------------|------|---------------|----------------|---------------|----------------|---------|----------------|---------------|----------------|--------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|
| Units | | (µg/m3) | | (µg/m3) | | (µg/m3) | | (µg/m3) | | (µg/m3) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | |
| City/Site | Year | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average |
| Portland | 2003 | 57 | 2.0 | 57 | 4.2 | 58 | 1.5 | 58 | <0.2 | 58 | <0.7 | 54 | < 1.0 | - | - | - | - | 48 | 9.3 | - | - | 54 | < 0.8 |
| NE Portland | 2004 | 59 | 1.7 | 59 | 2.9 | 58 | 1.6 | 59 | <0.2 | 59 | <0.5 | 56 | 1.8 | 58 | 1.6 | - | - | 56 | 8.8 | 58 | 14.6 | 56 | 2.1 |
| N Roselawn | 2005 | 55 | 1.5 | 58 | 2.2 | * | * | 59 | <0.2 | 59 | <0.7 | 59 | 1.7 | 60 | 2.5 | 49 | <0.04 | 59 | 11.7 | 60 | 15.9 | 59 | 1.8 |
| 24 N Emerson (PNR) | 2006 | 57 | 1.5 | 54 | 2.1 | 56 | 1.2 | 61 | <0.2 | 61 | <0.7 | 60 | 1.4 | 60 | 2.0 | - | - | 60 | 6.8 | 61 | 11.9 | 61 | < 1.0 |
| | 2007 | 53 | 1.4 | 52 | 2.0 | 56 | 1.2 | 57 | <0.4 | 57 | <0.7 | 56 | 1.4 | 56 | 1.4 | - | - | 57 | 7.4 | 57 | 12.1 | 57 | < 1.0 |
| | 2008 | 45 | 1.4 | 52 | 1.9 | 50 | 0.8 | 49 | <0.2 | 52 | <0.7 | 56 | 1.1 | 56 | 2.1 | 59 | <0.04 | 56 | 4.9 | 56 | 15.3 | 56 | 1.7 |
| | 2009 | 57 | 1.4 | 57 | 2.1 | 43 | 1.0 | 45 | <0.2 | 50 | <0.3 | 56 | 0.9 | 57 | 1.5 | 60 | <0.04 | 57 | 5.1 | 57 | 9.0 | 57 | 1.1 |
| | 2010 | 55 | 1.1 | 53 | 1.6 | 46 | 1.1 | 52 | <0.2 | 52 | <0.3 | 55 | 0.8 | 55 | 0.8 | 61 | <0.04 | 55 | 4.4 | 55 | 6.6 | 55 | 1.4 |
| | 2011 | 61 | 1.2 | 61 | 1.6 | 46 | 0.8 | 60 | 0.11 | 60 | 0.14 | 59 | 0.9 | 59 | 1.2 | 59 | <0.04 | 59 | 4.4 | 59 | 10.6 | 59 | 1.5 |
| | 2012 | 57 | 1.8 | 57 | 2.1 | 58 | 0.9 | 58 | 0.09 | 58 | <0.1 | 57 | 1.0 | 57 | 1.6 | 59 | <0.04 | 57 | 3.4 | 57 | 9.8 | 57 | 1.2 |
| | 2013 | 61 | 1.7 | 61 | 2.0 | 51 | 0.7 | 53 | 0.09 | 51 | 0.14 | 61 | 1.0 | 61 | 1.0 | 59 | <0.04 | 61 | 3.4 | 61 | 10.0 | 61 | 1.3 |
| | 2014 | 52 | 1.1 | 52 | 1.8 | 49 | 0.5 | 50 | <0.09 | 49 | 0.14 | 60 | 0.7 | 60 | 0.4 | 58 | <0.04 | 60 | 2.8 | 60 | 10.2 | 60 | 1.2 |
| | 2015 | 59 | 1.7 | 59 | 2.7 | 52 | 0.7 | 52 | 0.13 | 52 | 0.22 | 58 | 0.7 | 58 | 0.4 | - | - | 58 | 3.0 | 58 | 17.6 | 58 | 0.8 |
| N. Portland Humboldt (PHS) | 2017 | 38 | 1.6 | 38 | 2.6 | 35 | 0.4 | 35 | 0.03 | 35 | 0.14 | 41 | 0.7 | 41 | 0.1 | 40 | 0.03 | 41 | 2.9 | 41 | 18.3 | 41 | 0.6 |
| | 2018 | 56 | 1.3 | 56 | 1.8 | 51 | 0.5 | 51 | 0.02 | 51 | 0.03 | 61 | 0.7 | 61 | 0.07 | 60 | 0.03 | 61 | 2.4 | 61 | 16.9 | 61 | 0.6 |
| | 2019 | 59 | 0.9 | 59 | 1.8 | 59 | 0.5 | 59 | 0.04 | 59 | 0.08 | 61 | 0.7 | 61 | 0.05 | 58 | 0.01 | 61 | 2.3 | 61 | 10.1 | 61 | 0.6 |
| | 2020 | 56 | 1.3 | 56 | 1.8 | 54 | 1.2 | 54 | 0.08 | 54 | 0.06 | 60 | 0.6 | 60 | 0.09 | 59 | 0.03 | 60 | 2.1 | 60 | 18.5 | 60 | 0.7 |
| ODEQ Benchmarks | | 0.45 | | 0.2 | | 0.13 | | 0.03 | | 4 | | 0.2 | | 0.6 | | 0.08 | | 150 | | 90 | | 4 | |

