

Oregon Wildfire Response Protocol for Severe Smoke Episodes

June 10, 2020

The following agencies collaborated on this guidance document:

Oregon Department of Environmental Quality
Lane Regional Air Protection Authority
Oregon Health Authority
Oregon Occupational Safety and Health Administration
Oregon Emergency Management
Oregon Department of Forestry
U.S. Forest Service Pacific Northwest Region
U.S. DOI. Bureau of Bureau of Land Management OR State Office



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Based on an agreement between the participating agencies, the original version of this multi- agency document is maintained by DEQ.

All parties may collaborate on updates.

Revision History	Date	Revision Summary
Version 1.0	May 28, 2013	Protocol developed
Version 1.1	Aug. 27, 2013	Agencies added, contact list updated
Version 2.0	June 3, 2014	Revised Table 4 recommended health actions, changed Visibility Index to the 5-3-1 Visibility Index, added Wildfire Communications Plan section, added Indoor Air Monitoring section, added 211info Service information, updated contact list, added out-of-state contact list
Version 3.0 to Version 5.2	June 16, 2015 – June 29, 2017	Updated contact list, added conference call info, checked and updated all website links, updated appendices and added Appendix C and D, various corrections
Version 5.3	June 28, 2018	Updated links, contacts, and information involving DEQ's upgraded AQI, use of EPA AirNow system to guide public health
Version 6	June 7, 2019	Updated links, photographs, revised the call agenda, minor edits and corrections
Version 7	June 10, 2020	Formatting updates, revisions to contacts lists, COVID-19 response and impacts, and other minor edits and corrections

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

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1. Purpose

This protocol is intended to provide guidance for the local, state, tribal, and federal agencies in Oregon who respond to severe smoke episodes caused by large or long-duration wildfires and to ensure a coordinated response in order to mitigate impacts on public health. This protocol also identifies other organizations and partners with whom these agencies must coordinate with during these episodes. For all parties, this protocol highlights general duties and responsibilities, provides examples of agency actions and assistance needed, lists desired outcomes, and recommends public health actions based on the level and duration of smoke exposure. This protocol is focused specifically on air quality impacts and is intended to guide the use of resources in response to air quality due to major wildfires. It does not replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties.

2. Participating Agencies and Organizations

Table 1 identifies the participants that utilize this protocol. Participating agencies, organizations and offices include but are not limited to:

Table 1

AGENCY OR ORGANIZATION	
Federal	
1. Federal Land Managers: Includes USDA. Forest Service (USFS) and US DOI Bureau of Land Management (BLM)	USFS Region 6 office in Portland BLM, Oregon State Office in Portland
2. Federal Emergency Management Agency (FEMA)	Region 10 office Bothell, WA
3. Environmental Protection Agency (EPA)	Region 10 office in Seattle, WA
4. National Weather Service (NWS)	Boise, Medford, Portland and Pendleton offices
Tribal	
5. Tribal Government	Any tribal lands affected by wildfire smoke See <i>Appendix A</i> for contact information
National	
6. Air Resource Advisor (ARA)	Interagency Wildland Fire Air Quality Response Program
7. American Red Cross	Five regional offices in Oregon
State	
8. Oregon Department of Environmental Quality (DEQ)	DEQ Regional Offices and Headquarters in Portland
9. Oregon Health Authority (OHA)	Public Health Division in Portland
10. Oregon Emergency Management (OEM)	Offices in Salem
11. Oregon Occupational Safety and Health Administration (OSHA)	OR-OSHA Headquarters in Salem, field offices around the state
12. Oregon Department of Forestry (ODF)	ODF Headquarters in Salem, field offices around the state
13. State Fire Marshal (SFM)	Offices in Salem
14. Oregon Department of Transportation (ODOT)	Located in Salem and around the state
15. Oregon Governor’s Office	Located in Salem
16. Governor’s Office Regional Solutions Centers	Located in different regions of the state
17. 211info	Located in counties
Local	
18. Local Public Health Authorities (LPHA)	See <i>Appendix A</i> for locations and contact information
19. Lane Regional Air Protection Agency (LRAPA)	Located in Springfield, Lane County
20. School Districts	In counties affected by wildfire smoke

3. Agency Areas of Expertise and Involvement

Table 2 identifies the general areas of expertise of each agency or organization, as an indication of the assistance that would be provided and the level of involvement anticipated. While the level of involvement is relative to the severity of the wildfire smoke and the effect on air quality, some agencies would be expected to play more of a lead role, requiring more frequent daily communication and coordination, while other agencies would have a lesser role and would be involved on an as-needed basis.

Table 2

Contact Agency	General Area of Expertise/Assistance	Anticipated Level of Involvement
Federal		
1. Federal Land Managers (USFS and BLM)	Wildfire management on federal lands	Extensive – depends on size of fire, often the lead agency
2. FEMA	Federal response agency for natural disasters	Low – unless smoke levels and fire danger pose an extreme threat
3. EPA Region 10	Coordination with tribes, related to air quality on tribal lands/reservations	Low – unless smoke levels are affecting tribal lands/ reservations
4. NWS	Coordinates with federal, state and tribal governments in the Pacific Northwest Area (Oregon, Washington, Idaho) as it relates to weather	Extensive – disseminates air quality alerts on public websites, social media and other NWS communication systems
National		
5. Air Resource Advisor (ARA) – reports to Incident Command and/or Agency Administrator	Technical specialist who works with Incident Command Team during major wildfires and has expertise in air quality forecasting, monitoring, assist with public health messaging, transportation safety, and firefighter safety	Extensive – these positions provide assistance during incidents, and facilitate state response to air quality smoke impacts from major wildfires
6. American Red Cross	Provides aid and assistance for natural disasters, mass care support for sheltering, feeding and distributing relief supplies	Depends on severity of smoke impact and risk to public health
7. 211 info	Provides a statewide “go-to public phone number” for health information about wildfire smoke impacts	Depends on severity of smoke impact and risk to public health
Tribal		
8. Tribal Government	Coordinates with other agencies and national partners to determine health risk from smoke, need to cancel outdoor events, tribal safety issues, and notify local businesses. Shares information with community about health effects, mitigation, strategies, and notify public and media of health risks from smoke.	High – if wildfire impact is severe and smoke is affecting tribal lands/ reservations
State		
9. DEQ (For wildfire smoke affecting Lane County, contact LRAPA . See #19 above and Appendix A #13)	Monitors air quality in the state*, determining if health standards are being exceeded, identifying areas at greatest risk, public/media outreach and coordination with Federal Land Managers, OHA, ODF, county health departments, others as needed (*except Lane Co. see LRAPA)	Extensive – during periods of elevated smoke levels

