

INTRODUCTION

1. Purpose

People with pre-existing health conditions such as asthma or other chronic respiratory conditions and cardiovascular disease, people 18 and younger or older than 65, pregnant people, outdoor workers, people of color, tribal and indigenous people, and people with low financial income are particularly sensitive to smoke. Particulate matter (PM) in smoke poses the greatest risk to public health. The potential health effects vary depending on the size of the particles.

This document is intended to provide guidance for the state and federal agencies in Washington who respond to severe smoke episodes caused by large or long duration wildfires located either in or outside the state of Washington. The goal of these organizations during these incidents is to provide a coordinated response to mitigate impacts on public health. This document also identifies organizations, partners, and other governmental entities (county, city, and tribal) that state and federal responders need to coordinate with during these episodes. For all parties, this document provides a general concept of operations for coordinating multi-jurisdictional response to smoke from wildfires and may be useful for other hazardous air quality incidents. This document is focused specifically on smoke/air quality impacts and not on other risks posed by the fire or other hazard. The intent is to guide resource decisions related to air quality impacts of major wildfires or other hazards and does not replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties.

As mentioned in *ESF 8 Appendix 5 – Air Quality Response*, and in accordance with Title VI of the Civil Rights Act of 1964, the Department of Health (Department) will ensure that people with limited English proficiency have meaningful access to the Department's services, and that no customer experiences discrimination on the basis of race, color, or national origin.

The Department recognizes that language and cultural factors affect health outcomes, access to services, and access to information.

The Department commits to taking reasonable steps to provide effective and understandable public information and warnings messages to Limited English Proficient (LEP) communities during a public health emergency. (For more information review DOH's Culturally and Linguistically Appropriate Services (CLAS) Plan and *Annex 3-Public Information* to the DOH Emergency Response Plan-Basic).

2. Agency Areas of Expertise and Involvement

Table 1 identifies each agency that may be involved, their general area of expertise, and their anticipated level of involvement during a wildfire smoke incident or hazardous air quality incident.

Table 1

CONTACT AGENCY OR ORGANIZATION	GENERAL AREA OF EXPERTISE / ASSISTANCE	ANTICIPATED LEVEL OF INVOLVEMENT
Federal		
1. Federal Land Managers (FLM) e.g., US Forest Service (USFS) & Bureau of Land Management (BLM)	Wildfire suppression/containment, ensure Incident Management Team (IMT) is on the ground; may provide wildfire status updates, and public outreach/coordination.	Extensive – depends on size of a wildland 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 Federal Air Rules for Reservations (FARR) Program	Coordination with tribes related to air quality on tribal lands	Depends on extent wildfire smoke is impacting tribal lands.
National		
4. ARA – reports to IMT and/or the Air Resource Agency Administrator	Technical Specialist who often works as part of an IMT during major wildfires. ARAs may also work from a remote office and be assigned to a local federal agency office. Expertise in air quality mobile monitoring and modeling and addressing public health, transportation safety, and firefighter safety.	Extensive when deployed– newly created position provides assistance to incidents and facilitates state response to air quality impacts from major wildland fires.
5. Incident Management Team (IMT)	Overall management of firefighting plans, operations, logistics, and community issues when wildfires become larger and more complex than can be handled by local resources. ARAs may be ordered by and assigned to an IMT.	Extensive during wildfire incidents but primarily deals with managing the wildfire. ARAs who are integrated with IMTs deal with the smoke issues.
6. American Red Cross (ARC)	Providing aid and assistance for natural disasters. Mass Care support for shelters, feeding, and distributing relief supplies.	Depends on severity of smoke impact and risk to public health.
7. Department of Health	Coordinates the state-level ESF 8 response when assistance is requested by one or more impacted jurisdiction or tribe. Provides public health and medical communication and guidance as appropriate for the situation. Provides scientific and technical support to other coordinating agencies. Assists health agencies with health messaging related to air quality and assists with public outreach and education.	May be extensive during periods of elevated smoke levels. Depends on wildfire severity and extent to which local health officials need assistance, or where no local health authority is in place.