APPENDIX 1H Air Toxics

Rural National Air Toxics Trends Site

| Pollutant | | Acet aldehyde | | Form aldehyde | | Benzene | | 1,3-butadiene | | Perchloro ethylene | | Arsenic ³ | | Cadmium ³ | | Lead ³ | | Mang anese ³ | | Nickel ³ | |
|-----------------------------------|---------------------------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|-------------------------|----------------|----------------------|----------------|
| Units | | (µg/m ³) | | (µg/m ³) | | (µg/m ³) | | (µg/m ³) | | (µg/m ³) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | | (ng/m ³) | |
| City/Site | Year | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average | Samples | Annual Average |
| La Grande Ash St. (LAS) | 2004 | 52 | 1.9 | 52 | 3.4 | 50 | 0.6 | 50 | <0.2 | 50 | <0.5 | 48 | 0.33 | 48 | 0.2 | 48 | 1.3 | 48 | 6.2 | 48 | < 1.0 |
| | 2005 | 52 | 1.8 | 56 | 2.6 | 55 | <0.3 | 55 | <0.2 | 55 | <0.7 | 60 | 0.33 | 60 | <0.1 | 60 | 1.5 | 60 | 5.7 | 60 | < 1.0 |
| | 2006 | 53 | 1.8 | 52 | 2.7 | 57 | 0.5 | 58 | <0.2 | 58 | <0.7 | 58 | 0.23 | 58 | <0.1 | 58 | 3.0 | 58 | 10.2 | 58 | < 1.0 |
| | 2007 | 53 | 1.4 | 52 | 2.1 | 54 | 0.8 | 55 | <0.4 | 55 | <0.7 | 56 | 0.19 | 56 | <0.1 | 56 | 1.4 | 56 | 8.2 | 56 | < 1.0 |
| | 2008 | 48 | 1.3 | 51 | 1.7 | 52 | 0.5 | 54 | <0.4 | 54 | <0.7 | 51 | 0.21 | 51 | <0.1 | 51 | < 1.0 | 51 | 4.8 | 51 | < 1.0 |
| | 2009 | 58 | 1.4 | 58 | 1.8 | 42 | 0.7 | 47 | <0.4 | 47 | <0.3 | 53 | 0.14 | 53 | <0.1 | 53 | < 1.0 | 53 | 5.0 | 53 | < 1.0 |
| | 2010 | 52 | 1.4 | 53 | 1.9 | 51 | 0.5 | 46 | <0.2 | 50 | <0.3 | 55 | 0.13 | 55 | <0.1 | 55 | < 1.0 | 55 | 3.7 | 55 | < 1.0 |
| | 2011 | 56 | 1.7 | 56 | 2.2 | 57 | 0.9 | 57 | 0.09 | 57 | <0.3 | 59 | 0.16 | 56 | <0.1 | 56 | < 1.0 | 56 | 4.0 | 56 | < 1.0 |
| | 2012 | 55 | 2.0 | 55 | 2.5 | 55 | 0.9 | 55 | 0.09 | 55 | <0.1 | 59 | 0.18 | 59 | <0.1 | 59 | < 1.0 | 59 | 5.2 | 59 | < 1.0 |
| | 2013 | 60 | 2.0 | 60 | 2.6 | 54 | 0.6 | 57 | 0.1 | 57 | 0.17 | 62 | 0.22 | 62 | 0.05 | 62 | 0.7 | 62 | 4.2 | 62 | < 0.3 |
| | *1 outlier removed from average | 2014 | 58 | 1.7 | 58 | 2.5 | 50 | 0.5 | 50 | 0.1 | 49 | 0.15* | 60 | 0.25 | 60 | <0.03 | 60 | 0.7 | 60 | 4.3 | 60 |
| 2015 | 51 | 1.8 | 51 | 2.4 | 40 | 0.5 | 42 | 0.1 | 42 | 0.19 | 59 | 0.21 | 59 | <0.03 | 60 | 0.8 | 60 | 4.8 | 60 | < 0.3 | |
| 2016 | 59 | 1.8 | 59 | 2.5 | 58 | 0.4 | 49 | 0.04 | 58 | 0.04 | 60 | 0.16 | 60 | 0.014 | 60 | 0.7 | 60 | 5.5 | 60 | <0.4 | |
| N. Hall Ave. & E N St. (LHN) | 2017 | 61 | 2.1 | 61 | 2.9 | 58 | 0.4 | 58 | 0.02 | 58 | 0.2 | 56 | 0.17 | 56 | 0.02 | 56 | 0.8 | 56 | 6.1 | 56 | 0.4 |
| | 2018 | 59 | 1.6 | 59 | 2.3 | 58 | 0.3 | 58 | 0.01 | 58 | 0.004 | 61 | 0.24 | 60 | 0.03 | 61 | 1.1 | 61 | 6.8 | 61 | 0.4 |
| | 2019 | 47 | 1.5 | 47 | 2.4 | 41 | 0.6 | 41 | 0.05 | 41 | 0.2 | 61 | 0.23 | 61 | 0.03 | 61 | 1.2 | 61 | 5.0 | 61 | 0.3 |
| | 2020 | 57 | 1.3 | 57 | 2.0 | 55 | 0.6 | 55 | 0.05 | 55 | 0.1 | 58 | 0.16 | 58 | 0.03 | 58 | 0.7 | 58 | 5.5 | 58 | 0.3 |
| ODEQ Benchmarks | | 0.45 | | 0.2 | | 0.13 | | 0.03 | | 4 | | 0.2 | | 0.6 | | 150 | | 90 | | 4 | |