Contact Agency	General Area of Expertise/Assistance	Anticipated Level of Involvement
10. OHA	Advises state, federal, tribal, and local authorities on health risk from smoke and potential public health interventions to mitigate it. Assists DEQ, Oregon-OSHA, and local and tribal health departments in communication and outreach. Assesses health impacts as indicated by the situation.	Extensive- depends on severity and extent to which local and tribal health officials need assistance, or whether a local or tribal health authority has primary jurisdiction in the affected areas
11. Oregon Military Department, OEM	Coordinates and facilitates emergency planning, with state emergency support function, and local emergency services agencies and organizations	Low – unless smoke levels and fire danger pose an extreme threat or there is a specific requests by local emergency management agencies for state assets. High – involvement if Governor declares state of emergency.
12. Oregon OSHA	Address health and safety, of workers and state/private firefighters, through enforcement and/or consultation. Can assist in evaluating air quality concerns.	Depends on severity and specific requests for worker protection
13. ODF	Provides wildfire smoke forecasts when needed throughout the state. (If fire on state forest lands, ODF is lead response agency, similar to No. 1 above.)	Extensive – primarily providing daily smoke forecasts
14. State Fire Marshal	Lead agency for response to structural protection for Conflagrations in Wildland Urban Interface Fires. Coordinates the same as ODF to provide the Incident Management Team (IMT) updates as needed to required agencies.	Low – primary response to fire danger and suppression, less on smoke risk
15. ODOT	Provides safety information for roads and possible closures, travel hazards. Provides traffic management where needed.	Moderate – provides safety updates on calls and provides similar information for the smoke blog
16. Oregon Governor’s Office	Coordinate with multiple agencies, especially if Governor declares a state of emergency	Low – updated on as-needed basis, unless state of emergency is declared
17. Governor’s Office, Regional Solution Centers	Coordinate with multiple agencies, especially if Governor declares a state of emergency	Low – updated on as-needed basis, unless state of emergency is declared
Local		
18. Local Public Health Authorities (LPHA)	Notify public and media of health risk from smoke. Coordinate with DEQ, OHA, FLMs and OR-OSHA determining health risk to community.	Extensive – during periods of unhealthy to hazardous smoke levels.
19. School Districts	With assistance, determine if student health is at risk, the need to cancel school events or announce school closures	Low – as-needed basis during periods of unhealthy to hazardous smoke levels
20. City and Local Government	With assistance help coordinate public safety, need to cancel outdoor events, notify local businesses, alert fire and police to the health risks.	Low –as-needed basis during periods of unhealthy to hazardous smoke levels

4. Agency Actions and Desired Outcomes

Table 3 describes the different actions needed during major wildfires, the agency or organization expected to take such action and the desired outcome.

Table 3

Action Needed	Lead Agency and Action Taken	Desired Outcome
1. Air Monitoring		
Measuring ambient air quality	Mostly DEQ as lead agency, but Air Resource Advisors (ARA) may provide additional monitoring equipment via national cache resources and assist in deployment and data collection	Ability to track ambient air quality levels in communities receiving the heaviest impact, and identify smoke-free areas where air quality is good
Indoor air quality exposure	Oregon OSHA is lead agency to evaluate air quality concerns for workers. DEQ and OHA can provide advice to schools	Ability to monitor indoor smoke levels in work environments and schools
2. Smoke Forecasting and Modeling		
Smoke weather forecast	ODF is the lead agency, with back-up and assistance from NWS Meteorologists as requested. DEQ assists in coordination. NWS can be contacted to provide “spot weather forecasts” for wildfire.	Provide advance notice of possible smoke movement and impacts, improve public notification, lower risk of public exposure to high smoke levels
Smoke modeling	ARAs and provide daily smoke outlooks for the area they monitor	Complementary to above
3. Issuing Health Warnings		
Provide public with frequent smoke updates on potential health risk and recommended public health actions via the web and media	Coordination between the Incident Management Team, DEQ, ARA, OHA, tribes, LPHA , local government, and 211 info. Assistance from federal land managers on fire status, and from ODF wildfire forecasting.	Frequent coordinated updates provided to the public via Oregon Smoke Blog, DEQ, OHA , local government websites, press releases and media outreach. 211 info is provided with up-to-date health-related information
Provide advisories to specific areas and on multiple agency media platforms	Coordination between NWS offices, DEQ, LRAPA, SWCAA , Dept. of Ecology, and other local air programs and local public health authorities	Discuss current AQ conditions, forecasted smoke travel, location of likely impacts and duration to coordinate advisory messaging on NWS platforms and AQ Agency information outlets
4. Website Management		
Updating the Oregon Smoke Blog and social media (see description under section 6)	Blog updated by DEQ Public Affairs staff on behalf of protocol participants, and local and tribal partners	Provide the public with comprehensive “one-stop” website/social media on wildfire status, air quality levels, health risk, cleaner air spaces, press releases and other critical info
Updating DEQ, OHA, ODF and local websites	Managed by respective agency and supplements the Oregon Smoke Blog	Complements the above website
5. Public Actions		

Action Needed	Lead Agency and Action Taken	Desired Outcome
Cancel or modify public events, outdoor and business activities	Decision made within affected jurisdiction, by local or city government or local and tribal public health authorities in consultation with local health authorities, and as needed, DEQ, ARA, OHA, federal land managers, and possibly OR-OSHA.	Prompt action taken, via notification of media, 211 info, and posting info on Oregon Smoke Blog and other websites
Consult with schools on limited hours or closure. Decisions about protecting schools or other public buildings from smoke intrusion	Decision made within affected jurisdiction, by local or tribal public health authorities, or city government in consultation with OHA, ARA, local public health, DEQ, or OR-OSHA as needed.	Identification of measures to protect schools and users of public buildings from smoke
Set up general population shelters	Red Cross may support the setup and management of general population shelters based on decisions by local health officials.	When determined necessary, general population shelters will be established and opened in coordination with local public health authority and emergency management
Establish or identify public cleaner air spaces	Decisions made within affected jurisdiction, by local or tribal public health authorities in consultation with DEQ, ARA OHA, or OR-OSHA as needed.	When determined necessary, prompt action taken to set up or identify cleaner air spaces, using guidance for “Identification of Cleaner Air Spaces for Protection from Wildfire Smoke” https://www.oregon.gov/oha/PH/PR/EPAREDNESS/PREPARE/Documents/IdentificationOfCleanAirShelters.pdf
Recommended evacuation/relocation of sensitive populations or populations in general	Decision made at local level, by health officials and tribal/local government (Sheriff or local emergency management), OEM , in consultation with DEQ, ARA, OHA, federal land managers and possibly OR-OSHA.	Prompt action taken if dangerous smoke levels are expected to persist for a prolonged period. Requires close communication with DEQ, OHA, federal land managers, OEM, OR-OSHA, 211 info, and possibly Red Cross, State Fire Marshal and State Police.

5. Recommended Public Health Actions, Based on Level and Anticipated Duration of Smoke Exposure

Wildfire smoke is a mixture of gases and fine particles that can irritate eyes and respiratory systems, and worsen chronic heart and respiratory diseases. The quantity and duration of smoke exposure, as well as a person’s age and degree of susceptibility, play a role in determining whether or not someone will experience smoke-related health problems. Persons with pre-existing health conditions such as asthma or other chronic respiratory conditions and cardiovascular disease, people older than 65 years of age, infants and children, pregnant women, and smokers are particularly sensitive to smoke.

Particulate matter in smoke poses the greatest risk to public health. The potential health effects vary depending on the size of the particles and composition of the smoke. Particles larger than 10 micrometers usually irritate only the eyes, nose and throat. Particles smaller than 2.5 micrometers (PM_{2.5}) can be inhaled deeply into the lungs and enter

the bloodstream, increasing the risk of cardiovascular and respiratory problems. When smoke levels are high, even healthy people may experience symptoms.

