# EXTREME HEAT AND WILDFIRE SMOKE – INCIDENT OPERATIONS PLAN

## CEMP – ANNEX IV DOCUMENTATION



This Incident Operations Plan is part of Annex IV of the

Comprehensive Emergency Management Plan (CEMP)

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| --- |
| Seattle Office of Emergency Management |

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| PRIMARY AGENCIES | |
| --- | --- |
| Seattle Human Services Department | Seattle Department of Transportation |
| Seattle Department of Parks and Recreation | Facilities and Administrative Services |
| Seattle Public Utilities | Seattle City Light |
| Mayor's Office - Director of Communications and/or Mayor Representative | |

**Table 3: Support Agencies**

| CITY OF SEATTLE AND KING COUNTY | |
| --- | --- |
| Public Health - Seattle & King County | King County Regional Homelessness Authority |
| Seattle Public Library | Seattle Center |
| Seattle Animal Shelter | Office of Immigrant and Refugee Affairs |
| Seattle Fire Department | Seattle Public Schools |
| Seattle Information Technology | King County Metro |
| Seattle Police Department | Office of Economic Development |
| Seattle Department of Human Resources | |

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2. INTRODUCTION

# 2. INTRODUCTION

## 2.1 Purpose

The purpose of this Incident Operations Annex is to enable a coordinated multidisciplinary, multi-departmental, and multijurisdictional response during heat and smoke events. It applies to all City of Seattle (City) Departments and provides information to all partners that support or depend on the City response.

## 2.2 Scope

This annex is part of the Seattle Comprehensive Emergency Management Plan (CEMP) and applies to all City departments. It aligns with the processes and structures described in the CEMP, while providing additional detail on how the City would coordinate its response to heat and smoke events, as well as associated hazards detailed in the Seattle Hazard Identification and Vulnerability Analysis (SHIVA) including power outages, infrastructure and structural failures, and fire.

It should be adapted as needed to meet conditions at the time of response. For additional detail on specific functional efforts, see the CEMP's various Emergency Support Function Annexes.

## 2.3 Authority

See City of Seattle CEMP—Introduction.

## 2.4 Limitations

The City will endeavor to make every reasonable effort to respond to extreme heat, wildfire smoke, and related hazards. However, Seattle's infrastructure is unprepared for extreme heat and wildfire smoke—more than half of Seattle homes do not have air conditioning or filtration systems, and historical regional architecture trends prioritized heat retention over passive cooling.

As extreme heat and wildfire smoke become a more regular seasonal occurrence, both public and private building owners are assessing the need and capability to install cooling and HVAC systems, but the structural renovations required will require significant time and resources. In the meantime, the City is limited in its options of cooled spaces where it can direct people to go for relief from heat and poor air quality. The guidelines in this plan cannot guarantee that a perfect response to this type of event will be practical or possible.

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# 3. SITUATION

## 3.1 Emergency Conditions and Hazards

The Seattle Hazard Identification and Vulnerability Analysis (SHIVA) identifies the City's hazards and examines their consequences to inform decisions about how best to prepare for them. It provides information regarding potential impacts of hazards to the people, economy, and built and natural environments of the city. The list of all natural and human hazards includes Emerging Threat, Biological Hazards, Geophysical Hazards, Health Hazards, Intentional Hazards, Transportation and Infrastructure Hazards, and Weather and Climate Hazards.

Three of these hazard types are associated with extreme heat and wildfire smoke: Health Hazards, Transportation and Infrastructure Hazards, and Weather and Climate Hazards. Each of the three hazard types may be associated with one or more of the following impacts:

- Increased rates of general illness and mortality
- Heat-related illness, including heat stress, heat exhaustion, heat stroke, and dehydration
- Elevated risk of cardiovascular disease and other health conditions
- Damage to infrastructure
- Loss of electricity
- Food spoilage and health impacts from loss of refrigeration
- Excess and overwhelming demand on emergency medical services and health systems
- Increase response times for emergency services
- Reduction of city services, especially outdoors or in spaces without air-conditioning
- Insufficient protection from heat/smoke within existing housing and/or commercial structures
- Overheated vehicles, buses, and other transportation modes
- Drowning and other water safety issues
- Disproportionate impacts to vulnerable populations
- Health impacts to animals (wild and domesticated)

**Extreme Heat**

In 2021, Seattle, one of the least air-conditioned cities in the country, experienced record-breaking temperatures — 102°F on June 26, and 104°F on June 27, and 108°F on June 28. This three-day stretch of an oppressive Pacific Northwest heat wave was the first of its kind for Seattle, which previously had recorded only four days total with 100-degree temperatures since 1894.

The impacts of extreme heat were felt across the City. Pavement on I-5 buckled under the immense heat, creating rutting and potholes, particularly in high-traffic areas. Local and online retail stores ran out of box fans, portable air conditioners, and other cooling tools. Hospital emergency rooms and health services became overwhelmed. The Centers for Disease Control and Prevention (CDC) found that emergency department visits across the Pacific Northwest during the 2021 heat wave were 69 times higher than during the same period in 2019[1]. The King County Medical Examiner estimated that extreme

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[1] Schramm PJ, Vaidyanathan A, Radhakrishnan L, Gates A, Hartnett K, Breysse P. Heat-Related Emergency Department Visits During the Northwestern Heat Wave — United States, June 2021. MMWR Morb Mortal Wkly Rep 2021;70:1020–1021. DOI: http://dx.doi.org/10.15585/mmwr.mm7029e1

temperatures during the heatwave caused at least six deaths in Seattle and over 30 deaths throughout King County.

Extreme heat also caused significant environmental impacts to local wildlife and natural resources. In West Seattle, nearly 100 birds were killed or burned while trying to escape their rooftop nesting area. The heat also harmed or killed millions of wild and farmed fish and invertebrates along Washington's coastlines. The Washington State Department of Health urged people not to eat raw oysters and other shellfish from the region due to the risk of bacterial contamination.

Extreme heat events spanning multiple days with little or no cooling overnight can compound these impacts. Extended heat events with limited cooling, even overnight when temperatures are typically much lower than daytime highs, cumulative stress on people and the systems they rely on.

**Wildfire Smoke**

Seattle has seen an increase in duration, frequency, and severity of wildfire smoke events since 2015. In 2017, 2018, 2020, 2022 smoke caused by fires in locations ranging from British Columbia to California poured into Seattle and the larger Puget Sound region. Due to the Puget Sound region's geographic placement between two mountain ranges, smoke and other air pollutants can stagnate in the area and worsen air quality for days, even weeks, after smoke initially arrives. On September 19th, 2022, Seattle had the worst air quality in the world; the Air Quality Index (AQI) was measured at 277 (Very Unhealthy) due to smoke from the Bolt Creek fire in the eastern Cascade Range.

### 3.1.1  Health Hazards

**Extreme Heat**

Occasional summer temperatures over 90°F occur in Seattle, while temperatures rarely reached 100°F or higher prior to 2021. These events have increased in frequency and are often concurrent with wildfire smoke events. On June 28, 2021, Seattle experienced its hottest temperatures on record (108°F). The extreme heat caused a significant increase in heat-related illness and emergency room visits at local hospitals.

All populations are at risk of experiencing the impacts of extreme heat. These impacts can affect people, their service animals, and their pets. Vulnerable populations are more at-risk of experiencing health impacts from extreme heat. Vulnerable populations include:

- Older adults (greatest risk at age 65+ with increased risk beginning at 45+
- Infants and children
- People who are pregnant
- People with chronic medical conditions, including cardiovascular disease and diabetes
- People who work and engage in strenuous physical activity outdoors, including first responders and athletes
- People with high social vulnerabilities due to factors like income, environmental health, housing quality and/or stability, language access barriers, and transportation instability
- People experiencing homelessness

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Potential health impacts include increased risk of illness, injury, or mortality due to:

- Dehydration
- Hyperthermia (cramps, rash, stress reactions)
- Heat exhaustion
- Heat stroke
- Cardiac arrest and heart attack
- Severe respiratory distress
- Ischemic stroke
- Organ failure
- Death

Additional impacts may be caused by environmental conditions and damage to infrastructure. These impacts include spoiled food and medicine due to power outages, lack of access to public safety information due to power outages, increased risk of drowning and outdoor recreational accidents, increased risk of injury due to burns or smoke inhalation, and delayed access to medical care due to infrastructure impacts and hospital capacity issues.

**Wildfire Smoke**

Exposure to smoke can cause short and long-term health impacts to the entire population but can be particularly harmful to people with respiratory and cardiovascular conditions, older adults, children, pregnant people, and people living unsheltered. Short-term impacts include:

- Irritation of the eyes and respiratory tract
- Coughing, difficulty breathing, and other respiratory problems
- Increased risk of bronchitis, exacerbation of asthma, and worsening of chronic respiratory conditions
- Increased risk of cardiovascular issues, including heart attack, heart failure, and stroke

Long-term and cumulative exposure to wildfire smoke has only been studied in wildland fire fighters, however long-term exposure to air pollution is a well-established risk factor for developing or worsening respiratory and cardiovascular disease, certain types of cancer, and premature death.