APPENDIX 1H Air Toxics

DEQ analyzes more air toxics than are shown in the table above. Here is list of the main air toxics and some additional compounds not classified as air toxics that DEQ measures. Summary data for all air toxics can be found in EPA's "air data" web site which you can access from EPA AIRNow.

| Carbonyl | | PAH | |
|------------------------------|--------|------------------------|--------|
| Parameter | CAS # | Parameter | CAS # |
| Acetaldehyde | 75070 | Acenaphthene | 83329 |
| Benzaldehyde | 100527 | Acenaphthylene | 208968 |
| Butyraldehyde | 123728 | Anthracene | 120127 |
| Crotonaldehyde | 123739 | Benzo(a)anthracene | 56553 |
| Formaldehyde | 50000 | Benzo(a)pyrene | 50328 |
| Heptaldehyde | 111717 | Benzo(a)pyrene-d12 | |
| Hexaldehyde | 66251 | Benzo(b)fluoranthene | 205992 |
| Isovaleraldehyde | 590863 | Benzo(e)pyrene | 197972 |
| m-Tolualdehyde | 620235 | Benzo(g,h,i)perylene | 191242 |
| o-Tolualdehyde | 529204 | Benzo(k)fluoranthene | 207089 |
| Propionaldehyde | 123386 | Chrysene | 218019 |
| p-Tolualdehyde | 104870 | Coronene | 191071 |
| Valeraldehyde | 110623 | Dibenzo(a,h)anthracene | 53703 |
| Metals | | Dibenzofuran | 132649 |
| Antimony, Total | | Dibenzothiophene | 132650 |
| Arsenic, Total | | Fluoranthene | 206440 |
| Beryllium, Total | | Fluoranthene-d10 | |
| Cadmium, Total | | Fluorene | 86737 |
| Chromium, Total | | Fluorene-d10 | |
| Cobalt, Total | | Indeno(1,2,3-cd)pyrene | 193395 |
| Hexavalent Chromium [Cr(VI)] | | Naphthalene | 91203 |
| Lead, Total | | Perylene | 198550 |
| Manganese, Total | | Phenanthrene | 85018 |
| Nickel, Total | | Pyrene | 129000 |
| Selenium, Total | | Pyrene-d10 | |

APPENDIX 1H Air Toxics

| VOC | | | |
|-------------------------------|--------------------|---------------------------------------|----------|
| Parameter | CAS # | Parameter | CAS # |
| 1,1,1-Trichloroethane | 71556 | Carbon disulfide | 75150 |
| 1,1,2,2-Tetrachloroethane | 79345 | Carbon tetrachloride | 56235 |
| 1,1,2-Trichloroethane | 79005 | Chlorobenzene | 108907 |
| 1,1-Dichloroethane | 75343 | Chloroethane | 75003 |
| 1,1-Dichloroethylene | 75354 | Chloroform | 67663 |
| 1,2,4-Trichlorobenzene | 120821 | Chloromethane | 74873 |
| 1,2,4-Trimethylbenzene | 95636 | cis-1,2-Dichloroethene | 156592 |
| 1,2-Dibromoethane (EDB) | 106934 | cis-1,3-Dichloropropene | 10061015 |
| 1,2-Dichlorobenzene | 95501 | Cyclohexane | 110827 |
| 1,2-Dichloroethane (EDC) | 107062 | Dibromochloromethane | 124481 |
| 1,2-Dichloropropane | 78875 | Dichlorodifluoromethane (Freon 12) | 75718 |
| O-Xylene | 95476 | Dichlorotetrafluoroethane (Freon 114) | 76142 |
| 1,3,5-Trimethylbenzene | 108678 | Ethylbenzene | 100414 |
| 1,3-Butadiene | 106990 | Hexachloro-1,3-butadiene | 87683 |
| 1,3-Dichlorobenzene | 541731 | Isopropanol | 67630 |
| p-Xylene + m-Xylene | 106423 + 108383 | Methyl tert-butyl ether (MTBE) | 1634044 |
| 2,5-Dimethylbenzaldehyde | 5779942 | Methylene chloride | 75092 |
| 2-Butanone (MEK) | 78933 | Methylmethacrylate | 80626 |
| Chloroprene | 126998 | n-Heptane | 142825 |
| 2-Hexanone | 591786 | n-Hexane | 110543 |
| 4-Ethyltoluene | 622968 | 1,4-Dichlorobenzene | 106467 |
| Methyl Isobutyl Ketone (MIBK) | 108101 | Perchloroethylene (Perc) | 127184 |
| Acetonitrile | 75058 | Styrene | 100425 |
| Acrolein | 107028 | Tetrahydrofuran | 109999 |
| Acrylonitrile | 107131 | Toluene | 108883 |
| Benzene | 71432 | trans-1,2-Dichloroethene | 156605 |
| Benzyl chloride | 100447 | trans-1,3-Dichloropropene | 10061026 |
| Bromodichloromethane | 75274 | Trichloroethylene | 79016 |
| Bromofluorobenzene | 460004 | Trichlorofluoromethane (Freon 11) | 75694 |
| Bromoform | 75252 | Trichlorotrifluoroethane (Freon 113) | 76131 |
| Bromomethane | 74839 | Vinyl chloride | 75014 |