Table 4 is designed for use by affected jurisdictions in consultation with the Oregon Department of Environmental Quality, Oregon Health Authority and other agencies that are parties to this protocol. The table identifies recommended public health actions to be taken, based on the intensity and expected duration of smoke exposure. The Air Quality Index levels in the table are based on the U.S. Environmental Protection Agency’s NowCast method and integrated into the AirNow network. They take into account the levels of key air pollutants over the prior 12 hours, as well as the most recent trends if increasing or decreasing rapidly. Decisions about which public health actions to recommend would be based on monitoring data and the projected smoke duration. The duration of smoke exposure noted in the table uses a cut-off of twenty-four hours as the basis for two sets of recommended health actions. This is because there is some evidence that sheltering-in-place (staying indoors with windows and doors closed) offers some protection in the first 24 hours, but there is minimal evidence for benefit beyond that.

Recommendations in **Table 4** are cumulative. For each level and duration of exposure, unless the listed actions supersede previous ones, the recommendations above and to the left still apply.

In the absence of any PM_{2.5} monitoring data, a visual evaluation can be made by using the visibility index (based on the viewing distance) in the column next to the Air Quality Index category. This index is referred to as the “5-3-1 Visibility Index” for estimating smoke levels, as described further below **Table 4**. Both the Air Quality Index category and 5-3-1 Visibility Index are intended to be used together to identify the public health risk and mitigation actions.

Table 4

Air Quality Index Category	5-3-1 Visibility Index ¹	Recommended Public Health Actions	
		Projected Smoke Exposure Under 24 Hours	Projected Smoke Exposure Over 24 Hours
Good/Green (0-50)	> 5 Miles with no noticeable haze in the air	<ul style="list-style-type: none"> • If smoke event is forecast in your area we suggest reviewing the following: this Protocol, the Crisis and Emergency Risk Communication Toolkit for Wildfires², Frequently Asked Questions about Wildfire Smoke and Public Health document, and more health tips on the Oregon Public Health Division webpage.² • The Oregon Smoke Blog has information about the latest air quality and other wildfire information: http://oregonsmoke.blogspot.com 	
Moderate/Yellow (51-100)	5-15 Miles with noticeable haze in the air	<ul style="list-style-type: none"> • Distribute information (i.e., FAQs²) to public health partners and the public • Identify and provide information to vulnerable populations • Refer people to Oregon Smoke Blog for more information • Recommend sensitive groups use an air cleaner at home during wildfires² 	<i>Follow recommended actions to the left and above, plus:</i> <ul style="list-style-type: none"> • Respond to media inquiries. (Use the Crisis and Emergency Risk Communication toolkit² for guidance)
Unhealthy for Sensitive Groups/ Orange (101-150)	3-5 Miles	<i>Above, plus:</i> <ul style="list-style-type: none"> • Issue a press release, outlining sensitive groups and encouraging them to reduce exposure. (Use the Crisis and Emergency Risk Communication toolkit and FAQs² document for guidance.) • If school is in session or an outdoor function with children is planned, refer to Public Health Guidance for School Outdoor Activities during Wildfire Events² 	<i>Follow actions to the left & above, plus:</i> <ul style="list-style-type: none"> • In the release, include consideration of sensitive groups leaving area until air quality improves or if that is not feasible, using an air cleaner at home³ or spending time in a cleaner-air space in the community (e.g., air-conditioned library) • Consider opening cleaner-air spaces for sensitive groups [During COVID epidemic, accommodate physical distancing in such spaces.]

Air Quality Index Category	5-3-1 Visibility Index ¹	Recommended Public Health Actions	
		Projected Smoke Exposure Under 24 Hours	Projected Smoke Exposure Over 24 Hours
Unhealthy/Red (151-200)	1-3 Miles	<i>Above, plus:</i> <ul style="list-style-type: none"> • Consider cancelling public events held outdoors • Recommend public limit strenuous outdoor activities • Recommend that sensitive groups shelter in place using an air cleaner³ or consider leaving area until air quality improves. If they can't, recommend spending time in a cleaner-air space in the community (i.e., air conditioned library)² or sheltering in place at home 	<i>Follow recommended actions to the left and above, plus:</i> <ul style="list-style-type: none"> • Consider opening and publicizing cleaner-air spaces for sensitive groups [During COVID epidemic, accommodate physical distancing in such spaces.] • Review health benefits for sensitive groups of leaving area until air quality improves or using an air cleaner, and that intermittent time in cleaner-air spaces or sheltering in-place without an air cleaner might not be as protective
Very Unhealthy/Purple (201-300)	1 Mile	<i>Above, plus:</i> <ul style="list-style-type: none"> • Cancel outdoor events • If school is in session, measure indoor air quality if possible, discuss school closure with school administrators • Recommend shelter-in-place for general population • Share information about periods of improved air quality to guide essential outdoor activity and ventilation of dwellings (refer to FAQs² for more information) 	<i>Follow recommended actions to the left and above, plus:</i> <ul style="list-style-type: none"> • Open and publicize cleaner-air spaces for the general public [During COVID epidemic, accommodate physical distancing in such spaces.] • Share information about periods of improved air quality to guide essential outdoor activity and ventilation of dwellings (refer to FAQs² for more information)
Hazardous/Dark Purple (>300)	<1 Mile	<i>Above, plus:</i> <ul style="list-style-type: none"> • Recommend voluntary evacuation for sensitive groups 	<i>Follow recommended actions to the left and above, plus:</i> <ul style="list-style-type: none"> • Open and publicize cleaner-air spaces for the general public [During COVID epidemic, accommodate physical distancing in such spaces.]

¹For use of the **5-3-1 Visibility Index**, see below. The visibility test is not appropriate or effective in areas with high humidity, such as in Western Oregon near or on the coast, where water vapor (fog) may limit visibility.

² Crisis and Emergency Risk Communication Toolkit for Wildfires: www.healthoregon.org/cerc
The kit includes many tools including:

- FAQs in English, Spanish, Russian, Simplified Chinese, Somali, and Vietnamese.
- Important Public Health Guidance for School Outdoor Activities during Wildfire Events
- Guidance for clinicians “Clean Air at Home” a fact sheet about using air filters at home. Guidance for the Identification of Cleaner Air Shelters/Spaces for Protection from Wildfire Smoke.

³ Detailed guide to air cleaners (EPA): https://www3.epa.gov/airnow/smoke_fires/indoor-air-filtration-factsheet-508.pdf

Considerations that may influence implementation of the above mitigating actions:

- Clear/predictable fluctuations in air quality throughout the day can allow for modifications in the recommendations from the above table. For example, schools could delay recess instead of canceling it if there is a pattern of clearing in the afternoon. Also, if cleaner air spaces are provided, they should be open and available at the times of day that smoke is heaviest (i.e., may be at night).
- If smoke is predicted to be heavy for short durations (i.e., a few hours) the public health messaging should be to encourage people to avoid spending time outdoors during those times.
- Indoor air quality may be poor in older dwellings. These may include schools, community centers, nursing homes, or group homes. When air quality is “unhealthy” for an extended duration, it may be worthwhile to

assess indoor air quality for these and other types of facilities where people who are sensitive to smoke live or stay. OR-OSHA can assist employers in assessing indoor air quality.