### 3.1.2  Transportation and Infrastructure Hazards

**Extreme Heat**

During the June 2021 heat wave, road temperature sensors, traditionally used to monitor cold temperatures, recorded readings as high as 121°F in the Puget Sound region. Sound Transit slowed light rail trains, citing the extreme heat and impacts to tracks. The Seattle Department of Transportation sprayed steel drawbridges with water to keep them cool and prevent steel expansion, which can damage bridge opening and closing mechanisms.

Residential and commercial buildings in Seattle were built for cooler weather and designed to retain heat. More than half of all homes in Seattle do not have or cannot afford to install in-home environmental controls like air-conditioning and heat pumps. Many City-owned buildings that could be

used as refuge from the extreme heat lack air-conditioning or have aging air-conditioning systems that cannot meet demand in extreme heat.

Possible impacts from extreme heat include:

- Power outages (utilities, Wi-Fi, cooling units, refrigeration, power dependent medical or mobility equipment)
- Damage to pavement, roadways, and railways (thermal expansion of train tracks, bridge joints and paved surfaces, deterioration of steel, asphalt, coats, and sealants)
- Traffic congestion due to damage to roads and bridges
- Increased response time for emergency services
- Interruption, reduction, or cancellation of public and/or private transportation services, supply chain delivery and government services such as solid waste pickup, municipal court cases
- Inability to access to necessary medical, food & water, hygiene and sanitation or government services
- Health risks to people working outdoors or in spaces without adequate cooling, including city workers and first responders

### Wildfire Smoke

The City's buildings and homes were built for mild weather patterns and stable, healthy air quality. More than half of all homes in Seattle do not have or cannot afford air purifying technologies. Physical transportation activities like biking and walking expose people to smoke and cascading health impacts, so people may choose other modes of transportation during wildfire events.

Transportation and infrastructure impacts from wildfire smoke may include:

- Increased public transportation ridership as pedestrians and cyclists seek transit alternatives with less impact from smoke
- Public transportation being used as shelter for better air quality
- Reduced visibility on roadways, increasing pedestrian, bicycle, or vehicle accidents
- Reduced public-facing infrastructure operations due to smoke-related illness or closures
- Interruption, reduction, or cancellation of public and/or private transportation services, supply chain delivery and government services such as solid waste pickup, municipal court cases
- Inability to access to necessary medical, food & water, hygiene and sanitation or government services
- Increased response time for emergency services
- Health risks to people working outdoors or in spaces without adequate air filtration, including city workers and first responders

### 3.1.3  Weather and Climate Hazards

### Extreme Heat

The frequency and intensity of extreme heat events in Seattle are increasing. A combination of factors, stemming from or compounded by climate change, play a significant role in this increase. The Seattle

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Hazard Identification and Vulnerability Analysis (SHIVA) highlights the current and projected impacts of climate change in the Puget Sound region.

Weather and climate impacts related to extreme heat may include:

- Disproportionate impacts on vulnerable populations, particularly groups with socioeconomic and health-based vulnerabilities
- Higher snow lines and earlier snowmelt, reducing availability from local water sources
- Loss of habitat, injury, or death of native flora and fauna that are not adapted for extreme heat
- Economic losses due to high cost of public and private infrastructure heat mitigation and adaptation

## Wildfire Smoke

The frequency and intensity of wildfires and related smoke events are increasing across the west. A combination of factors, stemming from or compounded by climate change, play a significant role in this increase. Wildfires as far away as California and British Columbia can send smoke into the Puget Sound region. Seattle's wildfire vulnerability is linked to the wildfire vulnerability of western North America. As fires burn hotter, longer, and more frequently, Seattle will continue to see more frequent and severe wildfire smoke events.

Weather and climate impacts related to wildfires and smoke may include:

- Disproportionate impacts on vulnerable populations, particularly groups with socioeconomic and health-based vulnerabilities
- Concurrent heat and smoke events may result in closure of spaces that provide relief from the heat (outdoor pools and beaches) due to air quality concerns
- Economic losses due to high cost of public and private infrastructure heat mitigation and adaptation
- Economic losses due to cancellation of outdoor events and reduced summer tourism
- Loss of habitat, injury, or death of native flora and fauna that are not adapted for prolonged smoke events

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## 3.2 Planning Assumptions

The City of Seattle CEMP Introduction contains a common set of assumptions that apply to this plan. In addition to those, the following assumptions are specific to the Extreme Heat and Wildfire Smoke Annex:

- Extreme weather incidents that trigger coordination under this plan might occur several times a year.
- Extreme heat and wildfire smoke forecasts provide sufficient warning of an oncoming heat wave or air quality impact to initiate response prior to the arrival of the event.
- The time of year, day of the week, time of day, and weather conditions can affect the seriousness of an incident and the City's ability to respond.
- City employees could be impacted by an incident disrupting their home and work environments.
- The City's five 24/7 operational departments are prepared and have sufficient resources to adequately handle response to common incidents.
- The City does not have the facilities nor the resources to directly provide cooled space and filtered air to all residents.
- While extreme weather forecasts are enormously helpful in planning and response, they are not 100% accurate.
- Despite extensive public messaging, many members of the community are unable to access or act on warnings to prepare for a heat or smoke event.
- Transportation access may limit people's ability to access cooling spaces and/or bring larger cooling devices like portable air conditioners to their home. Traveling to and from cooling centers, particularly on foot, bike, or public transportation, increases exposure to extreme heat and risk of health impacts.

## 3.3 Weather and Air Quality Forecasts

The Seattle Department of Transportation (SDOT), Seattle Public Utilities (SPU), Seattle City Light (SCL), and the Seattle Office of Emergency Management (OEM) closely monitor the National Weather Service (NWS) forecasts.

The NWS may host one or more weather briefings with local jurisdictions to discuss weather forecasts in detail and provide an opportunity for responders to ask questions. Seattle OEM, SDOT, SPU, SCL, and other affected departments participate in these briefings. The NWS may issue a weather outlook, advisory, watch, or warning as a weather system approaches. A weather outlook gives notification of the potential for a significant weather event two to five days in advance.

### Extreme Heat

The NWS issues multiple products related to heat, including forecasts, watches, advisories, and warnings by location. However, heat affects everyone – even people in the same location – differently. The NWS has developed the HeatRisk prototype to better address heat risk to individuals and communities. The NWS HeatRisk forecast provides a quick view of the risk posed by extreme heat over the upcoming seven days. HeatRisk is portrayed in a numeric and color scale and provides one value each day that indicates the approximate level of heat risk concern for any location, along with identifying the groups who are most at risk.

| Value | Meaning | Who/What is at Risk? | Common in King County? |
|---|---|---|---|
| **0** | Level of heat poses **little to no risk** | No elevated risk | Very common |
| **1 Minor** | Heat of this type is **tolerated by most**; however, there is a **low risk for sensitive groups** to experience health effects | Primarily those who are extremely sensitive to heat | Very common |
| **2 Moderate** | **Moderate risk for members of heat sensitive groups** to experience health effects<br><br>**Some risk for the general population who are exposed to the sun and are active**<br><br>For those without air conditioning, **living spaces can become uncomfortable during the day**, but should cool below dangerous levels at night | Primarily heat sensitive groups, especially those without effective cooling or hydration<br><br>Some transportation and utilities sectors | Fairly common for most locations |
| **3 Major** | **High risk for much of the population who are 1) exposed to the sun and active, or 2) are in a heat sensitive group**<br><br>**Dangerous to anyone without proper hydration or adequate cooling**<br><br>**Poor air quality** is possible<br><br>**Power interruptions may occur** as electrical demand increases for cooling | Much of the population, especially those who are heat sensitive and anyone without effective cooling or hydration<br><br>Most transportation and utilities sectors | Uncommon for most locations |
| **4 Extreme** | Very high risk for entire population<br><br>**Very dangerous to anyone without proper hydration or adequate cooling.**<br><br>**This is a multi-day extreme heat event.** Prolonged heat is dangerous to anyone not prepared.<br><br>**Poor air quality** is likely<br><br>**Power outages are increasingly likely** as electrical demands for cooling may reach critical levels | Entire population is at risk<br><br>For heat sensitive groups, especially people without effective cooling, **this level of heat can be deadly**<br><br>Most transportation and utilities sectors | Rare in most locations |

**Figure 1 Public Health – Seattle & King County "Overview of HeatRisk Values"**

HeatRisk values are supplemental to the agency's official NWS heat forecast products and are meant to provide continuously available heat risk guidance for people and agencies who need to take actions at stages that may be below current NWS heat product levels. The NWS Experimental HeatRisk values and forecast are tied to the Centers for Disease Control (CDC) heat and heat-health thresholds, are location specific, and reflects factors including:

- Daily maximum temperatures
- Daily minimum temperatures
- Heat event duration
- Local climatology
- Time of year

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The following table describes actions recommended by Public Health – Seattle & King County (PHSKC) when HeatRisk reaches levels 2-4. Recommendations and considerations build on lower HeatRisk Value recommendations.