APPENDIX 2 Oregon Ambient Air Monitoring Network

The following tables and map describe the air quality monitoring network.
The following abbreviations are used in the network location tables and maps:

| | |
|-----------------|---|
| BP | Barometric pressure |
| CO | Carbon monoxide |
| DT | Delta temperature (inversion indicator) |
| HAPS | Air Toxics (Hazardous Air Pollutants) |
| IMPROVE | EPA visibility program |
| Lead | Lead sampling |
| NADP | National Atmospheric Deposition Program |
| NO ₂ | Nitrogen dioxide |
| O ₃ | Ozone |
| PM2.5 | Fine particulate (2.5 microns) based on filter sampling |
| PM2.5 Estimate | PM2.5 estimate based on light scattering. |
| PM2.5 Spec | PM2.5 chemically speciated |
| PM10 | Fine particulate (10 micron) |
| RH | Relative humidity |
| SO ₂ | Sulfur dioxide |
| SR | Solar radiation |
| Temp | Temperature |
| WS/WD | Wind direction and speed |

Table 12. Oregon Ambient Air Monitoring Network.

| City | Address | Site Code | EPA# | SO ₂ | CO | NO ₂ | Ozone | PM2.5 | PM2.5 Est | PM2.5 Spec | PM10 | HAPS | Lead | WS/WD | TEMP | DT | BP | RH | SR |
|----------------------|------------------------|-----------|-----------|-----------------|----|-----------------|-------|-------|-----------|------------|------|------|------|-------|------|----|----|----|----|
| Albany | Calapooia School | ACS | 410430009 | | | | | | x | | | | | | | | | | |
| Applegate | Provolt | PSO | 410330011 | | | | | | x | | | | | | | | | | |
| Bend | Bend Pump Station | BPS | 410170120 | | | | | | x | | | | | | | | | | |
| | Bend High School | BEE | 410170123 | | | | | | x | | x | | | | | | | | |
| | Road Department | BRD | 410140121 | | | | | | | | | | x | x | | | x | x | |
| Baker City | Forest Service | BFS | 410010004 | | | | | | x | | | | | | | | | | |
| Brookings | Coos Forest PA | BDF | 410150002 | | | | | | x | | | | | | | | | | |
| Burns | Washington St. | BWS | 410250003 | | | | | x | x | x | | | | x | x | | x | | |
| Cave Junction | USFS Station | CJFS | 410330036 | | | | | | x | | | | | | | | | | |
| Chiloquin | Duke Dr | CDD | 410352040 | | | | | | x | | | | | | | | | | |
| Coos Bay | Marshfield HS | CBM | 410110003 | | | | | | x | | | | | | | | | | |
| Corvallis | FD #3, Circle Blvd | CCB | 410030013 | | | | | | x | | | | | | | | | | |
| | EPA ORD Office | CJT | 410030014 | | | | | | x | | | | | | | | | | |
| Cottage Grove | City Shops | CGC | 410399004 | | | | | x | x | | | | | | | | | | |
| Crater Lake | Lodge at Rim | CLM | 410351002 | | | | | | x | | | | | | | | | | |
| Dallas | LeCreole Middle Sch | DLM | 410530004 | | | | | | x | | | | | | | | | | |
| Detroit Lake | USFS Station | DFS | 410470123 | | | | | | x | | | | | | | | | | |
| Eugene (Saginaw) | Pacific Highway 99N | E99 | 410390059 | | | | | x | x | | x | | | | | | | | |
| | Amazon Park | AMZ | 410390060 | | | | x | x | x | | | | | | | | | | |
| | Wilkes Drive | EWD | 410390101 | | | | | | x | | | | | x | | | | | |
| | Delight Valley Road | SAG | 410391007 | | | | x | | | | | | | | | | | | |
| Enterprise | Forest Service | EFS | 410630001 | | | | | | x | | | | | | | | | | |
| Estacada | Clackamas River Sch | ECR | 410050011 | | | | | | x | | | | | | | | | | |
| Florence | Forestry Department | FDL | 410390100 | | | | | | x | | | | | | | | | | |
| Grants Pass | Parkside School | GPP | 410330114 | | | | | x | x | | | | | x | x | | | | |
| Hermiston | Municipal Airport | HMA | 410591003 | | | | x | x | | | | | | x | x | | | | |
| Hood River | WS FD #2 | HRF | 410270001 | | | | | | x | | | | | | | | | | |
| John Day | Davidson Street | JDD | 410230002 | | | | | | x | | | | | | | | | | |
| Klamath Falls | Peterson School | KFP | 410350004 | | | | | x | x | | | | | x | x | x | x | | |
| La Grande (Cove) | N Hall Ave & E N St | LHN | 410610123 | | | | | | x | | x | x | x | x | x | | x | x | |
| | City Hall | CCH | 410610120 | | | | | | x | | | | | x | | | | | |
| Lakeview | Center & M Streets | LCM | 410370001 | | | | | x | x | | | | | x | x | | x | | |
| La Pine | Rural Fire Station 103 | LFD | 410172002 | | | | | | x | | | | | | | | | | |
| Lyons | Mari-lynn School | LMS | 410432003 | | | | | | x | | | | | | | | | | |
| Madras | Westside School | MWS | 410310007 | | | | | | x | | | | | | | | | | |
| Medford (Ashland) | Rapp Rd Talent | TAL | 410290201 | | | | x | x | | | | | | | | | | | |
| | Rossanley Drive | MTV | 410291002 | | | | | | | | | | | x | x | x | x | x | x |
| | Welch & Jackson | MWJ | 410292129 | | | | | x | x | | x | x | | | | | | | |
| | Fire Department | AFD | 410290203 | | | | | | x | | | | | | | | | | |