- The ability of the jurisdiction to implement smoke guidance and COVID-19 guidance simultaneously. See the OHA COVID-19 webpage for more detailed information and guidance <https://govstatus.egov.com/OR-OHA-COVID-19>. It must be stressed that cloth masks and **non**-N95 facemasks do not remove fine particulate matter (PM2.5) from the air or from any smoke present.

Using the 5-3-1 visibility index

Since wildfires often occur in remote areas, air monitoring equipment may not be available. Smoke levels can rise and fall rapidly, depending on weather conditions including wind direction. Making visual observations using the 5-3-1 visibility index is a simple way to estimate smoke levels and what precautions to take, as noted in **Table 4**. While this method can be useful, you should always use caution and avoid going outside if visibility is limited, especially if you are sensitive to smoke.

The procedure for using this visibility index is as follows:

1. Determine the limit of your visual range by looking for distant targets or familiar landmarks such as mountains, mesas, hills, or buildings at known distances. The visual range is that point at which these targets are no longer visible. As a general rule of thumb: if you can clearly see the outlines of individual trees on the horizon it is generally less than five miles away.
2. Ideally, the viewing of any distant targets should be made with the sun behind you. Looking into the sun or at an angle increases the ability of sunlight to reflect off of the smoke, and thus making the visibility estimate less reliable and appear worse than it actually is.
 1. Once distance has been determined, follow this simple guide: If visibility is well over five miles and with no noticeable haze in the air, the air quality can be considered generally good.
 2. Even if visibility is five miles away but generally hazy, air quality could be considered moderate and beginning to deteriorate, and is generally healthy, except possibly for smoke-sensitive persons. The general public should avoid prolonged exposure if conditions are smoky to the point where visibility is closer to the five-mile range. See **Table 4**.
 3. If under five miles, the air quality is unhealthy for young children, adults over age 65, pregnant women, and people with heart and/or lung disease, asthma or other respiratory illness. These people should minimize outdoor activity. See **Table 4**.
 4. If under three miles, air quality is unhealthy for everyone. Young children, adults over age 65, pregnant women, and people with heart and/or lung disease, asthma or other respiratory illness should avoid all outdoor activities. See **Table 4**.
 5. If under one mile, the air quality is hazardous. Everyone should avoid all outdoor activities. See **Table 4**.

6. Oregon Smoke Blog Website

The Oregon Smoke Blog (www.oregonSmoke.blogspot.com) provides the public current air quality and health information on smoke impacts from wildfires. It features a map that shows active fires and current air quality readings from DEQ's network of air quality monitors and provides links to various agency websites and important guidance documents. This blog is managed by DEQ with assistance from the U.S. Forest Service. Federal and state agencies, and local and tribal public health authorities may contribute content through DEQ. DEQ also maintains a related Twitter account (@ORSmokeInfo) to distribute information. The schedule and contact information for DEQ Public Affairs staff during wildfire season can be found in **Appendix D**.

7. Annual Pre-Wildfire Season Conference Call

Each year prior to the summer wildfire season, in late May or early June, representatives from the participating agencies and organizations listed in this protocol will hold a conference call to prepare for the upcoming season. The purpose of this call is to review this protocol, discuss any changes or specific preparation needs for the summer, and update the contact list of staff expected to be using this protocol if major wildfires occur. This contact list is provided in *Appendix A*, or the main call distribution list will be used.

8. As-Needed Wildfire Conference Calls and Briefings

A daily or as-needed conference call will be held during major wildfires to brief the parties identified in this protocol. These conference calls and briefings can be requested by any party, with concurrence then sought out amongst ODF, OHA, DEQ, USFS and NWS as available, and will usually take place in the morning. Unless otherwise announced, conference calls will be held on an as-needed basis from 8:30-9:30 A.M.

The calls will include updates on the status of major on-going wildfires and provide an opportunity to discuss current air quality conditions, smoke forecasts, local health impacts, recommended public actions, communications, emergency actions (such as evacuation) and any other relevant topic. These briefings will include a wildfire status update from public information officers (if available) associated with Incident Command and any Air Resource Advisor assigned to the wildfire.

The lead agencies hosting these calls will be DEQ and OHA; with DEQ taking a larger role due to COVID-19 response availability. For major wildfires in neighboring states (Washington, Idaho, Nevada or California) that are affecting Oregon, the daily briefing may include the appropriate contacts in those states that have essential information. In situations where a smaller group conference call is needed, such as between state and local health officials to discuss specific local public health issues, or with DEQ to discuss air quality levels in areas being heavily affected by wildfire smoke, the calls will be convened as needed. Requests for such calls should be made to either DEQ or the OHA, depending on the primary topic of concern.

Below is an agenda outline for the calls. The order of the agenda may be changed to accommodate those who have time constraints. An email announcing the call will be sent by the call host to the participants the day before the call. Any participant who wishes to suggest additional discussion topics for the agenda should inform the host in advance. Unless previously arranged, discussions should be limited to the participating protocol entities.

Oregon Wildfire Conference Call, Briefings Agenda Example 8:30 - 9:30 a.m.

AGENDA	
Topic	Anticipated Discussion Leader
Group Introductions (may be limited to key participants for brevity) DEQ, ODF, USFS, ARAs, Tribes, OHA, OEM, Oregon OSHA and the Local Public Health Authority (LPHA)	Host
The current air quality situation using the state monitoring network and portable monitors	DEQ, ARAs
Fire and smoke forecast	ODF (primary), NWS (secondary)
Statewide smoke model (as available)	USFS / other (Blue Sky, HRRR and so forth)
The current fire situation (location, size, etc.) and maps showing fire locations and detail as available	Incident Command PIO, ARA, USFS staff
Any emergency issues for all to be aware?	OEM/ODOT/OHA/OSHA/Tribes/LPHA

Decision on whether to issue air quality advisory. Is additional community support needed?	DEQ with additional on-the ground input from tribal governments and LPHA
DEQ's plan for issuing advisory and news release. Do any affected counties or air agency partners want to be included/have a media contact on the release?	DEQ PIO
Special Issues – open discussion	All. Note that local entities are asked to route updates or questions through their local public health agency.
Need for additional calls with a smaller group or follow-on call between NWS and AQ agencies to determine AQ advisory dissemination, areas, duration? Set date and time of next call as needed	Host
Adjourn	Host

9. Air Quality Advisory Coordination with National Weather Service

The National Weather Service offices and air quality agencies in Oregon and Southwest Washington developed a procedure for the coordination of air quality events (advisories and alerts) and the associated messaging. Events which may cause need for a coordination call between the National Weather Service offices and air quality agencies include:

- Forest fires and associated transport of smoke
 - Air quality approaching unhealthy levels
 - Weather pattern conducive to deteriorating air quality
1. If during the Wildfire Smoke Response conference call the agencies determine further meteorological support is desired or the regulatory groups have decided to issue an air quality advisory, DEQ would organize a second conference call to include the National Weather Service for discussion of any additional meteorology, and primarily to coordinate dissemination (time, location, condition) of the advisory.
 2. During weekends if conditions improve to the point of good or a green AQI category and are expected to remain stable for an area with an existing advisory, the National Weather Service offices considering dropping or expiring the advisory will attempt to contact the responsible air quality agencies to evaluate the situation. If no contact can be made, the National Weather Service offices can proceed to stop messaging and drop the advisory from their dissemination systems. Also, if conditions are deteriorating to unhealthy levels over the weekend and there might be a need for air quality agencies to issue an advisory, either the National Weather Service offices or air quality agency point of contact can contact each other to coordinate the need for an air quality alert. The National Weather Service offices will not originate an advisory for smoke impacts on their own.
 3. The National Weather Service system of messaging includes web services, email distribution, social media, National Oceanic and Atmospheric Administration (NOAA) Port, NOAA Weather Wire and several others that reach the public, broadcast media, social media outlets, emergency managers, and many more. The air quality agencies agree to email the press release containing the air quality advisory message to the National Weather Service offices. The National Weather Service agrees to disseminate air quality advisories from the air quality agencies as a National Weather Service product. National Weather Service offices will give attribution to the air quality agency and also include a link to the air quality website in the product. The National Weather Service product in essence amplifies the message from the air quality agencies to further reach the public with important information involving weather.

10. Indoor Air Monitoring Equipment

Wildfire smoke can affect indoor air quality. Research has shown that when there are heavy outdoor smoke levels, a significant amount of smoke can still infiltrate indoors, even when windows and doors are closed. Many commercial buildings and schools mechanically draw in the outdoor air through air filtration systems. However, standard heating and cooling air filters will not remove most of the ultra-fine smoke particles. More information about the use of air filters, cleaners and other ways to reduce indoor smoke levels can be found in the document cited in section 11 below [Wildfire Smoke: A Guide for Public Officials \(2019\)](#).

There are different types of indoor air monitors that can be used to indicate the potential health risk when indoors. This monitoring equipment is generally focused on PM_{2.5}, but may also detect carbon monoxide and other toxic gases. Other features include measuring temperature and relative humidity. Indoor monitoring equipment is typically less expensive than outdoor equipment, is relatively low maintenance, and can provide the same real-time measurements in micrograms per cubic meter), via handheld or portable monitors. These monitors can be purchased, or in some cases rented, during wildfires. Contact DEQ for more information on the different types, availability and cost of this equipment. As noted in Table 3 of the protocol, DEQ is responsible for monitoring air quality outdoors, and does not have equipment for indoor air monitoring. For questions about employee health and possible indoor air monitoring in the workplace, contact an OR-OSHA field office ([Oregon OSHA Field Office](#)) or visit [OR-OSHA Wildfires: Addressing worker concerns](#).

11. Other References, Resources, and Links

Wildfire Smoke: A Guide for Public Officials. The smoke exposure levels listed in Table 4 are adapted from the 2019 guidance document [Wildfire Smoke: A Guide for Public Health Officials \(2019\)](#). This document is currently used in many states as a reference guide for how public agencies can best protect public health during wildfires.

In addition to providing background information on the composition of smoke, potential health effects, and recommended actions, it contains specific strategies on how to reduce smoke exposure, such as indoor air filters and cleaners, use of masks and respirators, setting up cleaner air spaces, and examples of public service announcements for wildfire. This document is referenced here as general guidance to provide additional information, and like this protocol, is not intended to replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties, nor does it represent a legally binding document.

Wildfire RWRelated Websites. In addition to the [Oregon Smoke Blog](#), these web links can provide current information on wildfire and smoke:

- **InciWeb (Incident Information System)** – information on fires in the nation and the Northwest: <https://inciweb.nwcg.gov/>
- **Northwest Coordination Center** – information on fires in the NW: <https://gacc.nifc.gov/nwcc/index.aspx>
- **Oregon Department of Forestry** – information on fires handled by ODF: <http://wildfireoregondeptofforestry.blogspot.com/>
- **National Weather Service** – information on air quality and smoke maps: <https://airquality.weather.gov/sectors/pacnorthwest.php>
- **RAPTOR** - Oregon Emergency Management’s real-time web mapping application allows the public to view incident data about wildfires, areas impacted by flooding, live weather radar, contact information for county emergency managers and more. <https://www.oregon.gov/oem/emops/Pages/RAPTOR.aspx>

Air Quality Related Websites:

- **Oregon DEQ Air Quality Index** and **OregonAir** smartphone app (current Oregon air quality conditions): <https://oraqi.deq.state.or.us/home/map>
- **AIRNow** – AQI and related information across the nation: <https://www.airnow.gov/>
- **Oregon DEQ – WsWildfires and Air QualityWebpage** Air Quality Webpage: <https://www.oregon.gov/deq/aq/Pages/Wildfires.aspx>

Webcams Websites:

- **Oregon Webcams.** The following are links to live webcams that can be used to view wildfire smoke conditions around the state. However, many are designed to show only traffic and road conditions, and do not provide very good image resolution for viewing smoke.
- **Oregon Department of Transportation Trip Check.** Has a custom feature that allows multiple webcams to be viewed on the same [page: www.tripcheck.com/Pages/CamerasEntry.asp](http://www.tripcheck.com/Pages/CamerasEntry.asp)
- **Northwest Webcams.** This website is a comprehensive list of all the webcams in Oregon. Note that some may no longer be operational, have broken links, or not good image quality:
<http://www.northwestwebcams.com/oregon-web-cams.shtm>

Map of Wildfire Risk Areas in Oregon. Here is a current ODF map on Significant Fire Potential (frequently updated): http://nfdrs.smkmgmt.com/sfp/expanded_sfp.htm and predicted national significant multi-month and 7-day significant fire potential: <https://www.predictiveservices.nifc.gov/outlooks/outlooks.htm>

Oregon Health Authority - Health Effects From Wildfire Smoke. The Oregon Health Authority maintains information to support communication about the health effects of wildfire smoke and strategies to minimize these effects.

The OHA Wildfires and Smoke webpage contains general information about wildfire smoke and health.
<http://public.health.oregon.gov/Preparedness/Prepare/Pages/PrepareForWildfire.aspx>

OHA Wildfire Smoke Crisis and Emergency Risk Communication Toolkit contains sample press releases, approved talking points, fact sheets, sample social media posts and more. It was developed for local and tribal health authorities to support clear, consistent and coordinated statewide public information during a severe smoke event. Updates to the kit can occur so check the Crisis and Emergency Risk Communication website throughout this season for updated materials. Located Materials are available in Spanish, Russian, Chinese, Vietnamese and Somali. Find it at healthoregon.org/cerc. See *Appendix E* for more specific information about smoke guidance as it related to COVID-19 response efforts.

12. Other Air Monitoring Networks, AQI Pages and Apps

We can now find online a few other air monitoring networks or sites showing AQI values. These are private networks or data displaying systems and can measure or show PM_{2.5} to varying degrees of accuracy. One network more known than others is the Purple Air network. It has good data once it has been adjusted, however, is generally not presented in an adjusted or corrected manner. It has been found in Oregon to read in 1.5 to 2 times higher than actual PM_{2.5} values. Viewing this data should be done in a cautious manner and using it for possible trending information (such as where smoke is and is it at relatively high concentrations or lower).