CONTACT AGENCY OR ORGANIZATION	GENERAL AREA OF EXPERTISE / ASSISTANCE	ANTICIPATED LEVEL OF INVOLVEMENT
State		
8. Department of Ecology	Maintains real-time air quality monitoring data from an existing monitor network and relays monitored data to the public via Ecology’s website (see Section 10 of this document). Ecology is not the lead agency, but upon request and if resources are available, may assist in providing air quality forecasting and supplemental temporary monitoring. Coordinates with other agencies as needed.	May be extensive during periods of elevated smoke levels.
9. Emergency Management Division	Coordinates response and recovery with state emergency support functions and local emergency services agencies and organizations.	Depends on severity and specific requests by local emergency management agencies for state assets. High involvement if Governor proclaims state of emergency.
10. Department of Labor & Industries	Coordinates responder and workplace health and safety issues during emergencies or disasters. Provides recommendations and rules on wildfire smoke workplace safety and health.	Depends on severity and specific requests for worker protection.
11. Department of Natural Resources	Wildfire suppression/containment, ensure qualified IMTs provide oversight to firefighting efforts; may provide wildfire status updates and public outreach/coordination.	Primary response to fire danger and suppression, less on smoke risk to community. Assist with providing updated fire info to forecasting and health agencies.
12. WA State Fire Marshal	Assists in response to fire danger, coordinates with local fire officials.	Primary response to fire danger and suppression, less on public smoke exposure risk.
13. Department of Enterprise Services	Assists in procuring facilities and resources to respond to the incident.	Depends on severity and specific requests for facilities or resources.
14. Washington State Patrol	Facilitate the movement of emergency medical resources over state highways to locations identified by public health authorities.	Depends on severity and specific requests for medical resource movement.
15. Governor’s Office	Coordinates state-level policy issues with multiple agencies, especially if Governor proclaims a state of emergency.	Update on as-needed basis, unless state of emergency is proclaimed.

CONTACT AGENCY OR ORGANIZATION	GENERAL AREA OF EXPERTISE / ASSISTANCE	ANTICIPATED LEVEL OF INVOLVEMENT
Local		
16. Local Health Jurisdiction	Notify public and media of health risks from smoke or hazardous air quality. Coordinates with local school administration on decisions regarding school activities and school closures. Coordinates with other community organizations on decisions to cancel or limit other public events. May make recommendations on or distribute N95 particulate filter masks to populations of impacted areas. Maintain awareness of health impacts occurring in the community. Coordinate with Ecology, DOH, firefighting agencies (DNR and State Fire Marshal), and L&I.	Extensive during periods of unhealthy to hazardous smoke levels.
17. Local Air Agencies (LAA)	In coordination with Ecology maintains real-time air quality monitoring data within their jurisdiction from an existing monitor network and relays monitored data to the public via Ecology website (see section 10 of this document). LAAs are not the lead agencies, but upon request and if resources are available, may assist in providing air quality forecasting and supplemental temporary monitoring. Coordinates with other agencies as needed.	Depends on the extent wildfire smoke is impacting counties with LAAs.
18. School Districts	With assistance, determine if student health at risk, need to cancel school events, or announce school closures.	On as-needed basis during periods of unhealthy to hazardous smoke levels.
19. Healthcare Organizations	Treating patients who present with illnesses related to smoke or hazardous air. Make individual recommendations to patients regarding risk and strategies for reducing risk. Communicate situational information and impacts to local health jurisdictions.	Extensive during periods of unhealthy to hazardous smoke levels.
20. City and local government	With assistance from local health agencies, determine health risk to community, public safety, need to cancel outdoor events, notify local businesses, and alert fire and police.	On as-needed basis during periods of unhealthy to hazardous smoke levels.
Tribal		
21. Tribal Governments	Coordination with above agencies. Similar role to #16 and #20 above.	Can be extensive if wildland fire smoke impact levels are unhealthy to hazardous within tribal communities.