Oregon Ambient Air Monitoring Network. (Continued)

| City | Address | Site Code | EPA# | SO2 | CO | NO2 | Ozone | PM2.5 | PM2.5 Est | PM2.5 Spec | PM10 | HAPS | Lead | WS/WD | TEMP | DT | BP | RH | SR |
|-------------------|-----------------------------------|-----------|-----------|-----|----|-----|-------|-------|-----------|------------|------|------|------|-------|------|----|----|----|----|
| Mill City | High School | MCS | 410430104 | | | | | | x | | | | | | | | | | |
| Mt. Hood | Multorpor | MUL | 410050102 | | | | | | x | | | | | | | | | | |
| Oakridge | School Street | OAK | 410392013 | | | | | x | x | | x | | | x | | | | | |
| Ontario | May Roberts | OMR | 410450001 | | | | | | x | | | | | | | | | | |
| Pendleton | SW Marshall | PMC | 410590121 | | | | | | x | | | | | | | | | | |
| Portland Metro | 57 th & SE | SEL | 410510080 | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | x |
| | Tualatin – I-5 | TBC | 410670005 | | x | x | x | x | x | | | | | x | x | | | | x |
| | Humboldt School | PHS | 410512010 | | | | | | | | x | x | x | | | | | | |
| | Jefferson High | PJH | 410511191 | | | | | | | | | | | | x | | | | |
| | (Beaverton) Highland Park | BHP | 410670111 | | | | | | x | | | | | | | | | | |
| | (Carus) Spangler Rd. | SPR | 410050004 | | | | x | | x | | | | | x | x | | | | |
| | (Hillsboro) NE Grant Street | HHF | 410670004 | | | | | x | x | | | x | x | | | | | | |
| | (Forest Grove) Pacific University | FGP | 410670006 | | | | | | x | | | | | | | | | | |
| | (Gresham) Centennial HS | GCH | 410510031 | | | | | | x | | | | | | | | | | |
| | (Sauvie Is) NW Sauvie Island | SIS | 410090004 | | | | x | | x | | | | | x | x | | | | |
| Prineville | SE Court Street | PDP | 410130100 | | | | | x | x | | | | | x | x | | x | x | x |
| Redmond | Redmond HS | RHS | 410171001 | | | | | | x | | | | | | | | | | |
| Roseburg | NW Garden | RGV | 410190002 | | | | | | x | | | | | | | | | | |
| | Douglas Co. FD | RFD | 410190004 | | | | | | x | | | | | | | | | | |
| Salem (Turner) | Salem State Hosp. | SSH | 410470041 | | | | x | | x | | | | | | | | | | |
| | Cascade Jr. High | CJH | 410470004 | | | | x | | | | | | | x | x | | | | |
| Shady Cove | Shady Cove | SCS | 410290019 | | | | | | x | | | | | | | | | | |
| Sisters | USFS office | SFS | 410170004 | | | | | | x | | | | | | | | | | |
| Springfield | City Hall | SCH | 410391009 | | | | | | x | | | | | x | | | | | |
| Sweet Home | Fire Department | SFD | 410432002 | | | | | | x | | | | | | | | | | |
| Tillamook | ODF office | TDF | 410570001 | | | | | | x | | | | | | | | | | |
| The Dalles | Cherry Heights | TDC | 410650007 | | | | | | x | | | | | | | | | | |

Table 13. Oregon Ambient Air Monitoring Visibility and Forest Health Network.

| Region | Location | EPA & IMPROVE Code | Neph | IMPROVE | WS/WD |
|---|----------------|--------------------|------|---------|-------|
| Visibility Sites | | | | | |
| Crater Lake NP | Park HQ | CRLA | x | x | x |
| Eagle Cap Wild. | Strawberry Mt. | STAR | | x | |
| Kalmiopsis Wild. | Kalmiopsis | KALM | | x | |
| Mt Hood Wild. | Multopor | 410050102/ MOHO | x | x | x |
| Three Sisters Wild. | Three Sisters | THIS | | x | |
| Forest Health Sites (funded by USFS & BLM) | | | | | |
| Walla Walla -Whitman NF | Baker City | 410010003 | x | | |
| Malheur & Ochoco NF | Burns | 410250003 | x | | |
| Walla Walla-Whitman NF | Enterprise | 410630001 | x | | |
| Siskiyou NF | Grants Pass | 410330114 | x | | |
| Siskiyou NF | Cave Junction | 410330036 | x | | |
| Malheur NF | John Day | 410230002 | x | | |
| Winema, Fremont NF | Klamath Falls | 410350004 | x | | |
| Siskiyou NF | Provolt | 410330011 | x | | |
| | Roseburg | 410190002 | x | | |
| Rogue River NF | Shady Cove | 410290019 | x | | |
| | Sisters | 410170004 | x | | |
| Ag Burning Sites | | | | | |
| Willamette Valley | Carus, | 410050004 | x | | x |
| Willamette Valley | Silverton | 410470007 | x | | x |
| Willamette Valley | Lyons | 410432003 | x | | |
| Willamette Valley | Mill City | 410430104 | x | | |
| Willamette Valley | Detroit Lake | 410470123 | x | | |
| Willamette Valley | Salem | 410470041 | x | | |
| Union County | Cove | 410610120 | x | | x |