Other networks or AQI sites exist. One from China is known to be inaccurate for western Oregon, while one from Europe was more reasonable and incorporates data from existing monitors around the regions. Exercise caution when viewing other AQI apps or monitoring networks. Only the data represented on DEQ's website or the OregonAir app and as shown on the Smoke Blog should be taken to be valid.

13. Appendices

A. Current Agency Contact List. *Appendix A* of this protocol is a contact list of representatives from the agencies and organizations identified in this protocol. Annual updating of this contact list will be necessary, and should be conducted at the annual pre-wildfire season conference call, as noted in section. 7 above.

B. Examples of Wildfire Smoke Public Announcements. *Appendix B* of this protocol provides an example of DEQ's public announcement/press releases from prior years, which can be used as a guide for future announcements.

C. Monitoring Network in Oregon for PM_{2.5} AQI. The monitoring network and current data can be viewed on the ODEQ webpages as shown in the wildfire related websites link and the locations can be viewed in the appendix for general information. The locations of the various monitors for 2020 is shown here in *Appendix C*. Note that some of the PM 2.5 estimate monitors are being installed summer 2020 and may not show up on the DEQ AQ APP or our AQI monitoring web pages nor the wildfire blog for some time.

D. Oregon DEQ Public Affairs Schedule: Wildfire Season 2020. *Appendix D* of this protocol outlines the rotating schedule of Public Affairs Specialists assigned during the 2020 wildfire season.

E. COVID-19 and Wildfire Smoke: A 2020 Guide. *Appendix E* of this protocol outlines available resources and messaging around smoke guidance as it related to COVID-19 response efforts.

Appendix A.1 – Oregon Protocol Contact List

Agency/Organization	Staff Contact
<p>1. Federal Land Managers (USFS & BLM)</p>	<p>Rick Graw, Pacific Northwest Region, Air Quality Program Manager. 503-808-2918 (also serves as BLM contact) rgraw@fs.fed.us</p>
<p>2. Air Resource Advisor National Coordinator</p>	<p>n/a (if assigned to major wildfire event) Pete Lahm, Wildland Fire Air Quality Response Program (USFS) 202-205-1084, cell: 602-432-2614 plahm@fs.fed.us Pete.lahm@gmail.com</p>
<p>3. NWS</p>	<p>Medford Ryan Sandler, Warning Coordination Meteorologist 4003 Cirrus Drive, Medford, OR 97504 541-776-4303 ext. 223 ryan.sandler@noaa.gov www.weather.gov/Medford</p> <p>Please send all Air Quality Alerts to mfr.operations@noaa.gov or call 541-776-4326 or 541-773-1067.</p> <p>Portland Tyree Wilde, Warning Coordination Meteorologist NOAA’s National Weather Service 5241 NE 122nd Ave., Portland, Oregon 97230 503-326-2340 ext. 223, cell: 503-853-4121 tyree.wilde@noaa.gov</p> <p>Please send all Air Quality Alerts to pqr.ops@noaa.gov or call 503-326-2356.</p> <p>Pendleton Marcus Austin, Fire Weather Program Leader National Weather Service, Pendleton, Oregon 541-276-7832 ext 223 marcus.austin@noaa.gov</p> <p>To post air quality alerts, please call or send e-mail to: pdt.operations@noaa.gov</p> <p>Boise Jay Breidenbach, Warning Coordination Meteorologist (Administration) National Weather Service, Boise, Idaho 208-334-9861 ext. 223 jay.breidenbach@noaa.gov</p> <p>To post air quality alerts, please call or send e-mail to Boise Operations: boise.weather@noaa.gov 208-334-9518 or 208-334-9508</p>

4. American Red Cross	<p>Chad Carter, Regional Communications Director 971-978-9353 chad.carter@redcross.org</p> <p>To request Red Cross response assistance, contact the Red Cross Duty Officer: 1-888-680-1455 (duty officer)</p>
5. DEQ	<p>Peter Brewer, Air Quality Attainment and Wildfire Smoke Coordinator 541-633-2004, cell: 503-752-9374 peter.brewer@state.or.us</p> <p>Margaret Miller, Air Quality Planner, Headquarters 503-229-6278 Miller.Margaret@deq.state.or.us</p> <p>Tom Roick, Air Quality Monitoring Laboratory Manager (503) 693-5719, cell: 503-593-2705 roick.tom@deq.state.or.us</p> <p>Daniel Johnson, Air Quality Monitoring Section 503-693-5713, cell: 971-806-5323 johnson.daniel@deq.state.or.us</p> <p>Harry Esteve, Communications Manager 503-229-6484, cell: 503-951-3856 Esteve.Harry@deq.state.or.us</p> <p>Laura Gleim, Public Affairs, Bend Office, Eastern Region 541-633-2030, cell: 503-577-3697 gleim.laura@deq.state.or.us</p> <p>Dylan Darling, Public Affairs, Eugene Office, Western Region 541 686-7997, cell: 541-600-6119 Darling.dylan@deq.state.or.us</p> <p>Lauren Wirtis, Public Affairs, Portland Office, Northwest Region 503-229-6488, cell 503-568-3295 Wirtis.Lauren@deq.state.or.us</p> <p>Jennifer Flynt, Public Affairs, Headquarters 503-229-6585, cell: 503-730-5924 cell flynt.jennifer@deq.state.or.us</p> <p>Susan Mills, Public Affairs, Headquarters, social media 503-229-5579, cell: 503-956-9648 susan.mills@state.or.us</p> <p>Vacant, Meteorologist, DEQ Lab</p>
6. OHA	<p>Jamie Bash, Risk Communications Analyst 971-673-1394, cell: 503-754-3190 jamie.p.bash@state.or.us</p> <p>Richard Leman, Chief Medical Officer, Health Security Preparedness and Response 971-673-1089 richard.f.leman@state.or.us</p> <p>Danielle Brown 971-673-0570 danielle.y.brown@state.or.us</p>

	<p>Ali Hamade, Deputy State Epidemiologist, Environmental Toxicologist 971-673-5390 ali.k.hamade@state.or.us</p>
	<p>Kristen Darmody 971-888-3358 kristen.c.darmody@state.or.us</p>
7. Tribal Government and Indian Health Service	<p>Confederated Tribes of the Umatilla Indian Reservation Eli Harris, Natural Resources 541-429-7421 naturalresources@ctuir.org or eliharris@ctuir.org</p>
	<p>Confederated Tribes of Warm Springs Tim Outman, Air Quality Specialist 541-553-2016, cell 541-460-0305 tim.outman@ctwsbnr.org</p> <p>-----</p> <p>Matthew Ellis, US Public Health Service, Emergency Management Coordinator Indian Health Services Matthew.Ellis@ihs.gov</p>
	<p>Cow Creek Band of Umpqua Tribe of Indians Tracy DePew, Director of Emergency Services 541-677-5575, cell: 541-731-7557 tdepew@cowcreek.com</p>
	<p>Confederated Tribes of Coos, Lower Umpqua, & Siuslaw Indians Margret Corvi, Environmental Monitoring Specialist 541-888-1304 MCorvi@ctclusi.org</p>
	<p>Klamath Tribes Steve Rondeau, Director of Natural Resources steve.rondeau@klamathtribes.com</p> <p>For other tribal contacts ¹: Legislative Commission on Indian Services - Natural Resources Cluster – Tribal Contacts</p>
8. Office of Emergency Management	<p>Erik Rau – Emergency Management Planner 503-378-3252 Erik.rau@mil.state.or.us</p>
	<p>Cory E. Grogan, Public Information Officer 503-383-6608 Cory.grogan@state.or.us</p>
	<p>Paula Negele, Public Information Officer 503-378-2127 paula.negele@state.or.us</p>
	<p>OEM Duty Officer Oregon Emergency Response System (OERS) 1-800-452-0311 Or 503-378-6377</p>
9. Oregon OSHA	<p>Penny Wolf-McCormick, Health Enforcement Manager, Emergency Preparedness Coordinator 503-229-5910, cell: 971-707-0867 Penny.l.wolf-mcmormick@oregon.gov</p>