| NWS HeatRisk Value | Public Health Recommendations |
|---|---|
| 2 MODERATE | **INITIATE EARLY WARNING, PUBLIC MESSAGING, AND RESPONSE ACTIVITIES**<br>• **Recommend** sharing information about available cooling locations for general population can go to access air conditioning or cooling features such as water recreation facilities or other public places<br>• **Recommend** dissemination of key public health heat safety messaging and risk communications to at-risk populations, including those experiencing homelessness, older adults, children, and outdoor workers<br>• **Consider** limiting strenuous outdoor activities during the hottest period of the day<br>• **Consider** cancelation and/or rescheduling of outdoor children's activities, day-camps, athletic practice, and games taking place during the hottest period of the day or consider moving them indoors where temperatures are cooler<br>• **Consider** distribution of water and other cooling supplies for at-risk communities and populations<br>• **Consider** activation of daytime cooling centers for unsheltered individuals<br>• **Consider** undertaking preparation activities required to meet recommendations of higher HeatRisk levels, if forecast indicates increase in risk and temperatures<br>• **Monitor** NWS HeatRisk |
| 3 MAJOR | **RECOMMEND ACTIVATION OF COOLING CENTERS & REDUCTION IN OUTDOOR ACTIVITIES**<br>• **Continue outreach** efforts to reach at-risk populations with risk communications, cooling supplies, and water resources<br>• **Recommend** activation of daytime cooling centers for unsheltered individuals<br>• **Recommend** activation of daytime cooling centers for general population<br>• **Recommend** temporary suspension of strenuous outdoor activities during hottest times of the day<br>• **Recommend** cancelation and/or rescheduling of outdoor children's activities, day-camps, athletic practice, and games<br>• **Recommend** conducting wellness checks on elders and people living with disabilities to ensure access to air conditioning or cooling centers<br>• **Consider** expanding hours of operation for cooling centers for unsheltered individuals to accommodate overnight use<br>• If school is in session, consider capabilities of schools to maintain cooler indoor air temperatures<br>**Public Health will recommend closure if indoor temperatures cannot be maintained reasonably free of excessive hea**t **(WAC § 246-366-080)** |
| 4 EXTREME | **RECOMMEND CANCELATION OF OUTDOOR EVENTS AND ACTIVITIES**<br>• **Recommend** expanding hours of operation for cooling centers to accommodate overnight |

**Figure 2 NWS HeatRisk PHSKC Recommendations Table**

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## Wildfire Smoke

Wildfire smoke forecasts and air quality forecasts are issued by a variety of agencies, including the Puget Sound Clean Air Agency (PSCAA), Washington Department of Ecology, and Washington Department of Natural Resources, and the federal Environmental Protection Agency (EPA). These agencies also offer real-time air quality data. Departments monitor air quality forecasts and conditions before and during wildfire smoke events.

The EPA Air Quality Index (AQI) provides an indicator of the risk posed by wildfire smoke and other events that impact air quality. AQI is portrayed in numeric and color. AQI provides one value that indicates the approximate level of poor air quality concern for a location and identifies groups who are most at risk. AQI values are meant to provide continuously available air quality guidance for emergency managers, public health leaders, and vulnerable or sensitive populations.

To determine the following recommended thresholds during wildfire smoke events, Public Health uses the AQI specific to particulate matter – also referred to as "particle pollution." Wildfire smoke events and their impacts on air quality can be highly dynamic, and sudden changes in forecast conditions may occur. The following guidance and recommendations are intended to aid partners in the coordination of response efforts during a wildfire smoke event.

The following table provides recommended actions to take when AQI values reach unhealthy levels. Recommendations and considerations at each level build on lower-level AQI recommendations.

| Air Quality Index | Who Needs to Be Concerned? | What Should People Do? |
|---|---|---|
| **Good** (0-50) | | It's a great day to be active outside. |
| **Moderate** (51-100) | Some people who may be unusually sensitive to particle pollution. | **Unusually sensitive people**: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.<br><br>**Everyone else**: It's a good day to be active outside. |
| **Unhealthy for Sensitive Groups** (101-150) | Sensitive groups include **people with heart or lung disease, older adults, children, and teenagers**. | **Sensitive groups**: Reduce prolonged or heavy exertion. It's OK to be active outside but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath.<br><br>**People with asthma** should follow their asthma action plans and keep quick relief medicine handy.<br><br>**If you have heart disease**: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider. |

| | | |
|---|---|---|
| **Unhealthy** (151-200) | **Everyone** | **Sensitive groups**: *Avoid* prolonged or heavy exertion. Consider moving activities indoors or rescheduling.<br><br>**Everyone else**: *Reduce* prolonged or heavy exertion. Take more breaks during outdoor activities. |
| **Very Unhealthy** (201-300) | **Everyone** | **Sensitive groups**: *Avoid all* physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better.<br><br>**Everyone else**: *Avoid* prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better. |
| **Hazardous** (301-500) | **Everyone** | **Everyone**: *Avoid all* physical activity outdoors.<br><br>**Sensitive groups**: Remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors. |

**Figure 3 EPA Air Quality Guide for Particle Pollution**

## 3.4  Mitigation & Preparedness Activities

Recognizing the City's vulnerability to more frequent and more extreme weather events, City staff routinely engage in planning and activities to increase community preparedness and reduce their overall vulnerability. OEM, other City Departments, and regional partners develop City-wide, departmental, function-specific, and regional response mitigation and recovery plans and procedures.

Increasing healthy tree canopy levels, particularly in areas with few or no mature trees, has been shown to dramatically decrease heat island effects and increase healthy air quality for communities. Preventing the loss of existing tree canopy and improving tree canopy coverage is an ongoing mitigation effort within the City of Seattle. More information can be found here: https://www.seattle.gov/trees/management/canopy-cover.

Ongoing training of City staff and partners on their various response functions and performing exercises is critical in validating and refining plans and training. Additionally, securing grant funding to upgrade the climate resilience of infrastructure, including improving the capability for priority climate-controlled City facilities, is critical in ensuring that our plans support the needs of people in the city during extreme heat or wildfire smoke events.

The City is taking steps to ensure that residents and community members are prepared. OEM provides emergency preparedness training to hundreds of community members each year. The goal of OEM's outreach and education is to increase people's ability to remain self-sufficient and effectively work with their neighbors during a hazard event. OEM works with Community Safety Ambassadors who serve as bi-lingual cultural ambassadors and community trainers, to better engage with many of the City's ethnic communities through language and culture, building trust as well as awareness of natural hazards and personal preparedness. The organized effort afforded by community-led response efforts can be helpful to community-wide response by providing a framework for sharing information and resources and addressing community needs. More information about the City's community preparedness efforts can

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be found at: http://www.seattle.gov/emergency-management/prepare.

City and King County activities include partnering with the Office of Planning and Community Development (OCPD), Office of Sustainability and Environment (OSE), Seattle Parks and Recreation (SPR), Seattle Public Utilities (SPU), Seattle Department of Transportation (SDOT) and Public Health Seattle-King County (PHSKC). Current and ongoing mitigation efforts include:

| Agency | Heat Mitigation Programs and Projects |
|---|---|
| OCPD | • Updating of the Climate Resilience Policy for Comprehensive Plan to include climate resilience.<br><br>• Conducting SPR Natural Area restoration in forested natural areas due Dec 2024.<br><br>• Installing cooling technology at community-facilities in South Park and Georgetown to create Resilience Hubs. |
| OSE | • Planting trees and other vegetation in industrial areas of South Park and Georgetown. |
| SPR | • Planting trees in developed Parks throughout the city to increase tree canopies and provide more shade as part of the Green Seattle Partnership Plan. |
| SPU | • Restoring habitat in riparian corridors; including planting and vegetation management.<br><br>• Planting trees in residential yards and along streets by providing free trees, technical support, and water bags to residents through Trees for Neighborhoods program. |
| SDOT | • Providing guidance during construction, projects, and development that impact trees and preserving tree canopy through Landscape Architect and Arborist Offices.<br><br>• Planting and maintaining 300+ trees per year in Right of Ways. |
| PHSKC | • June 2022: Released updated Extreme Heat Plan, in partnership with National Weather Service (NWS), to include new NWS heat and cold thresholds for the Greater Seattle Area. |

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# 4. CONCEPT OF OPERATIONS

## 4.1 Incident Planning

When there is sufficient notice of an incident with the potential to cause significant impacts, the current OEM Staff Duty Officer (SDO), OEM Operations Coordinator, OEM Deputy Director, and members of the Disaster Management Committee and Strategic Work Group review available information and determine a course of action.