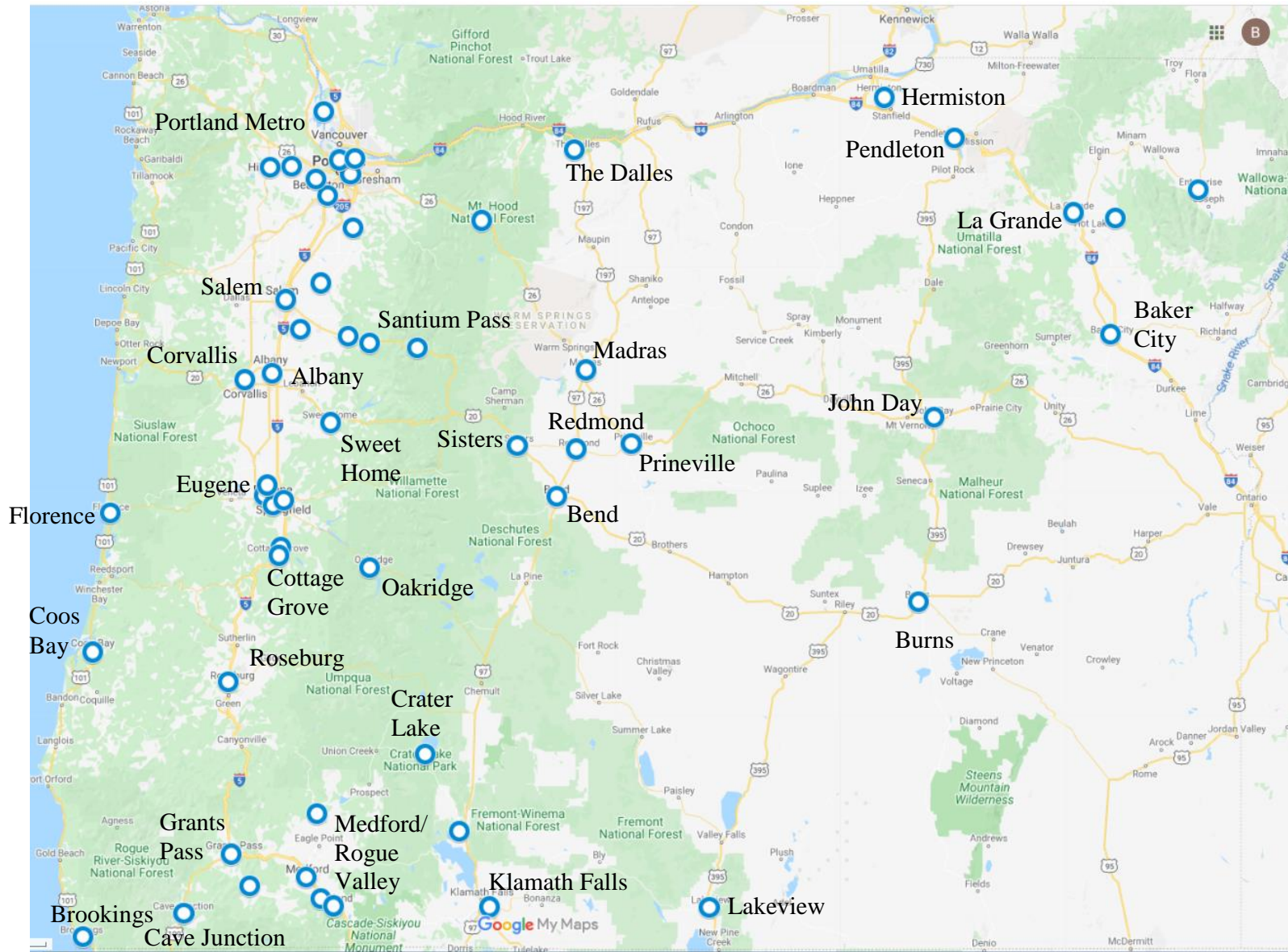


Figure 100. 2020 Ambient Air Quality Monitoring Network.