	<p>Aaron Corvin, Public Information Officer 503-947-7428, cell: 971-718-6973 Aaron.corvin@oregon.gov</p> <p>Trena VanDeHey, Standards and Appeals Manager 503-378-3272 Trena.VanDeHey@oregon.gov</p>
10. ODF	<p>Nick Yonker, Meteorology Manager 503-945-7451, cell: 503-979-3309 nick.j.yonker@oregon.gov</p> <p>Jim Gersbach, Public Information Officer 503-945-7425 Jim.Gersbach@Oregon.gov</p>
11. Governor's Office Regional Solutions Centers	http://www.oregon.gov/gov/admin/regional-solutions/Pages/default.aspx
12. ODOT	<p>Christina LeClerc, ODOT Emergency Operations Coordinator 503-986-4488 Christina.LECLERC@odot.state.or.us</p> <p>Jessica Gourley, State Emergency Operations Manager 503-986-3020 Jessica.K.Gourley@odot.state.or.us</p>
13. Office of State Fire Marshal	Mariana Ruiz-Temple , Chief Deputy State Fire Marshal 503-934-8238 mariana.ruiz-temple@state.or.us
14. Lane Regional Air Protection Agency	Travis Knudsen , Public Affairs 541-736-1056 ext. 217, cell: 303-523-2661 travis@lrpa.org
15. Local Public Health Authorities	Each Oregon County has points of contact listed http://public.health.oregon.gov/ProviderPartnerResources/LocalHealthDepartmentResources/Pages/lhd.aspx
16. 211info	Ciara Doyle , MSW, CIRS, Director of Contract Center and Programs 503-416-2704, cell: 919-434-5458 ciara.doyle@211info.org www.211info.org/
17. EPA Region 10	Mike McGown , Smoke Management Coordinator 208-378-5764 Mcgown.michael@epa.gov

¹Oregon Tribal Contact List - may not be the actual contact for wildfire smoke and air quality issues.

Appendix A.2 – Out-of-State Contact List

AGENCY OR ORGANIZATION	STAFF CONTACT
18. Idaho Department of Environmental Quality	Boise, ID Mark Boyle , Smoke Management Program Coordinator Air Quality Division 208-666-4607 Mark.Boyle@deq.idaho.gov
19. Washington Department of Ecology	Yakima, WA Sean Hopkins , Smoke Management Team Lead Central Regional Office 509-575-2804 seho461@ecy.wa.gov
20. Nevada Division of Environmental Protection	Carson City, NV Sig Jaunarajs , Supervisor Environ. Scientist IV Bureau of Air Quality Planning 775-687-9392 sjaunara@ndep.nv.gov
	Sheryl Fontaine , Air Quality Scientist 775-687-9359 sfontaine@ndep.nv.gov
	Daren Winkelman , Air Monitoring Supervisor 775-687-9342 dwinkelman@ndep.nv.gov
21. California Air Resources Board	Sacramento, CA Charles Pearson , Monitoring and Laboratory Division Office of Emergency Response 916-322-7054, cell: 916-322-7054 cpearson@arb.ca.gov

Appendix B – Example Air Quality Advisory News Release

News Release

Release date:

Media contact:

DEQ issues air quality advisory for Curry, Jackson, Josephine, Klamath counties

Canyonville, Ore.—The Oregon Department of Environmental Quality issued an air quality advisory for much of southwest Oregon due to smoke from the Milepost 97 wildfire near Canyonville.

DEQ expects the advisory to last until at least Monday, possibly longer. DEQ and partner agencies will continue to monitor smoke in this area.

Smoke levels can change rapidly depending on weather. Check current conditions and advisories on [DEQ's Air Quality Index](#) or by downloading the OregonAIR app on your smartphone.

Air quality monitors in Curry, Jackson, Josephine and Klamath counties showed unhealthy, or red, air quality on Friday morning.

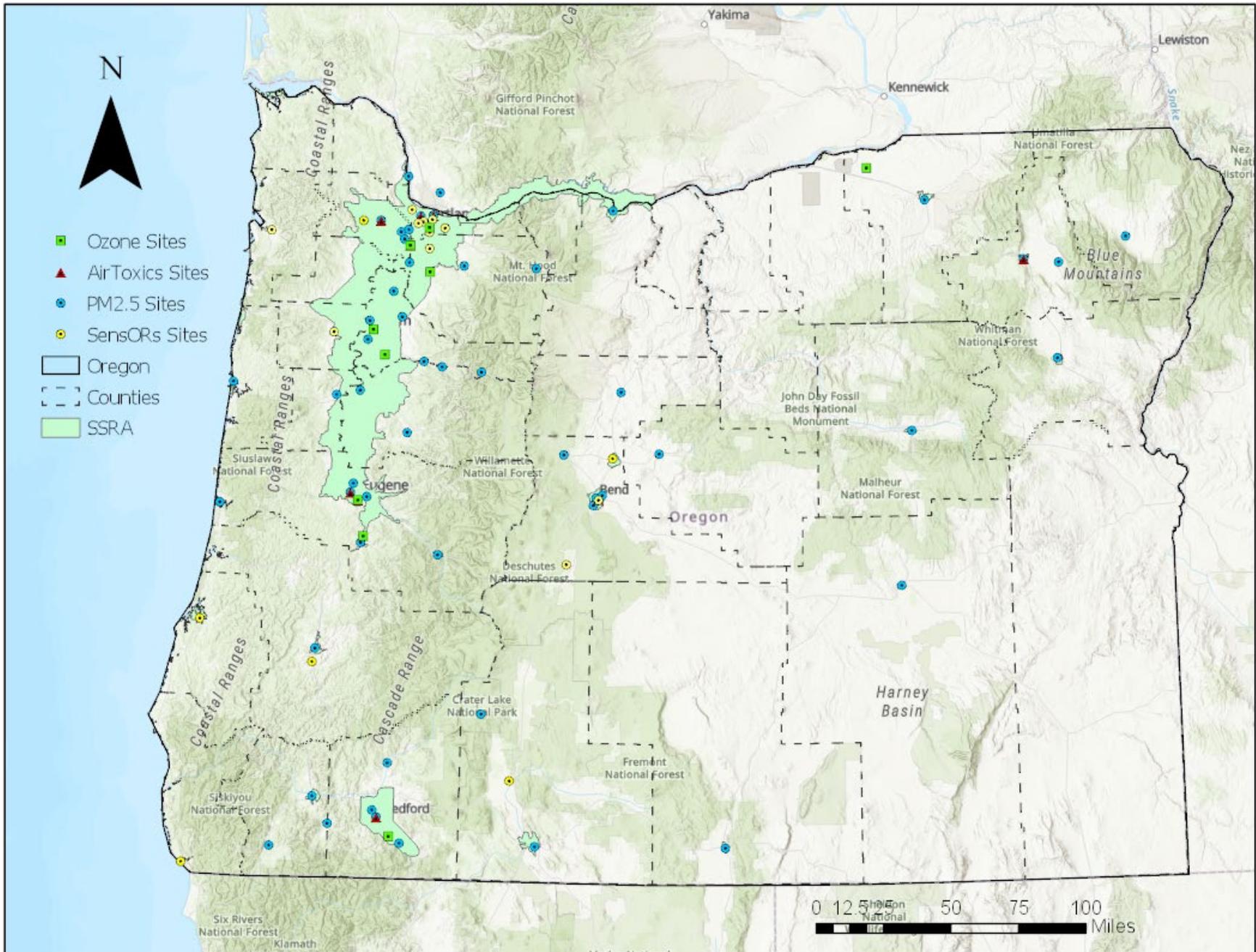
Smoke can irritate people's eyes and lungs and worsen some medical conditions. Small children, adults over 65, pregnant women, and people with heart disease, asthma or other respiratory conditions are particularly vulnerable.