3. Agency Actions and Desired Outcome

Table 2 describes the different actions and assistance needed during major wildfire incidents, the agency or organization expected to take such action, and the desired outcome.

Table 2

ACTION NEEDED	LEAD AGENCY AND ACTION TAKEN	DESIRED OUTCOME
1. Air Monitoring		
Measuring ambient air quality	Ecology and LAAs responsible for existing WA Air Monitoring Network. IMTs and ARA may provide additional temporary monitoring resources and equipment via local and national cache. Ecology and LAAs may assist with providing additional temporary monitoring if resources are available and requested by a Local Health Jurisdiction.	Ability to track ambient air quality levels in communities receiving the heaviest impact.
2. Air Quality Forecasting and Modeling		
Air quality forecast and modeling	ARA assigned to wildfire coordinates smoke dispersion forecasts and modeling. If no ARA assigned to wildfire, willing agencies listed in this document may coordinate available resources to help provide air quality forecast and modeling during large wildfire episodes.	Provide advance notice of possible smoke movement and impacts; improve public notification, and lower risk of public exposure to high smoke levels.
3. Issuing Health Warnings		
Providing public with frequent smoke updates on potential health risks and recommended public health actions via the web and media	Local Health Jurisdictions have primary responsibility for issuing Public Health Warnings with coordination between DOH, local government, ARA, and tribes.	Frequent coordinated updates provided to the public via Washington Smoke Blog, DOH, and local government websites, press releases, and outreach to TV and print media.
4. Website management		
Updating the Washington Smoke Blog website wasmoke.blogspot.com (see description under section 6 below)	Blog website managed by USFS and updated by WA Smoke Blog maintenance team comprised of willing members of the key agencies involved in the wildfire smoke response.	Provide the public with comprehensive “one-stop” website on wildfire status, air quality levels, health risks, press releases, and other critical info.
Updating state agency and local websites	Managed by respective agency.	Supplements the Washington Smoke Blog.

ACTION NEEDED	LEAD AGENCY AND ACTION TAKEN	DESIRED OUTCOME
5. Public Actions		
Cancel or modify public events and outdoor and business activities. Consult with schools on limited hours or closure.	Decision made at the local level by government or school authorities, after consulting with Local Health Jurisdiction, ARA, DOH, IMT, and possibly L&I with smoke forecasts provided by willing agencies. Decision made at the tribal level for events and activities on tribal land. Tribal governments may consult with the above-mentioned entities before taking this action.	Prompt action taken via notification of media and posting info on WA Smoke blog website and other relevant websites.
Identify locations within the community that may have cleaner air.	The local health jurisdiction is the lead for identifying locations that may have cleaner air in local communities.	Provide cleaner air options for the public, such as a library, mall, or community center.
Recommended evacuation/relocation of sensitive populations.	Decision made at local level by emergency management or local health jurisdiction in consultation with ARA, DOH, IMT, and possibly L&I with smoke forecasts from willing agencies. Decision made at the tribal level for evacuation/relocation on tribal land. Tribal governments may consult with the above-mentioned entities before taking this action.	Prompt action taken if dangerous smoke levels expected to persist for a prolonged period. Requires close communication with DOH, affected Local Health Jurisdictions, IMTs, and possibly EMD, ARC, and WSP.

4. Recommended Public Health Actions for Wildfire Smoke

Wildfire smoke is a mixture of gases and fine particles which can irritate eyes and respiratory systems and worsen chronic heart and lung 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 someone will experience smoke-related health problems. The potential health effects vary depending on the size of the particles. 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, which increases the risk of cardiovascular and respiratory problems. When smoke levels are high, even healthy people may experience symptoms.

Table 3 is designed for use by affected Local Health Jurisdictions in consultation with DOH and other agencies that are parties to this document. The table identifies recommended public health actions to be taken. Decisions about which public health actions to recommend should be based on available monitoring data and the projected smoke or hazardous air duration.