The decision on what action to take is based on the entirety of the circumstances, such as:

- Weather forecast and anticipated impacts
- Previous experiences with similar weather events
- Scheduled public events taking place during the weather event
- Anticipated services needed and resource availability for service delivery
- Recommendations from those City departments likely to have a role in the response

| Action | Details |
|---|---|
| **Take No Action** | Departments manage the incident without activation of the EOC. The OEM SDO is available 24/7 to provide assistance to departments. |
| **Incident Monitoring** | The OEM SDO monitors the incident in coordination with PHSKC and affected departments. The OEM SDO keeps the OEM Director and Deputy Director fully briefed on the situation. If needed, the OEM SDO can share situation reports and forecasts with stakeholders using existing EOC email distribution groups. |
| **Coordination Call** | OEM will assess the need for an extreme heat and/or wildfire smoke conference call whenever they receive notification of potentially extreme heat or unhealthy air quality that creates a life-safety impact. The assessment will involve OEM staff assessing forecasts and potential impacts with PHSKC and representatives from key departments to determine any need for further activities or activations. |
| **Planning Meeting** | The OEM Director may convene a planning meeting to develop a City Consolidated Action Plan (CAP) and determine when the EOC will be activated and what Emergency Support Functions (ESF) will be involved.<br><br>Triggers for a planning meeting may include (but are not limited to):<br><br>• A request by a City department<br>• A recommendation by PHSKC<br>• An "Extreme Heat Advisory" issued by the National Weather Service<br>• 90°F temperatures sustained for 2-days or more days/nights continuously, without interruption<br>• HeatRisk forecast of Moderate or higher<br>• Unhealthy air quality forecast |

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## 4.2 Citywide Incident Planning

A citywide planning meeting is conducted as soon as possible, after the initial weather or smoke forecast, to provide sufficient time to prepare for response. Seattle OEM convenes and facilitates this meeting. The goal of the meeting is to:

- Determine the current state of preparedness of the City
- Assess possible impacts to special events and City services
- Consider whether to activate the EOC –*or*– identify event-specific triggers for an activation

For extreme heat and wildfire smoke events, the following departments participate in the planning meeting. This list may be modified based on the type of hazard and other impacts and factors.

| | |
|---|---|
| Mayor's Office - Director of Communications and/or Mayor Representative | Seattle Department of Finance and Administrative Services |
| Seattle Department of Human Resources | Seattle Public Utilities |
| Seattle Human Services Department | Seattle Department of Transportation |
| Seattle Parks and Recreation | Seattle Information Technology |
| Seattle Animal Shelter | Seattle Fire Department |
| Seattle Center | Seattle Police Department |
| Seattle Public Library | Public Health- Seattle & King County |
| Seattle Public Schools | King County Regional Homelessness Authority |
| Seattle City Light | King County Metro Transit |
| Seattle Office of Economic Development | Sound Transit |

If the decision is made to activate the EOC, OEM will develop a Consolidated Action Plan (CAP) with objectives and strategies that will govern the response to the event.

### 4.2.1 Response

#### 4.3.1 EOC Activation

The City EOC is activated to provide citywide coordination and support for response operations during extreme heat and wildfire smoke. Typically, the EOC will activate shortly before the event arrives and remain open through the duration of the event. City EOC hours of operation are tailored to meet operational needs.

A CAP is used to coordinate operations throughout the City. Updates on response activities and situational awareness are regularly shared with all EOC stakeholders through Snapshot and Situation Reports. An Essential Elements of Information (EEI) list guides departments in what information to report to the EOC during an activation and when those reports should be provided. WebEOC, a secure, internet-based emergency information platform, is used for sharing information, resource requests, and

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updates with all City departments. MS Teams, a secure platform used by departments within the Office suite of products, is also used for informal communication and document sharing.

### Virtual Response Coordination

Response to some extreme heat events may not necessitate in-person activation of the EOC. In these cases, coordination calls will be held ahead of and during the extreme heat event through the city's MS Teams platform. An event-specific Team may be set up within MS Teams for longer duration heat events that require significant or complex coordination among city departments and partner agencies. MS Teams standard functions (chat, posts, file sharing, teleconferencing) can be used to report EEIs, submit or request incident updates, coordinate public information, and other coordination outside of scheduled coordination calls

### 4.3.2   Lead Agency Transition

As extreme heat and/or wildfire smoke hazards change with weather conditions or when life-safety priorities necessitate, lead agency assignment will be transitioned to the appropriate responding agency as indicated in the CEMP and approved by the responding department's representatives in the EOC or conference call during periods of non-EOC activation.

### 4.3.3   Vulnerable Populations

Extreme heat and wildfire smoke impacts air quality and increases the risk of related illness throughout communities. Increased vulnerability to heat and smoke stems from a variety of factors including age, socioeconomic status, housing status, language fluency, existing health conditions, and ability to reduce exposure to extreme heat and smoke. The ESF 6 and ESF 8 leads are responsible for assessing each event and identifying potential impacts to vulnerable populations. Information sharing, ongoing situation assessment, and response activities are coordinated with the ESF 6 departments and agencies, including HSD, SPL, SPR, Office of Housing, Seattle Animal Shelter, KCRHA, and Crisis Connections (2-1-1), along with ESF 5, ESF 7 and ESF 8.

### Homelessness Emergency Response Plan

Many governmental and non-profit programs provide daily basic needs services to people experiencing homelessness. During inclement weather and poor air quality, it is essential that the delivery of critical life-safety services for unsheltered people is maintained, and when needed, augmented. KCRHA's *Homelessness Emergency Response Plan: Protocols for Operating Short-term Emergency Shelter During Extreme Weather or Public Health Emergencies* describes what steps are taken during the extreme heat and cold, and wildfire smoke to provide shelter, food and water or personal protective equipment (PPE) for this specific population. For extended periods of extreme temperatures and poor air quality that present a substantial threat to life or health, shelter capacity is temporarily increased using facilities not typically used as shelters. During a disaster (weather-related or not) activities that support unsheltered people will be linked with the overall City response as described in the CEMP.

### Utility Outages

To minimize the impacts to vulnerable populations and critical services during extreme heat and smoke, electrical, water, gas outages will be promptly reported to the Seattle EOC and Public Health Seattle & King County (PHSKC). The EOC will coordinate support for impacted community members, such as

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opening cooling centers or overnight shelters and internal and external messaging. During extreme heat and smoke conditions, scheduled power and water shutoffs due to non-payment may be placed on hold. Stress on municipal electrical infrastructure may create unintended loss of utilities and cooling and air purifying technologies.

### Mobility Impacts

Conditions that prevent people from obtaining critical services, supplies or access to cooling and air quality technologies can create life-threatening situations, particularly over an extended period. The Seattle EOC will monitor for these conditions, which can include, but are not limited to:

- Hazardous driving conditions for non-emergency vehicles
- Cancelation of public transportation including Access buses
- Unsafe conditions for pedestrians, cyclists, and people waiting outside for transit
- People who use mobility devices, have access and functional needs, or are otherwise unable to safely navigate extreme conditions losing access to transit and mobility services

## 4.3.4  Extreme Heat Response Strategies

The impacts from extreme heat may lead to significant public health consequences that can persist for extended periods of time. Understanding the adverse health impacts of extreme heat exposure is relevant to a broad range of communities in the City. Long-term direct and indirect exposure to extreme temperatures has harmful impacts on human health. The increase in hotter temperatures, more often and for longer periods has led to an uptick in research on a broad range of health outcomes, including visits to hospital emergency departments, hospitalizations, medication prescribing, and emergency ambulance dispatches. Some people may experience immediate health impacts while others may experience health impacts that manifest days or weeks later, depending on the underlying health conditions. It has also impacted the way jurisdictions respond to it to protect people. Certain groups are more susceptible to the effects of extreme heat than others. These groups represent a significant percentage of our total population.

Extreme heat generally impacts large geographic areas that span multiple jurisdictions. OEM supports the response efforts of City departments and external partner agencies, including SDOT, SPU, HSD, SPR, SPL, KCRHA and PHSKC to address immediate community needs and maintain city services. The ability of responsible agencies to effectively coordinate public messaging about extreme heat, along with protective health recommendations, benefits the public which may otherwise remain uninformed or confused by conflicting messages.

### Homelessness

As outlined in the KCRHA Homelessness Emergency Response Plan and the Interagency MOU for Shelter Operations for people experiencing homelessness during Severe Weather Events, multiple City departments support KCRHA as the lead entity for developing the response. KCRHA will coordinate outreach to people living unsheltered during periods of extreme temperatures and may request the activation of additional shelters for the people experiencing homelessness, including shelters in City-owned spaces. KCRHA, FAS, HSD, SPR and Seattle Center will coordinate opening cooling centers and/or overnight cooling shelters as needed and provide transportation from encampments to shelter. The Crisis Connections (2-1-1) website provides a comprehensive list of extreme weather shelters in operation throughout the region.

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## Medical Care Access

A regional transportation plan for medically vulnerable individuals who require uninterrupted access to outpatient care, such as chemotherapy or dialysis, may be activated if regular transportation options are not available. This is a limited service intended to support the most urgent medical needs not otherwise addressed by emergency medical service providers.

In the Seattle EOC, ESF 1, ESF 6 and ESF 8 monitor public and private transportation providers to medically vulnerable populations to determine if services are being disrupted due to heat-related impacts. ESF 8 and the Northwest Healthcare Response Network (NWHRN) also request healthcare providers reschedule appointments and identify those individuals that must receive their routine healthcare without delay or interruption. In addition, Public Health – Seattle & King County can request assistance in maintaining access to critical facilities and services, such as the Puget Sound Blood Center.

## Infrastructure

Extreme heat can have significant impacts on infrastructure, particularly electrical infrastructure. Loss of power has cascading effects on individuals, communities, service providers, and the emergency medical system. Seattle City Light (SCL) monitors power system load and conditions during extreme heat events to ensure system failures are detected and resolved as quickly as possible. The ESF 12 – Energy Annex details how SCL and partners respond to emergencies impacting the electrical power systems serving Seattle.

## Transportation

SDOT engages in extreme heat mitigation and responds to impacts on critical infrastructure. The SDOT Extreme Heat Readiness and Response Plan details this response. The response to extreme heat hinges on the ability of SDOT and other transportation agencies in the region to keep roadways and transit systems in functional condition.