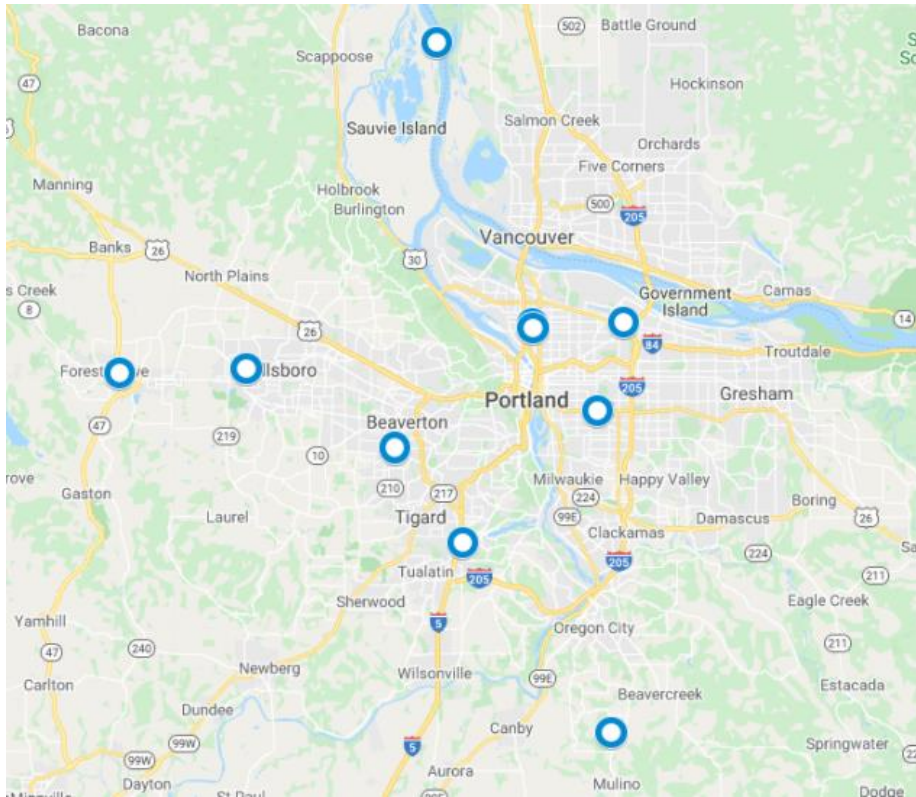


Figure 101. 2020 Portland Metro Ambient Air Quality Monitoring Network

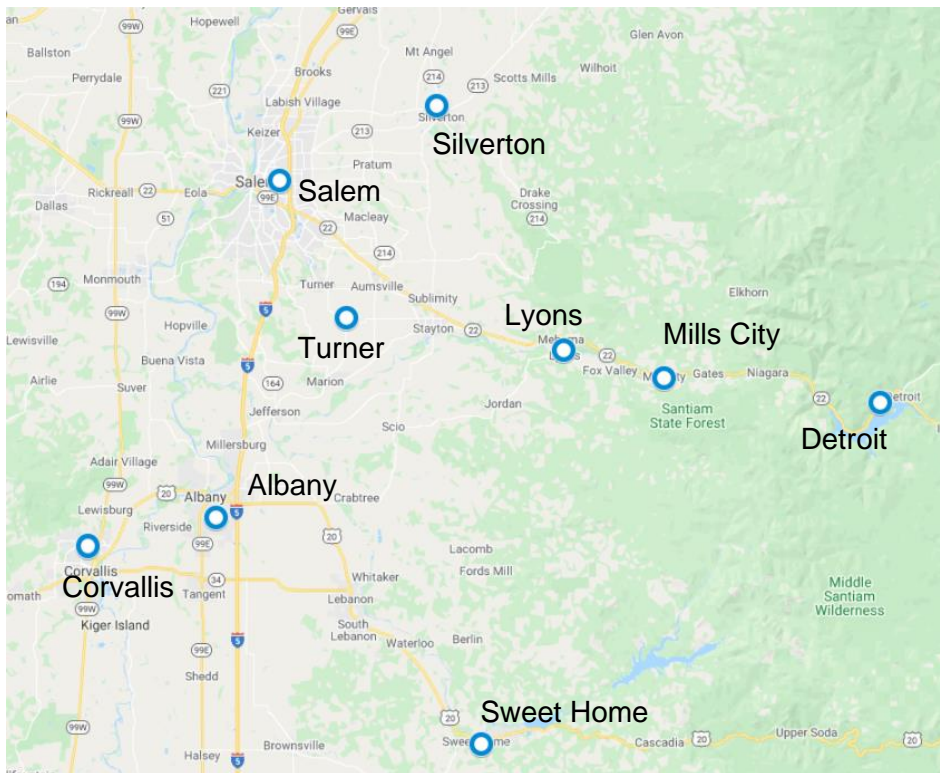


Figure 102. 2020 Mid Willamette Valley Ambient Air Quality Monitoring Network

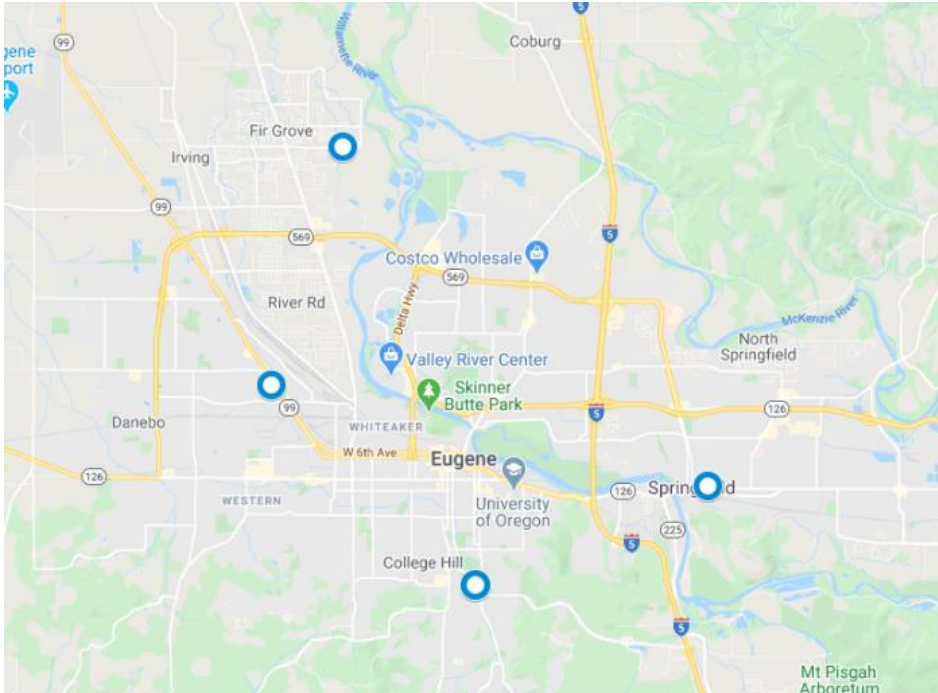


Figure 103. 2020 Eugene-Springfield Ambient Air Quality Monitoring Network

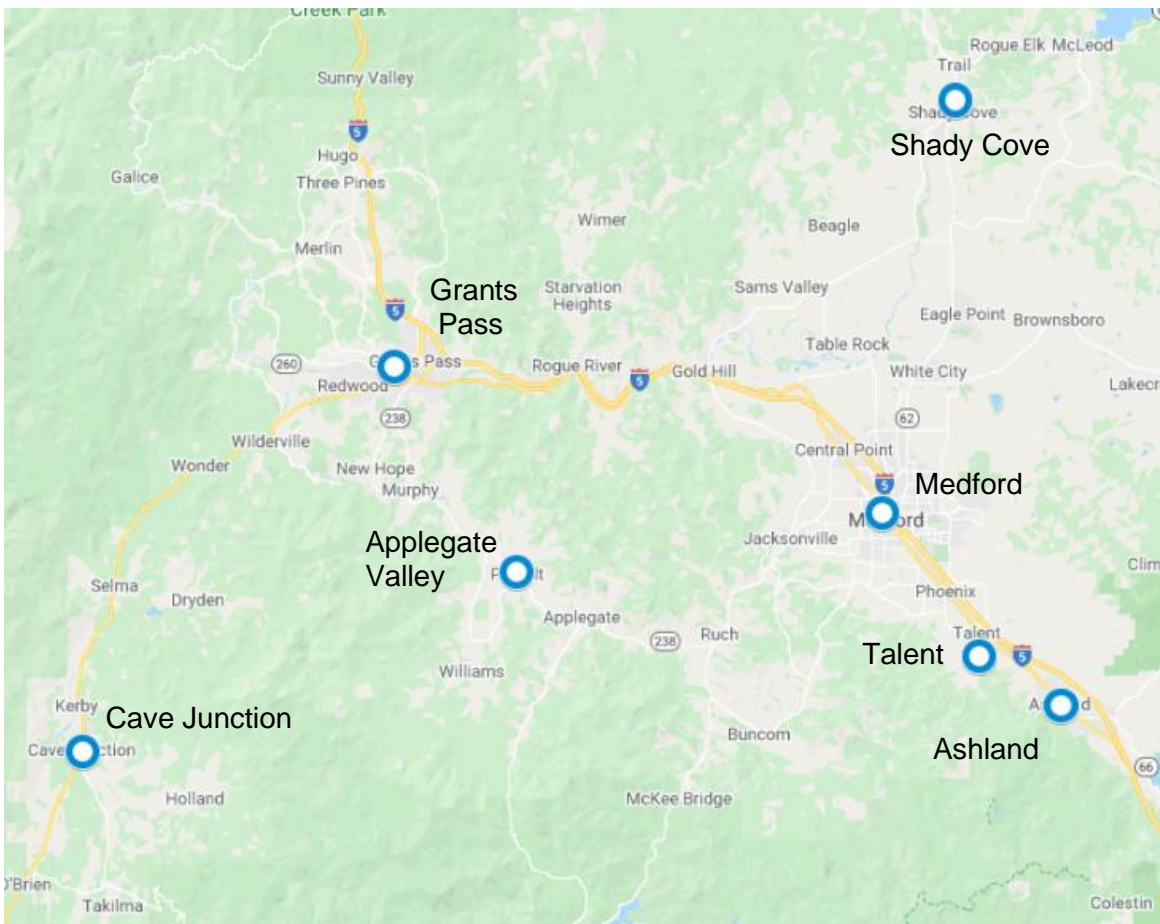


Figure 104. 2020 SW Oregon Ambient Air Quality Monitoring Network

Appendix 3 Data Quality

Quality Assurance

It is a policy of DEQ that all data used by the Department will be of sufficient quality to support the regulatory decisions based upon them. The minimum quality assurance requirements set by EPA are consistently met or exceeded by DEQ.

The continued assurance of data quality requires carrying out the two complimentary tasks discussed below:

Quality Control

The ambient air quality monitoring and sampling done by the Department follows a number of procedures intended to maintain the system within control. Standard operating procedures are documented and followed throughout. Federal Reference or Equivalent Methods are used wherever applicable. Care in using accepted methodology is what makes the Department's air quality data representative and also comparable to the data collected in other states. Routine preventative maintenance and periodic calibrations, using National Institute of Standards Technology gases or other primary standards, are used to achieve a database sufficient in quantity and quality to meet the needs of the Air Quality Program.

Quality Assessment

Evaluations of data quality are made in several ways. At least each quarter, DEQ conducts a system audit in which each sampling and monitoring site is visited to evaluate whether the site location is still appropriate, whether procedures are being followed, and to ensure that documentation is complete. Data quality is assessed in terms of precision, accuracy, and completeness. Precision, or repeatability, is determined by analysis of a known control sample or by replicate analyses. Accuracy, or the ability to measure a "true" value, is assessed by quarterly audits of analyzer performance or sampler flow. DEQ reports these assessments to EPA as summary statistics. Completeness is measured by the amount of data actually captured relative to the amount which ideally could have been collected. EPA also hires independent contractors to evaluate Oregon's sites for accuracy.

For more information, refer to [Quality Assurance Project Plan Air Quality Monitoring for the Measurement of Criteria Air Pollutants, April 2018 \(DEQ09-LAB-0004-QAP Version 2.0\)](#). This is available upon request. If you have further questions, contact us at: AQM.Questions@deq.state.or.us.