

Public Health – Seattle & King County
Extreme Heat Response Plan



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INTRODUCTION

Purpose

The *Extreme Heat Response Plan* (Plan) for Public Health – Seattle & King County (Public Health) describes the anticipated actions the department may take before and during an extreme heat event to protect community health and limit health disparities.

Scope

This Plan can be referenced by Public Health leadership and staff to facilitate effective incident management and response for an extreme heat event. This Plan may also guide the development of Incident Action Plans (IAPs) that establish the objectives, resource requirements, and tactics for a given operational period during an extreme heat event.

Planning constraints

This Plan was developed under nonemergency conditions and includes Public Health's general procedures for responding to future extreme heat events. Although this Plan attempts to reduce the unknowns for an anticipated extreme heat event, it is impossible to plan for every contingency and every aspect of an incident response. Public Health plans are not intended to be proscriptive, but guide decision making and resource allocation, and ensure equity considerations are embedded in our response actions. This Plan should thus be considered a starting point for incident management and response, and Public Health leadership and staff who adapt or implement this Plan should maintain flexibility for action and innovation to best meet community needs during an actual extreme heat event.

INCIDENT OVERVIEW

Hazard definition

Extreme heat is defined as summertime temperatures that are much hotter than average for a particular climate. Heat is one of the [leading weather-related killers in the United States](#), resulting in hundreds of fatalities each year. Heat tends to be most impactful and deadly in the form of a heat wave or any period of anomalous and uncomfortably hot weather that lasts several days to weeks at a time, especially when there is no break in the heat at night.

Recent history

Temperatures in Washington have risen [almost 2 degrees Fahrenheit](#) since the beginning of the 20th century; since 1986, all but 5 years have been above the long-term (1895-2020) average. Warming is projected to continue through the end of this century and will lead to increases in heat wave intensities. Extreme heat events are predicted to happen more often and last longer due to our [changing climate](#).

King County heat records were shattered in [June 2021](#) during an intense and unprecedented heat wave throughout the Pacific Northwest. The [deadliest weather-related event in Washington history](#), King County recorded 33 deaths between June 26, 2021, and July 10, 2021, attributed to excessive heat induced complications. In 2022, three heatwaves with moderate to major risk levels occurred between June and August.

[Health and medical impacts](#)

[Heat-related illnesses](#), like heat exhaustion or heat stroke, happen when the body is not able to properly cool itself. While the body normally cools itself by sweating, during extreme heat, this might not be enough. In these cases, a person's body temperature rises faster than it can cool itself down. This can cause damage to the brain and other vital organs. Groups most at risk for impacts include children, older adults, outdoor workers such as those in agriculture and construction, people experiencing homelessness, low-income households without access to cooling resources, people who are socially isolated, pregnant women, and people with chronic medical conditions, including mental health conditions.

Emergency medical services (EMS) calls, hospitalizations, and mortality increase for all ages with increasing heat intensity. Drowning events may also increase during extreme heat.

[Effective action](#), taken early, can reduce the health impacts of exposure to extreme heat.

INITIAL RESPONSE

[Notification and warning](#)

The National Weather Service (NWS) can make high confidence forecasts for extreme or excessive heat up to a week in advance. There are three [Watch/Warning/Advisory \(WWA\)](#) products that the NWS can issue related to excessive heat:

- **Excessive Heat Warning.** Issued within 12 hours of the onset of extremely dangerous heat conditions. Very hot conditions are likely to result in life-threatening illness for those unable to escape the heat or significant impacts to commerce and travel.
- **Excessive Heat Watch.** Issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.
- **Heat Advisory.** Issued within 12 hours of the onset of dangerous heat conditions. Hot conditions will not reach the warning threshold but could still cause impacts to life, commerce, and travel.

Following the issuance of any WWA product, the NWS' [HeatRisk map](#) is used to understand the relative risk across King County as indicated by the experimental HeatRisk forecast. This forecast describes the [level of risk to identified heat-sensitive populations](#) in the community and actions to take to stay safe.