SDOT focuses on water-cooling and inspecting designated roadways and bridges to a defined service level. SDOT crews or SPD officers close streets or bridges as needed if there are infrastructure impacts due to heat. Closed streets are displayed on a map which is available on the City website. SDOT has a special emphasis team that can respond to road-related emergency requests from SPD and SFD.

## City Worker Safety

City staff working outdoors as part of their regular duties or emergency response may experience impacts from extreme heat. In accordance with the Washington State Department of Labor & Industries (L&I) Accident Prevention Program requirements and Outdoor Heat Exposure rules, departments should monitor weather conditions and forecasts. Departments should ensure staff have access to adequate protection from heat and medical services if they experience heat-related illness.

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Current L&I Outdoor Heat Exposure rules include requirements to:

- Provide annual training to employees and supervisors on symptoms of outdoor heat exposure and policies in place to prevent heat-related illness.
- Provide enough drinking water for employees and an opportunity to drink it on days when temperatures require preventive measures.
- Respond appropriately to any employee with symptoms of heat-related illness.

In addition to current requirements, L&I recommends employers:

- Provide adequate shade (or alternative cooling methods) at all times, to allow for access to prevent or respond to heat illness.
- Encourage and allow workers to take paid, preventative cool down rest periods so they don't overheat; and, when temperatures are 90°F or hotter, require workers to take additional paid, cool down rest periods of at least 10 minutes every 2 hours. Longer and more frequent breaks are indicated if temperatures continue to rise to 100°F.
- Make sure supervisors and employees always have a way to communicate with each other so they can promptly report heat illness and get medical assistance, if needed.

Departments may consider modifying, rescheduling, or canceling planned outdoor work during periods of extreme heat. Managers should also monitor indoor worksite temperatures during periods of extreme heat and provide workers adequate rest and access to water.

## Cooling Centers

Seattle is one of the least air-conditioned cities in the United States. During a period of extreme heat, when indicated by PHSKC guidance, the City may establish cooling centers as a space of refuge from the heat.

Cooling center options to consider include:

- Existing, open, public spaces with air-conditioning like libraries, community centers, and the Seattle Center Armory
- Air-conditioned spaces that are not typically open to the public, but could be made available during extreme heat
- Provide temporary cooling (portable air-conditioners) to existing spaces where vulnerable populations gather, such as senior centers
- Overnight cooling centers for people experiencing homelessness or lacking adequate cooling at home
- Promotion of commercial spaces with air-conditioning that are open to the public

Once established, utilization of cooling centers is likely to start low and increase over the course of the heat event as awareness of cooling center locations increases and heat impacts accumulate over time. Libraries and spaces with overnight availability tend to see higher utilization than other spaces. Low utilization of a cooling center early in a heat wave should not be seen as indicative of potential cooling center usage through the duration of a heat wave. Cooling centers should meet basic needs of people seeking refuge from the heat, including access to drinking water.

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**Public Messaging**

Public messaging should leverage a wide variety of methods and platforms. Messaging strategies should focus on methods that reach all communities, including vulnerable groups like people with chronic health conditions, children, outdoor workers, and people who spend time outdoors. Messaging strategies should also include ways to reach people who may not engage with mainstream communications and media, including immigrant communities, people whose primary language is not English, and people experiencing homelessness. Messaging for extreme heat should include:

- Emergency alerts through AlertSeattle
- In-language, accessible messaging
- Warning signs of heat-related illness
- Reminder to check on vulnerable community members and family
- Locations of cooling centers, cooling events, air-conditioned libraries, shelters, commercial cooling spaces, and cool drinking water
- Dangers of leaving children and pets inside a hot car
- Transportation access for medically vulnerable individuals and people with mobility issues
- Where to find information about the condition of roadways and weather reports
- Drowning and other recreational risk prevention

The City maintains a hazard information page for extreme heat events. This webpage includes preparedness tips, information about how the city responds to extreme heat, and additional heat resources. During an extreme heat event, this page changes to an emergency template that includes information for current conditions and available resources and services. The page can be promoted in public messaging as a central hub for city services related to the hazard. The Citywide Extreme Heat Page can be found at seattle.gov/heat.

Plans, strategies, and methods for public information sharing are detailed in the ESF 15 External Affairs Annex. Plans, strategies, and methods for emergency alerts are detailed in the Alert & Warning Support Operations Plan.

## *4.3.5 Wildfire Smoke Response Strategies*

Wildfires pose immediate danger to lives and property, but poor air quality due to wildfire smoke and ash may lead to significant public health consequences that can persist for extended periods of time. Understanding the adverse health impacts of wildfire smoke is relevant to a broad range of communities in the City, including local and state public health officials, officials responsible for air quality monitoring and management, environmental scientists, and healthcare providers.

Wildfire smoke contains many contaminants known to have harmful impacts on human health. The recent increase in fire activity has led to an uptick in research on a broad range of health outcomes, including visits to hospital emergency departments, hospitalizations, medication prescribing, and emergency ambulance dispatches. Some people may experience immediate health impacts while others

may experience health impacts that manifest days or weeks later, depending on the underlying sensitivity.

Certain groups are more susceptible to the effects of wildfire smoke, including seniors, young children, and those with pre-existing cardiovascular concerns. These groups represent a significant percentage of our total population.

Wildfire smoke can impact large geographic areas that span multiple health jurisdictions and air districts. The ability of responsible agencies to effectively coordinate public messaging about current and forecasted air quality, along with protective health recommendations, benefits the public who may otherwise remain uninformed or confused by conflicting messages.

### Homelessness

As outlined in the KCRHA *Homelessness Emergency Response Plan* and the Interagency MOU for Shelter Operations for people experiencing homelessness during Severe Weather Events, multiple City departments support KCRHA as the lead entity for developing the response. KCHRA will coordinate outreach to people living unsheltered during periods of extreme wildfire smoke and may activate additional shelters for the people experiencing homelessness. KCRHA may also coordinate with Public Health – Seattle & King County to distribute Personal Protective Equipment (PPE) such as N95 masks.

KCRHA, HSD, FAS, SPR and Seattle Center will coordinate opening clean air centers as needed and provide transportation from encampments to these sites. The Crisis Connections (2-1-1) website provides a comprehensive list of shelters, including air quality shelters, in operation throughout the region.

### Medical Care Access

A regional transportation plan for medically vulnerable individuals who require uninterrupted access to outpatient care, such as chemotherapy or dialysis, may be activated if regular transportation options are not available. This is a limited service intended to support the most urgent medical needs not otherwise addressed by emergency medical service providers.

In the Seattle EOC, ESF 1, ESF 6 and ESF 8 monitor public and private transportation providers to medically vulnerable populations to determine if services are being disrupted due to wildfire smoke-related impacts. ESF 8 and the Northwest Healthcare Response Network (NWHRN) also request healthcare providers reschedule appointments and identify those individuals that must receive their routine healthcare without delay or interruption. In addition, Public Health – Seattle & King County can request assistance in maintaining access to critical facilities and services, such as the Puget Sound Blood Center.

### Infrastructure

Indoor air filtration is one of the primary ways to reduce smoke exposure, and most air filtration systems are reliant on a steady supply of electrical power. Conditions during smoke events, such as wildfires or concurrent heat waves, may impact electrical infrastructure that serves Seattle. Seattle City Light (SCL) monitors power system load and conditions to ensure system failures are detected and resolved as quickly as possible. The ESF 12 – Energy Annex details how SCL and partners respond to emergencies impacting the electrical power systems serving Seattle.

## City Worker Safety

City staff working outdoors as part of their regular duties or emergency response may experience impacts from wildfire smoke. The Washington State Department of Labor & Industries (L&I) is in the rulemaking process for permanent Wildfire Smoke rules. In 2022, L&I issued emergency wildfire smoke rules to ensure worker safety, outlined in the table below.
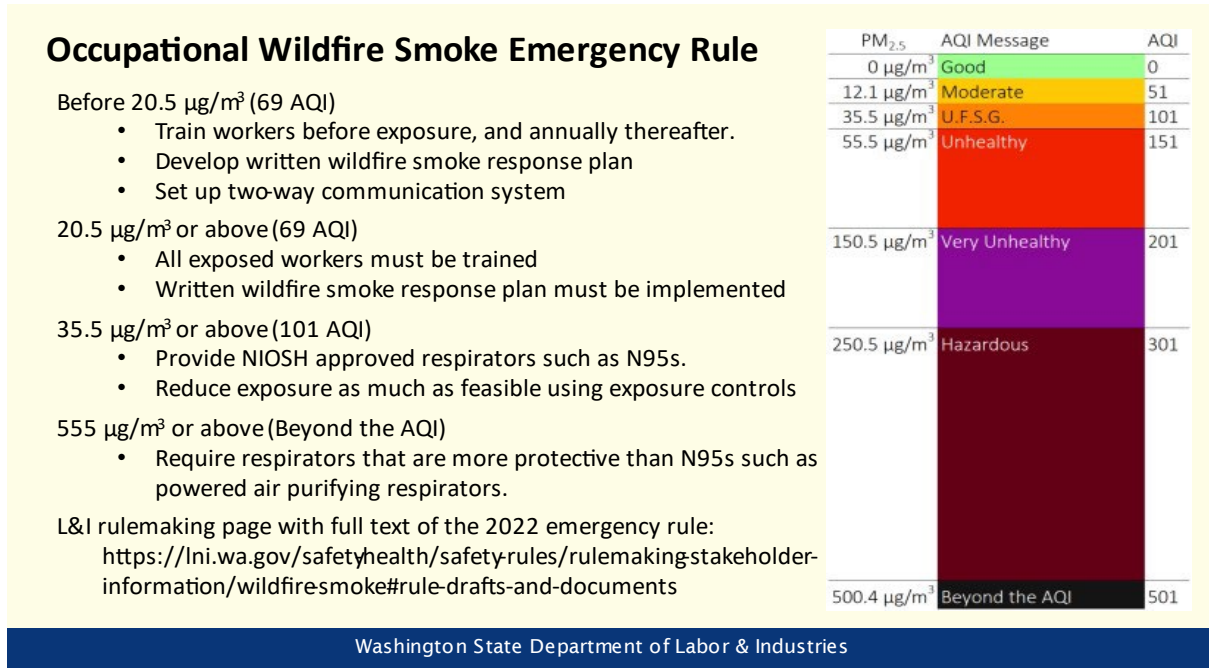