Whether or not the listed actions in Table 3 should actually be taken at various PM_{2.5} levels depends on additional factors in the bulleted list below the table. As air quality worsens, recommended public health actions for better air quality categories should also be implemented. For example, if the air quality is considered “unhealthy,” then actions should be followed for “unhealthy for sensitive groups,” “moderate” and “good” air quality days.

Table 3

Washington Guide for Public Health Actions for Wildfire Smoke

This guide is designed for air quality, public health, and other officials making local decisions.



Air Quality Index	Recommended Public Health Actions Check current and forecast air quality at enviwa.ecology.wa.gov
Good (0-50)	<p>Prior to wildfire season:</p> <ul style="list-style-type: none"> Coordinate a local plan for public health actions and distribute preparedness information to the public. Identify indoor spaces where individuals will seek cleaner air during wildfire smoke events and develop plans to protect indoor air quality, including filtration. <ul style="list-style-type: none"> Indoor spaces used by sensitive groups, such as schools, child care facilities, and long-term care facilities. Community cleaner air settings, such as libraries. Temporary cleaner air shelters. <p>During wildfire season:</p> <ul style="list-style-type: none"> Monitor wildfires, smoke forecasts, and air quality at WA Smoke Blog. If forecasts predict smoke in your area, review the Washington Wildfire Response document for Severe Smoke Episodes and the Wildfire Smoke Guide for Public Health Officials.
Moderate (51-100)	<p>Above recommendations, plus:</p> <ul style="list-style-type: none"> Distribute health information to the public, including steps to take with health advisory categories Washington Air Quality Guide for Particle Pollution. <ul style="list-style-type: none"> Refer to the WA Smoke Blog for information about wildfires, smoke forecasts, and air quality. Identify and focus outreach efforts for sensitive groups. Coordinate with public health partners to follow recommended public health actions. Recommend following the Washington Air Quality Guide for School and Child Care Activities. For outdoor workers, start following WA Department of Labor and Industries' requirements.
Unhealthy for Sensitive Groups (101-150)	<p>Above recommendations, plus:</p> <ul style="list-style-type: none"> Recommend sensitive groups take steps to reduce exposure (limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air). Recommend sensitive groups spend time in a cleaner air setting in the community, such as a library, if they cannot maintain cleaner air at home. Cancel children's outdoor athletic events and practices or move them to an area with safe air quality, either indoors or at a different outside location: Washington Air Quality Guide for School Activities. For an extended duration of smoke, consider opening a cleaner air shelter for sensitive groups.
Unhealthy (151-200)	<p>Above recommendations, plus:</p> <ul style="list-style-type: none"> Recommend everyone take steps to reduce exposure (limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air). Recommend everyone spend time in an identified cleaner air setting in the community, such as a library, if they cannot maintain cleaner air in their residence. Consider canceling outdoor public events and activities: Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools. For an extended duration of smoke, consider opening a cleaner air shelter for the public.
Very Unhealthy (201-300)	<p>Above recommendations, plus:</p> <ul style="list-style-type: none"> Strongly recommend everyone take steps to reduce exposure (stay inside and filter indoor air to keep it cleaner; go elsewhere for cleaner air if needed and possible). Cancel outdoor public events and activities: Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools. If school is in session, discuss school closure with administrators if indoor air cannot be kept lower than PM_{2.5} 150.5 µg/m³ (AQI value of 201): Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools. Distribute NIOSH-approved particulate respirators, such as N95 masks, as available, for limited use outside. Include training material for proper fit and use. For an extended duration of smoke, consider recommending that sensitive groups voluntarily relocate to an unimpacted area.
Hazardous (>300)	<p>Above recommendations, plus:</p> <ul style="list-style-type: none"> For an extended duration of smoke, consider recommending that everyone voluntarily relocate to an unimpacted area.

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov.