People can take the following steps to protect their health when smoke levels are high:

- Stay inside if possible and avoid strenuous outdoor activity.
- Be aware of smoke in your area and avoid places with highest levels.
- Keep windows and doors closed, and use certified High Efficiency Particulate Air (HEPA) filters in indoor heating, ventilation, cooling and air purification systems.
- If you have asthma or heart or lung disease, follow your healthcare provider's advice.

DEQ's color-coded [Air Quality Index](#) provides current air quality conditions and ranks air quality as follows: Green is good. Yellow is moderate. Orange is unhealthy for sensitive groups such as children, seniors, pregnant women and those with respiratory conditions. Red is unhealthy for everyone. Purple is very unhealthy for all groups. Maroon is hazardous.

Appendix C – Oregon 2020 Monitor Network (fit to page and not to scale)



Appendix D – Oregon DEQ Public Affairs Schedule: Wildfire Season 2020

Updated: 5/18/20

To provide consistent and nimble communications support during the wildfire season, DEQ has established a rotating schedule of Public Affairs Specialists to handle news releases, blog updates and other needs. Please note this schedule is subject to change. Contact Harry Esteve with any questions.

Month*	Lead PAS	Contact	Backup**	Contact
May	Dylan Darling	541-600-6119 darling.dylan@deq.state.or.us	Jennifer Flynt	503-730-5924 flynt.jennifer@deq.stat.or.us
June	Laura Gleim	503-577-3697 gleim.laura@deq.state.or.us	Jennifer Flynt	503-730-5924 flynt.jennifer@deq.stat.or.us
July	Lauren Wirtis	503-568-3295 wirtis.lauren@deq.state.or.us	Jennifer Flynt	503-730-5924 flynt.jennifer@deq.stat.or.us
August	Laura Gleim	503-577-3697 gleim.laura@deq.state.or.us	Jennifer Flynt	503-730-5924 flynt.jennifer@deq.stat.or.us
September	Dylan Darling	541-600-6119 darling.dylan@deq.state.or.us	Jennifer Flynt	503-730-5924 flynt.jennifer@deq.stat.or.us
October	Lauren Wirtis	503-568-3295 wirtis.lauren@deq.state.or.us	Jennifer Flynt	503-730-5924 flynt.jennifer@deq.stat.or.us

*On the fourth week of the month, the next person up will begin transition and take over lead duties on the first of the following month. **That person also will be secondary backup for the preceding month in case Jennifer cannot be backup.

Weekends	Harry Esteve	503-951-3856 work cell 503-432-6685 pers cell esteve.harry@deq.state.or.us	Backup is Jennifer Flynt 503-730-5924 flynt.jennifer@deq.stat.or.us
Social Media	Susan Mills	503-956-9648 mills.susan@deq.state.or.us	Backup is Jennifer Flynt 503-730-5924 flynt.jennifer@deq.stat.or.us

Appendix E – COVID-19 and Wildfire Smoke

It is important to avoid wildfire smoke while also slowing the spread of COVID-19. Some strategies used to reduce exposure to wildfire smoke are similar to those used to slow the spread of COVID-19. Unless adapted, other strategies used to minimize smoke exposure could increase opportunities for COVID-19 to spread.

Cleaner air spaces are an important way to protect the public's health against wildfire smoke. Not everyone is able to create a cleaner air space at home, particularly people with low incomes or who lack housing. Those who cannot create a cleaner air space at home often use public spaces to access cleaner air. Due to COVID-19 concerns, cleaner air spaces may be more difficult to access or arrange during the 2020 Fire Season. This is, in part, due to the need for physical distancing. As described in *Table 3* of this protocol, local or tribal public health authorities should consult with DEQ, ARA, OHA and OR-OSHA to determine if a cleaner air space should be opened, or if there are other protective strategies that should be deployed. **If you open a cleaner air space in your jurisdiction, provide clear messaging about the capacity of the space, COVID-19 prevention measures that will be taken, and other strategies people can use to limit health effects from smoke.**

People who can create a cleaner air space at home should be encouraged to do so. Staying home helps minimize the risk of COVID-19 exposure. The harmful particles found in smoke, known as PM_{2.5}, can only be filtered out of indoor air with high efficiency particulate filters (HEPA) or non-ozone producing electrostatic precipitator (ESP) filters. This level of filtration is especially important for people in smoke-sensitive groups. It can be achieved using HEPA air filters on compatible heating and cooling systems, or portable HEPA and ESP devices.

There are several strategies for avoiding exposure to COVID-19. These include staying 6 or more feet away from others, washing hands frequently, and avoiding close contact with people who are ill with fever, cough, difficulty breathing or other COVID-19 symptoms. The Centers for Disease Control and Prevention (CDC) has also recommended wearing a face covering to prevent transmission of COVID-19 to others, in case you have been infected and might not know it. These face coverings are often cloth and homemade. There is no evidence at this point that they protect the wearer from exposure to COVID-19 or other respiratory illnesses. They also don't protect the wearer from the harmful particles in wildfire smoke.

NIOSH-approved N95 respirators, if they have been fit tested and are worn correctly, may protect wearers from the harmful particles found in smoke. N95 respirators are important personal protective equipment for healthcare and essential workers at high risk of exposure to infectious diseases. As of June 2020, supplies of N95 respirators are low. Most N95 respirators are being reserved for use by those at high risk of exposure, and donations from the public are still being accepted. Learn more about donating: <https://oregonrecovers.communityos.org/>. When a person wears an N95 without fit testing or doesn't wear it consistently and correctly, there is no guarantee that it is actually working. This can create a false sense of security.