**Occupational Wildfire Smoke Emergency Rule**

Before 20.5 µg/m³ (69 AQI)
- Train workers before exposure, and annually thereafter.
- Develop written wildfire smoke response plan
- Set up two-way communication system

20.5 µg/m³ or above (69 AQI)
- All exposed workers must be trained
- Written wildfire smoke response plan must be implemented

35.5 µg/m³ or above (101 AQI)
- Provide NIOSH approved respirators such as N95s.
- Reduce exposure as much as feasible using exposure controls

555 µg/m³ or above (Beyond the AQI)
- Require respirators that are more protective than N95s such as powered air purifying respirators.

L&I rulemaking page with full text of the 2022 emergency rule:
https://lni.wa.gov/safety-health/safety-rules/rulemaking-stakeholder-information/wildfire-smoke#rule-drafts-and-documents

Washington State Department of Labor & Industries

**Figure 4 2022 L&I Wildfire Smoke Emergency Rule (Expired)**

In the absence of current emergency or permanent wildfire smoke rules from L&I, departments should act in accordance with current worker safety and accident prevention plans, monitor smoke and air quality conditions during wildfire smoke events, communicate air quality conditions and personal protective actions to workers, and ensure workers have access to adequate Personal Protective Equipment (PPE) for current and forecasted conditions. Departments may consider modifying, rescheduling, or canceling planned outdoor work during periods of significant wildfire smoke and poor air quality.

## Clear Air Spaces

Most community members can reduce their exposure to wildfire smoke by avoiding outdoor activity at home, work, and in other public spaces. However, some members of the community lack access to adequate shelter or indoor spaces to reduce their exposure to smoke. During an extended, severe wildfire smoke event, the City may work with regional response partners to identify open indoor spaces with adequate air filtration systems and establish clean air spaces for the public.

## Public Messaging

Public messaging should leverage a wide variety of methods and platforms. Messaging strategies should focus on methods that reach all communities, including vulnerable groups like people with chronic

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health conditions, children, outdoor workers, and people who spend time outdoors. Messaging strategies should also include ways to reach people who may not engage with mainstream communications and media, including immigrant communities, people whose primary language is not English, and people experiencing homelessness. Messaging for wildfire smoke may include:

- Emergency alerts through AlertSeattle
- In-language, accessible messaging
- Health impacts of smoke exposure
- How to reduce risk of exposure to wildfire smoke
- Reminder to check on vulnerable community members and family
- Locations of clean air spaces and/or shelters
- Transportation access for medically vulnerable individuals and people with mobility issues

The City maintains a hazard information page for wildfire smoke events. This webpage includes preparedness tips, information about how the city responds to wildfire smoke, and additional smoke-related resources. During a significant wildfire smoke event, this page changes to an emergency template that includes information for current conditions and available resources and services. The page can be promoted in public messaging as a central hub for city services related to the hazard. The Citywide Wildfire Smoke Page can be found at seattle.gov/smoke.

Plans, strategies, and methods for public information sharing are detailed in the ESF 15 External Affairs Annex. Plans, strategies, and methods for emergency alerts are detailed in the Alert & Warning Support Operations Plan.

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## 4.4 Direction and Control

### 4.4.1 All Departments

**Preliminary Planning and Preparation**

- Departments will prepare resources for a response to extreme heat and wildfire smoke, including planning for transportation needs, temporary cooling or clean air centers, and life-safety supplies for distribution during outreach
- During this time departments will conduct internal department planning — upstaffing, providing support to outdoor workers during heat — to mitigate the impacts of extreme heat and smoke to service delivery, critical infrastructure, and key resources
- When requested, departments will also participate with Seattle OEM and other City Departments in Citywide planning for a response.
- Departments will notify OEM if Department Operations Centers will be activated for a heat or smoke event, when they will be activated and at what level of activation, and what support is needed from the EOC
- Follow the guidance provided by the Seattle EOC, and in coordination with the Mayor's office, provide employees with updates on activation preparations, as needed.
- Coordinate pre-incident City public messaging as defined in initial planning meeting.

**Response**

When the EOC is activated, all departments will coordinate:

- With the Mayor's office on any messaging to inform and direct City employees
  - o Employee messaging, leave policies and modifying departmental hours of operation are to be shared with City Department Directors for implementation and dissemination among their staff
  - o City Department Directors have the discretion to adjust or modify messaging to personnel, including hours of operations, or services, based on their mission
- Public messaging through the Joint Information Center (JIC)
- Policy issues through the EOC Director
- Access to WebEOC to share information, map current cooling center locations, and to submit resource requests

When the EOC is activated or virtual response coordination is needed, all departments will notify:

- EOC and SDOT when road conditions deteriorate and significantly hinder response operations or delivery of services
- Emergency road hazards requests routing in support of critical operations to SDOT
- Closely monitor supply levels and usage rate of vehicle parts, fluids, and attachments
- EOC when Department Operations Center activates
- EOC of any curtailment of public-facing services and actions taken to reduce staff exposure to heat and smoke
- EOC of any fatality or significant injury related to the heat
- EOC Logistics Section well before critical supplies run low or are expended

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## *4.4.2 ESF 1 Transportation (Department of Transportation)*

**Initial Planning and Preparation**

- Provide Seattle OEM with the best estimate of potential impacts to the Transportation Department service delivery and impacts to public transit in Seattle and region.

- Provide the best estimate possible, based on forecasts and available resources, of potential impacts to transportation network and update according to the Essential Elements of Information strategy.

- Determine the need to request a King County Metro Transit Liaison to SDOT's Traffic Operations Center.

- Closely coordinate preparations with King County Metro Transit, Sound Transit and other transportation agencies in the region based on weather forecasts.

- In coordination with City pre-incident public messaging strategy, develop and disseminate public messaging regarding transit services.

**Response**

- Closely coordinate operations with:
    - King County Roads Division, Washington State Department of Transportation, other transportation agencies in the region, King County Metro Transit, Sound Transit, and other transit agencies to support transit operations
    - Seattle City Light to determine priority of handling downed power lines so key transportation routes can be reopened in a timely manner
    - Human Services Department and other agencies under ESF 6 to monitor and address impacts to transportation systems that support vulnerable populations

- Notify and rapidly address:
    - Seattle EOC of any changes in King County Metro service levels
    - Requests for emergency street clearing from the Police Department, Fire Department, Public Health Seattle and King County or others
    - Regular and frequent updates to the City EOC on road conditions, the status of storm operations and problems encountered
    - Updates on the status of rail, intercity bus service, taxi, marine and air transportation providers, particularly those that serve vulnerable populations

- Maintain and update:
    - Online mapping system
    - Master Street Closure List

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## 4.4.3   ESF 2 – Communications (Seattle Information Technology)

### Initial Planning and Preparation

Review and update list of vendors and communications contacts for use during extreme heat EOC activations.

### Response

• Monitor all communication modes (radio, telephone, networks/servers, etc.) for impacts

• Provide Seattle OEM an analysis, based on current weather forecasts, of potential impacts to communications capabilities

• As needed, activate Department Operations Center to coordinate internal operations and with other departments.

• As needed, support department communications if existing communications methods and capabilities are impacted by power outages

• As needed, activate the emergency templates on the City's Seattle.gov website and relevant hazard pages

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### *4.4.4 ESF 3 – Public Works and Engineering (Seattle Public Utilities)*

**Initial Planning and Preparation**

Review and update list of vendors and communications contacts for use during extreme heat EOC activations.

**Response**

- Monitor all communication modes (radio, telephone, networks/servers, etc.) for impacts to utility services.

- Provide Seattle OEM an analysis, based on current weather forecasts, of potential impacts to water, wastewater, and solid waste service delivery.

- In coordination with City pre-incident public messaging strategy, develop and disseminate public messaging regarding potential service interruptions.

- As needed, activate Department Operations Center to coordinate internal operations and with other departments.

- Notify the City EOC and Public Health Seattle and King County of significant water or sewer service outages, outages known to impact a health care facility or if solid waste pick up or transfer station operations will be impacted.