- WA DOH and ECY Wildfire Smoke Guidance for Cancelling Outdoor Events or Activities and Closing Schools: https://www.doh.wa.gov/Portals/1/Documents/4300/334-428-WildfireSmokeClosureGuidance_final3.pdf
- Summary Wildfire Smoke Guidance for Cancelling Outdoor Public Events or Activities <https://www.doh.wa.gov/Portals/1/Documents/4300/334-430-WildfireSmokeOUTDOORSummary.pdf>

- Summary Wildfire Smoke Guidance for Closing Schools:
<https://www.doh.wa.gov/Portals/1/Documents/4300/334-431-WildfireSmokeSCHOOLSummary.pdf>
- Washington Air Quality Guide for School Activities:
<http://www.doh.wa.gov/Portals/1/Documents/Pubs/334-332.pdf>

Considerations that may influence implementation of the above mitigation strategies:

- 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.
- 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.
- Indoor air quality may be poor in older dwellings and buildings without adequate mechanical ventilation. These may include schools, community centers with care centers, nursing homes, or group homes. When air quality deteriorates, especially over periods of days or weeks, it becomes increasingly important assess indoor air quality for these and other types of facilities where people who are sensitive to smoke live or stay.

5. Air Resource Advisors (ARA)

Air Resource Advisors are trained personnel who are assigned by the USFS Air Resource Division. Air Resource Advisors are ordered by the Incident Management Teams in direct control of firefighting operations. Their primary duties include smoke forecasting, smoke monitoring, and direct communications with the IMTs regarding local air quality. ARAs also focus on monitoring smoke for firefighter exposure and working directly with emergency management personnel on visibility issues associated with public roadways. ARAs work directly with IMTs and partner agencies to facilitate public information dissemination. Agencies and local jurisdictions making requests for ARA mobilization should make the request directly to the USFS contacts listed in Tab 1-WA Contact List.

6. Washington “Smoke Blog” Website

As noted in Table 2 under Website Management, a major tool for providing the public with current air quality and health information on wildfires is the Washington Smoke Blog. This blog site can provide timely “one-stop” information by including links to the various agency websites and providing critical information on wildfire status, air quality conditions and forecasts, school and activity closures, burn bans, location of shelters for those displaced by smoke, and travel restrictions due to visibility.

This blog is managed by the USFS, and the contents are contributed and updated by a team of willing state, federal, tribal, and local agencies. The link to this blog site is: <http://wasmoke.blogspot.com/>.

7. Annual Pre-Wildfire Season Conference Call

Each year prior to the summer wildfire season, in May or June, USFS holds a conference call in preparation for the upcoming season with representatives from the agencies, organizations, or offices listed in this document. The purpose of this call is to review the information in this document, discuss any specific preparation needs for the wildfire season, and update the contact list of staff expected to be using this document if major wildfires occur.

8. As-Needed Wildfire Conference Calls and Briefings

Similar to the above pre-season conference call, routine conference calls will be held during periods of major wildfire incidents for the purpose of briefing the parties identified in this document. These conference calls and briefings can be requested by any party. They will include updates on the status of major on-going wildfires and an opportunity to discuss current conditions related to air quality, local health impacts, smoke forecasts, recommended public actions, communications, emergency actions such as evacuation, and other issues important to the group. These briefings will include a wildfire status update from public information officers (if available) associated with Incident Command and any ARA assigned to the wildfire.

Ecology is the lead state agency for coordinating these calls, while the USFS contact listed in this document may coordinate the calls if requested. DOH may also provide assistance in coordinating these calls if needed. For major wildfires in neighboring states or provinces (Oregon, Idaho, and Canada) that are impacting Washington, the briefing will include the appropriate contacts in those states who have essential information on the smoke impact from the wildfire(s).

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 Ecology to discuss air quality levels in areas impacted by wildfire smoke, such calls will be convened as needed. Requests for such calls should be made to either Ecology or DOH, depending on the primary topic of concern.

9. Indoor Air Quality

Wildfire smoke can also affect indoor air quality in private businesses and public buildings such as schools, hospitals, clinics, long-term care facilities, and offices. Research has shown that when there are heavy outdoor smoke levels, a significant amount of smoke can still infiltrate indoors, even with all of the windows and doors closed. Many commercial buildings and schools mechanically draw in the outdoor air through air filtration systems. However, standard HVAC air filters will not remove most of the ultra-fine smoke particles. More information on use of air filters, cleaners, and other ways to reduce indoor smoke levels can be found in the following documents:

- Wildfire Smoke: A Guide for Public Officials <https://www3.epa.gov/airnow/wildfire-smoke/wildfire-smoke-guide-revised-2019.pdf>
- Recommendations for Schools and Buildings with Mechanical Ventilation <https://www.doh.wa.gov/Portals/1/Documents/Pubs/333-208.pdf>
- California Air Resource Board FAQs for air cleaning devices at home: <https://www.arb.ca.gov/research/indoor/acdsumm.pdf>
- California Certified Air Cleaning Devices: <https://www.arb.ca.gov/research/indoor/aircleaners/certified.htm>
 - EPA Guide to Air Cleaners in the Home, 2nd edition, August 2018: https://www.epa.gov/sites/production/files/2018-07/documents/guide_to_air_cleaners_in_the_home_2nd_edition.pdf
 - EPA Residential Air Cleaners: A Technical Summary, 3rd edition, August 2018: https://www.epa.gov/sites/production/files/2018-07/documents/residential_air_cleaners_-_a_technical_summary_3rd_edition.pdf

10. Low-Cost PM_{2.5} Sensors for Indoor and Outdoor Monitoring

Low-cost sensors are commercially available and can be used to take PM_{2.5} measurements indoors to check indoor air quality and outside when there is not a nearby agency monitor during wildfire smoke events. However, these are generally less accurate than agency monitors. Correction factors can sometimes be used to increase accuracy of measured concentrations (micrograms per cubic meter, µg/m³). If using a correction factor is not possible, do not directly compare uncorrected sensor data to AQI cut-points or action levels.

Outdoor PM_{2.5} Assessment: Where available, nearby agency monitors are the best data source. However, agency monitors may also represent different smoke conditions if they are at a different elevation or in a different type of environment. In places far from agency monitors, nearby air sensors are likely better data sources than distant agency monitors. The Smoke Blog includes publicly-reporting PM_{2.5} low-cost sensors for outdoor measurements that have an applied smoke correction factor and appropriate averaging time (NowCast). However, sensors on the map are still generally less accurate than agency monitors, and since many are operated by members of the public, their performance, siting, and maintenance are unknown. Sensor data should be interpreted with caution, especially when one sensor shows very different values than other nearby sensors. Considering values from multiple nearby sensors can help offset the greater uncertainty of sensor measurements.

Indoor PM_{2.5} Assessment: Compare indoor sensor measurements to outdoor sensor measurements (ensure that either both are uncorrected or they have the same correction factor). Then apply this comparison to the nearest agency monitor. For example, if the indoor sensor measurements are half of the outdoor sensor measurements, assume that the indoor PM_{2.5} concentrations are half of what the agency monitor is reporting. Assess variation across the building by collecting measurements in rooms with worse ventilation or air quality and rooms where external doors or opened frequently using a portable air sensor. Repeat the portable sensor measurements in different conditions, such as changes in occupancy. A stationary indoor sensor can be used to track changes in indoor air quality over longer time periods. Prioritize steps to reduce exposure in the rooms with highest PM_{2.5} levels. Low-cost sensors are also available for other pollutants, such as carbon monoxide, that can be helpful in assessing indoor air quality, although PM_{2.5} is the most relevant pollutant to measure for wildfire smoke. See “Indoor PM_{2.5} Measurements in Schools”, [Wildfire Smoke Guidance for Canceling Events or Activities and Closing Schools](#), for more information.