- Be prepared to provide equipment and crews to assist with heat-damaged infrastructure in support of SDOT or SCL operations.

## 4.4.5  ESF 4, 9, 10 Firefighting, Search and Rescue, Oil and Hazardous Materials (Seattle Fire Department)

**Initial Planning and Preparation**

- Provide Seattle OEM an analysis, based on current weather forecasts, of potential impacts to Fire Department service delivery.

- Coordinate with PHSKC on public messaging regarding heat-related illness and environmental hazards to humans.

**Response**

- As needed, activate Department Operations Center to coordinate internal operations and with other departments.

- Immediately notify the EOC of developing critical incidents with a potential for cascading impacts.

- Maintain capability to respond to calls for service and notify the EOC if trends develop which indicate emergency calls for service may be significantly delayed.

- Monitor and inform the EOC of trends in heat-related EMS calls.

- Coordinate Health One participation with emergency transportation of individuals experiencing homelessness to cooling centers and/or clean air spaces.

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## *4.4.6  ESF 5 (Emergency Management)*

**Initial Planning and Preparation**

- In coordination with the Mayor's Office and SDHR, define City public and employee messaging strategy.

- Facilitate the City initial planning meeting.

- Host the National Weather Service weather briefing at the City EOC and notify City departments of the briefing forecast.

- Coordinate development and distribution of the City Consolidated Action Plan and Essential Elements of Information guide.

- Monitor and notify, as needed, City department and regional partners about the potential for extreme heat.

- Provide regular updates, as needed, to City departments on the weather forecast, potential impacts, heat preparation activities and anticipated response operations.

- Configure WebEOC (Base and Sub-Incidents) or MS Teams space (for coordination-level events).

**Response**

- Assign OEM Staff Duty Officers to general staff positions in the EOC.

- Develop and distribute:

    o Snapshot and Situation Reports

    o Consolidated Action Plans

- Coordinate:

    o Response mapping

    o Situational awareness with King County Office of Emergency Management

    o Public and employee messaging through the Joint Information Center

    o Auxiliary Communication Service operations

    o Seattle Public Schools with any school closures or modification to hours of operation

- Update Essential Elements of Information guide, as needed

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### *4.4.7 ESF 6 Mass Care, Housing and Human Services (Seattle Human Services Department)*

**Initial Planning and Preparation**

- Provide OEM an analysis, based on current weather forecasts, of potential impacts to vulnerable populations, of coordinated efforts by HSD and KCRHA, community-serving agencies and ESF 6 City departments' services (HSD, SPR, SPL, Seattle Center, DON, Seattle Animal Shelter, OIRA, DEEL, and Office of Housing).

- In coordination with City pre-incident public messaging strategy, help develop and disseminate public messaging regarding cooling centers/shelters and other related topics.

- Develop and maintain list of locations and capacities of current and potential cooling centers and shelters.

**Response**

- Coordinate with city departments and partner agencies to establish:

  o Enhanced targeted outreach

  o Life-safety supplies distribution

  o Monitor systems that support vulnerable populations and notify the EOC of developing issues

  o Cooling centers and/or air quality shelters, including those that accept pets

  o Other mass care support as needed

- Monitor mobility issues and transportation systems that support vulnerable populations and notify the EOC of developing issues.

- Monitor ESF 6 and community-serving agencies' ability to continue providing services.

- Continue assessing and reporting impacts on vulnerable populations to the EOC

- Coordinate with city departments and partner agencies to establish and/or enhance the following community services:

  o Emergency cooling centers and public air-conditioned sites

  o Overnight emergency shelter, as needed, in coordination with KCRHA and ESF 6 partners

  o Wading pools, spray parks, and beaches with lifeguards, beyond normal seasonal operations

  o Share information to the public on cooling center locations and hours, including which sites will allow pets

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## *4.4.8  ESF 7 Resource Support (Facilities and Administrative Services)*

**Initial Planning and Preparation**

- Review and update department fleet coordinators list and review vehicle rental procedures and contracts.

- Review emergency contracting and purchasing guidelines and policies.

- Review and update inventory of extreme heat supplies such as coolant fluid for vehicles, drinking water, protective clothing, extreme heat emergency kit.

- Ensure emergency generators are ready and City vendor contracts in place for repair and refueling.

- Ensure Finance and Administrative Services supported facilities have sufficient extreme heat supplies as outlined in the plan.

- Ensure City Contracts for generators, fuel delivery, equipment/vehicles rentals, towing, and lodging are in place.

- Assist departments with preparing vehicles and facilities.

- Notify SDHR of potential staffing resource requests from departments.

**Response**

- Closely monitor reports from departments on burn rate of key supplies and arrange for resupply as needed.

- Notify departments of any adjusted hours of operation for vehicle maintenance shops.

- Coordinate extreme heat shelter staffing resource requests with SDHR.

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## *4.4.9 ESF 8 Public Health and Medical Services (Public Health Seattle and King County)*

**Initial Planning and Preparations**

- Provide recommendations based on current weather forecast, of protective actions for vulnerable individuals.

- Provide recommendations to Seattle OEM based on current weather forecasts, of potential impacts to healthcare community and service providers.

- In coordination with City pre-incident public messaging strategy, lead the development and dissemination of heat-hazards warning messages.

- Develop and distribute other relevant heat-related health alerts according to public information strategy.

**Response**

- Activate Health and Medical Area Command, as needed, to coordinate internal operations and with other jurisdictions and departments.

- In coordination with Northwest Healthcare Response Network, monitor emergency room services, blood banks, dialysis centers and other critical healthcare services for potential disruption and notify EOC.

- Rapidly evaluate impact of utility services interruptions on affected health care providers:
  - o Monitor Seattle City Light System Status website
  - o Immediately notify the EOC of developing critical incidents with a potential for cascading impacts.

- Closely monitor and report number of heat-related cases:
  - o Notify Seattle Joint Information Center
  - o Address, and if needed, route to the EOC for assistance, requests for non-medical logistical support from health care providers.

- Coordinate messaging through the Seattle Joint Information Center with County Health Department as lead for messaging related to heat-related health hazards.

- Monitor providers of public and private transportation to medically vulnerable populations and health care providers to determine if essential medical services are being impacted.

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## 4.4.10 ESF 12 (Seattle City Light)

### Initial Planning and Preparation

- Provide Seattle OEM an analysis, based on the weather forecast, of potential impacts to electrical service delivery.

- In coordination with City pre-incident public messaging strategy, develop and disseminate public messaging regarding power outages.

### Response

- Activate Department Operations Center, as needed, to coordinate internal operations and with other departments.

- Notify the EOC, PHSKC and KCEOC of significant interruptions to electrical service delivery.

- Prepare to provide crews and equipment to assist with impaired roadways in support of SDOT operations.

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## 4.4.11  ESF 13 (Seattle Police Department)

### Initial Planning and Preparation

- Provide Seattle OEM an analysis, based on current weather forecasts, of potential impacts to Seattle Police Department (SPD) service delivery.

### Response

- Activate the SPD Department Operations Center, as needed, to coordinate internal operations and with other departments

- Maintain capability to respond emergency calls for service

- Immediately notify the EOC of developing critical incidents with a potential for cascading impacts

- Notify City EOC if trends develop which indicate emergency calls for service may be significantly delayed

- Coordinate Community Safety Officer participation with emergency transportation of individuals experiencing homelessness to cooling centers.

## 4.4.12  ESF 15: Public Information

### Initial Planning and Preparation

- Prior to activation, assign a lead PIO to coordinate pre-event messaging and serve as a point of contact for media inquiries

- Brief department PIOs on the situation

- Develop a JIC staffing plan consisting of City department PIOs and any necessary partner agencies

- Participate in planning meetings to develop the event response plan

- Coordinate with regional partners from King County and the State as necessary

- Brief the EOC Director on the plan for JIC operations

- Finalize and circulate any pre-event messaging to internal and external stakeholders including the media through the lead PIO

### Response

The JIC, staffed by PIOs from City departments, is the primary site and source of public information to the community using a variety of communications channels. Leveraging their combined expertise, the PIO team provides timely, accurate, and comprehensive information to the public. PIOs can use several outgoing communications channels to reach external audiences, including, but not limited to news releases Seattle Channel the City's public website, social media, AlertSeattle and the alerts.seattle.gov blog, Wireless Emergency Alerts, regional communications channels and distribution lists, and public information phone lines.

Public messaging activities include:

- Develop and disseminate the City's public messaging

- Coordinate and integrate public messaging and strategy with other response operations and regional counterparts

- Refining messaging, as needed, with the Mayor's Office and EOC Representatives based upon real conditions and impacts

- Brief EOC staff on how the City's messages are being received by the community

- Monitor broadcast and social media sources

- Coordinate with the Mayor's office and key department representatives to ensure coverage for on camera or phone media interviews

- Contribute to the development of EOC Snapshot and Situation Reports.

- Maintain contact with:

    o Mainstream media (TV, radio, newspapers)

    o Digital media (social, blogs)

    o Mayor's Office of Immigrant and Refugee Affairs (OIRA) sourced ethnic media sources with local, regional, and international organizations

- Ensure that key messages, especially those pertaining to life-safety issues, are translated and disseminated in Tier 1 and Tier 2 languages.