For more information on lower cost air monitors, EPA and California’s South Coast Air Quality Management District provide information and evaluations:

- EPA: <https://www.epa.gov/air-sensor-toolbox>- This website provides information for community scientists and others on how to select and use low-cost, portable air sensor technology and understand results from monitoring activities.
- South Coast AQMD: <http://www.aqmd.gov/aq-spec>- In an effort to inform the general public about the actual performance of commercially available “low-cost” air quality sensors, the SCAQMD has established the Air Quality Sensor Performance Evaluation Center (AQ-SPEC) program. The AQ-SPEC program aims at performing a thorough characterization of currently available “low-cost” sensors under ambient (field) and controlled (laboratory) conditions.

11 Other references, resources, and links

Wildfire Smoke: A Guide for Public Officials (<https://www3.epa.gov/airnow/wildfire-smoke/wildfire-smoke-guide-revised-2019.pdf>). The smoke exposure levels listed above in Table 4 are adapted from the guidance document, *Wildfire Smoke: A Guide for Public Health Officials*. This document is currently used in many states as a reference guide for how public agencies can best protect public health during wildfire incidents. 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, and examples of public service announcements for wildfire. This document is referenced here as general guidance to provide additional information, and like this document, 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.

Materials on Wildfire Smoke and Health. DOH maintains comprehensive webpages about the health effects of wildfire smoke and strategies to minimize these effects (FAQs translated into 8 languages).

Smoke from Fires webpage: <http://www.doh.wa.gov/smokefromfires>

Smoke from Fires toolkit:

<https://www.doh.wa.gov/CommunityandEnvironment/AirQuality/SmokeFromFires/SmokefromFiresToolkits>

- For information about air quality categories and recommended health precautions, see Washington Air Quality Guide for Particle Pollution: https://doh.wa.gov/sites/default/files/legacy/Documents/4300//waqa%20infographic_English.pdf
- “Smoke from fires can be dangerous” flyers for each of the sensitive groups and for the general public:
 - [For everyone](#)
 - [For babies and children](#)
 - [For pregnant people](#)
 - [For people over 65](#)
 - [For people with lung and heart diseases](#)
- “Know your symptoms” flyer to help the public identify the symptoms of wildfire smoke
 - [Symptoms of wildfire smoke](#)
- Flyer about mask recommendations: <https://www.doh.wa.gov/Portals/1/Documents/Pubs/334-353.pdf>
- For information about how to prepare your home and family before a wildfire (translated into 7 languages): <https://www.doh.wa.gov/Emergencies/BePreparedBeSafe/SevereWeatherandNaturalDisasters/Wildfires>

Air Quality Monitoring websites. In addition to the Washington Smoke Blog describe above, these web links provide information on current and forecasted air quality conditions.

- WA ECY air quality monitoring map: <https://enviwa.ecology.wa.gov/home/map>
- Washington clean air agencies: <https://ecology.wa.gov/About-us/Accountability-transparency/Partnerships-committees/Clean-air-agencies>
- EPA’s AirNow: <https://www.airnow.gov/>
- EPA’s Smoke Sense Mobile App: <https://www.epa.gov/air-research/smoke-sense-study-citizen-science-project-using-mobile-app>

Wildfire-related websites. In addition to the Washington Smoke Blog described above, these web links can provide current information on wildfire activity.

- InciWeb (Incident Information System): <https://inciweb.nwcg.gov/>
- Northwest Coordination Center (NWCC): <https://gacc.nifc.gov/nwcc/>
- DNR: <https://www.dnr.wa.gov/programs-and-services/wildfire-resources>
- USFS fire map: <https://fsapps.nwcg.gov/afm/>
- National Weather Service smoke/air quality maps: <https://airquality.weather.gov/sectors/pacnorthwest.php#tabs>
- EPA AirNow Fire and Smoke Map: <https://fire.airnow.gov/>
- National Fire Situational Awareness: <https://maps.nwcg.gov/sa/#/%3F/39.8212/-95.4967/5>

Washington Webcams The following are links to live webcams, which 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. Some are better than others.