- Ensure City's Inclusive Outreach and Public Engagement policy for emergency information is distributed to as broad a base as possible using:

    o OIRA

    o PHSKC Community Communications Network (CCN)

    o American Sign Language (ASL) interpreters, for any emergency news conference

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5. RESOURCE REQUIREMENTS

# 5. RESOURCE REQUIREMENTS

Problems that cannot be solved in the field become the responsibility of EOC responders.

## 5.1 Logistical Support

OEM maintains the City's EOC at 105 5th Avenue South. The EOC is a fully functioning site that can accommodate up to 150 responders at any given time. OEM has agreements in place with the University of Washington, Gates Foundation, and the Seattle Colleges system for alternate City EOC locations.

Resource needs that cannot be met within a department or existing city resources should be elevated to the EOC Logistics Section when the EOC is activated. Logistics support plans are outlined in the ESF 7 Logistics & Resources Annex.

## 5.2 Communications and Data

Seattle OEM maintains the following communications systems:

- Telephones (City network, "hot and ring-down" lines, & cell phones)
- Satellite Phone
- Ring-down telephone circuits
- All-City Intercom
- Pagers
- Printers
- Fax Machine
- 800 MHz Radios
- Washington State EMD SATCOM Unit
- Back-up Command and Control radio
- Internet Packet Radio
- LoBand, HF VHF and UHF radios
- Electronic Data systems (servers/desktops)
- National Warning System (NAWAS) telephone
- Video Conferencing Systems
- WebEOC
- AlertSeattle

## 5.3 Resource Management

Resource tracking, requesting, ordering, management, and demobilization plans and guidelines are detailed in ESF 7 Logistics and Resources.

### 5.3.1 Ordering Specialized Resources

Departments will obtain specialized resources using established department procedures, agreements, and existing contracted vendors. When specialized resources require logistical support such as fuel, equipment, or food, the ordering department must immediately notify the EOC Logistics Section.

When a special resource cannot be obtained, the department will complete a City Resource Request in WebEOC Resource Tracker or fill out a 213RR. The department will work with the EOC Logistics Section

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to order specialized resources, either through a subject matter expert embedded within the Logistics Section or through close coordination to ensure the order's accuracy.

Hospitals and other health care providers are responsible for ordering their own medical supplies, with Health and Medical Area Command (HMAC) assistance as needed. On behalf of the medical community, HMAC serves as the single point of ordering for County, State and Federal government resources and works in concert with Northwest Hospital Response Network (NWHRN). Logistical support for mutual aid medical teams will be the responsibility of HMAC. Local Emergency Operations Centers, including Seattle, are responsible for non-medical resource requests from healthcare providers.

### 5.3.2  Ordering Regional Shared Resources

The City will seek resources from other jurisdictions when shortfalls cannot be met internally. The EOC Logistics Section will push requests up to the King County Emergency Operations Center. The EOC Operations Section will prioritize these resources requests according to the incident priorities. The Logistics Section will clearly communicate these priorities to King County.

### 5.3.3  Facilities

Departments with facilities that cannot be used due to extreme heat, smoke and air quality, or other adverse conditions should look first to the alternative sites delineated in their departmental Continuity of Operations (COOP) plans. If these alternatives sites are also unsuitable, the department should provide a needs assessment to the EOC Logistics Section, who will coordinate with FAS.

Washington State Department of Labor & Industries (L&I) issued new rules on June 1, 2022 (WAC 296-62-095) regarding occupational heat exposure hazards for employees who work outdoors and are exposed to extreme heat. L&I also issued emergency wildfire smoke rules to ensure worker safety in 2022 (WAC 296-62-085), which have expired as of this plan's promulgation. These guidelines are aligned with proposed permanent wildfire smoke rules which are currently undergoing evaluation and approval. Details on L&I rules for heat and smoke are available in Sections 4.3.4 (Extreme Heat Response Coordination) and 4.3.5 (Wildfire Smoke Response Coordination) of this plan under City Worker Safety.

The Finance and Administrative Services (FAS) Department Operations Center (DOC) will work with the requesting departments to evaluate appropriate facilities, acquisition and lease management. It is important for departments to pre-identify facilities to the extent possible. The EOC will work with the FAS DOC to prioritize facility requests, if needed.

When a department requires additional facilities to support a surge in operations (example: mutual aid strike teams, task forces, contracted service providers, staging areas, and command posts), they should submit a City Resource Request that describes the type of facility needed, intended use of the facility, number of occupants etc., to the EOC Logistics Section. The EOC Logistics Section will coordinate the identification and assignment of additional facilities.

## 5.5  Movement Coordination

Moving resources into and around the City will require the unprecedented reorganization of current transportation capacity to create delivery capabilities and authorities. Early in the incident, the EOC Logistics Section will evaluate conditions of the City's resource providers and transportation in all parts

of the City. As the incident progresses, this work will expand to explore supply chain impacts on the community at large, beyond the City's providers.

Conditions will vary greatly, plans in different sections of the city may vary greatly, but all will share the goal of reestablishing the delivery of resources to the people who need them. The EOC Logistics Section will work closely with SDOT and other ESF #1 partners to assess the status of the infrastructure and explore multi-modal alternatives.

The EOC Logistics Section, with support from partner agencies, vendors, and services will facilitate the delivery of resources into and around the city to include:

- Assisting to secure helipad access and other aircraft staging
- Coordinating with Defense for Civil Authorities (DSCA) capabilities involving resources via the US Department of Defense
- Coordinating with the County and the State to move freight through adjacent impacted areas following credentialing protocols
- Coordinating with marine resources, to assist with the movement of resources
- Arranging security for transportation of inbound resources

## 5.5  Internet

WebEOC and MS Teams are the primary tools for coordinating, communicating, and documenting information during extreme heat and wildfire smoke events. Both platforms are internet reliant. If the internet is unavailable, the EOC will default to pencil and paper backups. The Seattle EOC maintains an email account for general disaster response which is monitored by the Emergency Operations Center Planning Section. The JIC will develop disaster-related messaging for the City's public-facing website.

## 5.6  Mapping

Mapping in support of disaster operations will be coordinated through the EOC Planning Section. Requests for maps will be directed to the Planning Section. The Planning Section will prioritize critical information by incorporating into initial EOC situation maps during an incident, which include:

- Location of cooling centers and emergency shelters
- Other concurrent major incidents (e.g., major fires)
- Status of major bridges; status of freeway
- Closed or evacuated hospitals

Incident-specific information will be combined with maps of known vulnerabilities within the City, both geophysical and social in nature, to help inform ESF 6 Mass Care decision making. Maps that will inform situational awareness, and will be distributed to EOC responders include:

- King County Urban Heat Island Mapping
- National Weather Service Heat Risk forecast maps
- National Shelter System - Human Services Branch and the American Red Cross use the National Shelter System database to share shelter information. FEMA publishes an ArcGIS map of open shelters from the database.

Departments will provide departmental maps to the EOC Planning Section. The EOC Planning Section will ensure that maps generated by other jurisdictions are reviewed before adoption by the City and that

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maps are reviewed by the JIC prior to public release. Social Media maps must be verified before use. The EOC Planning Section will monitor social media for operational information. The JIC will monitor social media maps for public information.

## 5.7 Reports

The EOC Consolidated Action Plan (CAP) and the Essential Elements of Information (EEI) strategy for incidents defines how the EOC shares information. Multiple reports are used to compile the CAP:

- **Snapshot** - Common Operating Picture; issued at one to two hours cycles; update on known damage and impacts to services; can be viewed using handheld devices; and is sent to a wide audience of government and partners in the region.

- **Situation** - Common Operating Picture; generally issued twice during each 12-hour operational period; comprehensive overview of the situation and response operations; and is sent to wide audience of government and partners in the region.

- **Press Release** - Issued frequently during the disaster by the JIC; and Individual departments may also issue press releases in coordination with the JIC.

# 6. ADMINISTRATION

This document is an external plan as defined by the City of Seattle Emergency Management Program Planning Policy and follows the maintenance process, which includes a method and schedule for evaluation and revision, as described therein.

**Table 4. Record of Changes**

| RECORD OF CHANGES | | | |
|---|---|---|---|
| DATE | TYPE | CONTACT | SUMMARY |
| 06/29/2023 | APPROVAL | KATE HUTTON | PLAN APPROVED BY EMERGENCY EXECUTIVE BOARD |

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7. REFERENCES

# 7. REFERENCES

City of Seattle Comprehensive Emergency Management Plan

Emergency Operations Plan (EOP)

EOP Annexes:

- ESF 6: Mass Care, Housing, and Human Services
- ESF 6: Mass Care, Housing, and Human Services Sheltering Appendix
- ESF 7: Logistics & Resources
- ESF 12: Energy
- ESF 15: External Affairs
- Incident Support Plan – Alert and Warning

Seattle Hazard Identification and Vulnerability Analysis (SHIVA)

King County Comprehensive Emergency Management Plan

KCRHA Homelessness Emergency Response Plan: Protocols for Operating Short-term Emergency Shelter During Extreme Weather or Public Health Emergencies

King County Extreme Heat Mitigation Strategy

National Weather Service HeatRisk Prototype Overview

Environmental Protection Agency Air Quality Index

WAC 296-62-095 Outdoor heat exposure

WAC 296-62-085 Wildfire smoke