- **Washington Department of Transportation**
 - **Traffic Cams** <http://www.wsdot.wa.gov/traffic/Cameras/default.aspx>
 - **Airport Cams** <http://www.wsdot.wa.gov/aviation/WebCam/default.htm>

- **Washington State Webcams.** The state of Washington has an extensive webcam network. Washington webcams provide views of local ski areas, Seattle, Spokane, Puget Sound, the San Juan Islands, and many other places in the state.
<http://www.northwestwebcams.com/washington-web-cams.shtm>

Map of High Wildfire Risk Areas in Washington. A map of the areas in Washington that have a greater potential for major wildfire, prepared by DNR, and can be found at this link.
http://www.dnr.wa.gov/Publications/rp_burn_communitiesatrisk.pdf

Wildfire Smoke and Worker Safety. See WA Department of Labor and Industries webpages for wildfire smoke and health information and rules.
<https://lni.wa.gov/safety-health/safety-topics/topics/wildfire-smoke#requirements-and-policies>

Examples of Wildfire Smoke Public Announcements. Tab 1 provides examples of two public announcement/press releases, which can be used as a guide for future announcements.

Tab 1
Example 1 of Wildfire Smoke Public Announcement



News Release

For immediate release: **Date**

(18-**1XX**)

Contact: **Name**, **Entity/Office**

Phone number

Air quality degraded by wildfires across the state

OLYMPIA — Washington State Department of Health is encouraging people in areas affected by wildfire smoke to take necessary steps to protect themselves from poor air quality.

People can take the following steps to protect themselves from smoke due to wildfires:

- Visit the [Washington Smoke Blog](#) or contact your [local regional clean air agency](#).
- Stay indoors, avoid strenuous physical activities outside, and keep indoor air clean. Close windows and doors. Use fans or an air conditioner (AC) when it is hot, and set your AC to recirculate. If you do not have AC and it is too hot to stay home, go to a place with AC such as a mall or library. Remember to stay hydrated. Do not smoke, use candles, or vacuum. Use an [air cleaner with a HEPA filter](#).
- Contact your health care provider when you have specific health concerns, and dial 911 for emergency assistance if symptoms are serious.

[Smoke from wildfires](#) especially increases health risks for babies, children, people over 65, pregnant women, and those with health conditions, such as heart and lung diseases or diabetes.

Breathing smoky air can cause a [wide range of symptoms](#) from watery eyes and coughing to chest pain and asthma attacks. People with heart or lung diseases such as asthma are more likely to experience serious and life-threatening symptoms.

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Example 2 of Wildfire Smoke Public Announcement



News Release

For immediate release: **Date**

(18-**XXX**)

Contact: **Name**, **Entity**

Phone number

Prepare now for wildfire smoke, unhealthy air quality

OLYMPIA – As wildfire season heats up, officials at the Washington State Department of Health are urging everyone in Washington to plan now for smoky days with poor air quality.

Simple steps to take now:

- Identify where to find air quality reports for your area. The [Washington Smoke Blog](#), has a map of current fires and air quality reports statewide. [EPA's Smoke Sense](#) mobile app has location-specific information on smoke and health impacts.
- If you or a family member has heart or lung disease, including asthma, ask your doctor what precautions should be taken when air quality is impacted by smoke. Have necessary medication and recommended supplies stocked up.
- Buy a portable air cleaner with a high efficiency HEPA filter and create a “clean” room to spend time in when the air isn't healthy. Select a room with no fireplace, and few windows and/or doors.
- Information about the health impacts from smoke and more tips about how to stay healthy when smoke levels are high can be found on the [department's website](#).

Breathing smoke isn't good for anyone, but some people are more likely to have health problems when air quality isn't good. Sensitive groups include children under 18 and adults over 65, people with heart and lung diseases, people with illnesses and colds, people who have had a stroke, pregnant women and people who smoke. These people should especially take care to reduce exposures by limiting outdoor activity and staying indoors with cleaner air when it's smoky outside.

Symptoms from exposure to smoky air can range from minor to life-threatening and include watery or dry eyes, coughing or wheezing, throat and sinus irritation, phlegm, shortness of breath, headaches, irregular heartbeat and chest pain. People experiencing serious symptoms should seek medical attention immediately.

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