Public Health's Preparedness Section (Preparedness) receives all NWS WWA products and any subsequent updates and briefings from King County Office of Emergency Management (King County OEM). When the first NWS WWA product is issued, Preparedness will notify Public Health divisions and programs that have identified roles in response operations:

- Assessment, Policy Development & Evaluation Unit (APDE)
- Communications
- Environmental Health (EH)
- Emergency Medical Services (EMS)
- Healthcare for the Homeless Network (HCHN)
- Medical Examiner's Office (MEO)
- Office of Equity and Community Partnerships (OECPP)

- Preparedness Section

Additional WWA products may be disseminated by the NWS prior to or during an extreme heat event. Preparedness will continue to share these products with other Public Health divisions and programs to help inform response operations.

Assessment

If a WWA product is produced, Public Health divisions and programs with identified roles in response operations may be asked to attend a meeting facilitated by Preparedness to review essential elements of information (EIs) and make a timely and informed decision on the need to initiate incident action planning. EIs related to extreme heat include:

- NWS [forecasts for King County](#)
 - Daytime high temperature ranges
 - Overnight low temperature ranges
 - Heat event duration
- NWS [experimental HeatRisk forecasts](#)
 - How significantly above normal the temperatures are given geography and time of year
 - Groups potentially most at risk of heat effects
 - Infrastructure potentially most at risk of heat effects
 - Potential compounding or cascading impacts

Prior to meeting, Preparedness will seek to gather information from King County OEM, City of Seattle Office of Emergency Management (Seattle OEM), and the Northwest Healthcare Response Network (NWHRN) around any actions underway or being planned by local emergency management, other city and county departments, and healthcare systems. These actions may further inform the need to initiate incident action planning. For example, Public Health may be asked to support partners responsible for establishing cooling centers. Preparedness will attend pre-incident briefings and meetings organized by King County OEM, Seattle OEM, and NWHRN and invite Public Health divisions and programs to participate as appropriate.

The forecasted HeatRisk levels may not necessitate a meeting of divisions and programs with identified roles in response operations. After initially reviewing EIs and any other critical information requirements, Preparedness may send an email to initiate situational awareness across the divisions and programs without recommending a response meeting. This information exchange via email may continue throughout the heat event if divisions and programs feel confident in their ability to manage response activities without additional coordination. This is considered a partial activation, as described below.

After reviewing EIs and any other critical information requirements, divisions and programs with a response role should:

- **Make a recommendation on an appropriate incident management structure.** Depending on the incident complexity, Public Health may partially or fully activate Public Health's Health and Medical Area Command (HMAC) to support divisions and programs in preparing for an extreme heat event and managing any subsequent emergency response operations.

During a **partial activation**, response to the extreme heat event may require ongoing information sharing and coordination across Public Health divisions and with external response partners, such as King County OEM and Seattle OEM. Preparedness will attend response partner meetings and share any updates to the forecast, partner activities, and requests for information with identified Public Health response staff via email. In this partial activation state, staff identified from APDE, EMS, MEO, HCHN, EH, and Communications should share updates on any planned and conducted response activities with Preparedness throughout the event. If the complexity of the extreme heat event increases, Preparedness will convene a meeting with identified Public Health staff to determine additional support needs and recommend an appropriate incident command structure, as necessary, which may lead to a full activation.

When **fully activated**, HMAC serves as Public Health's single coordination point for incident response and follows a formal incident action planning process consistent with the [National Incident Management System \(NIMS\)](#). The role of HMAC is further defined in the Emergency Support Function (ESF) 8 Annex to [King County's Comprehensive Emergency Management Plan](#).

- **Make a recommendation on incident objectives and resource requirements for the first operational period.** Public Health should manage extreme heat events by developing objectives that define what must be accomplished to protect community health and limit health disparities. The availability of personnel, equipment, supplies, or facilities should be considered when developing objectives. It is recommended that the first operational period for an extreme heat event be at least 24 hours or longer depending on NWS forecasts.

Participants should share meeting outcomes with other Public Health staff who may be responsible for responding to the extreme heat event. The following information should be shared as available and as authorized to responders:

- Issued WWAs
- HeatRisk Levels
- EEIs and other critical information requirements
- Projected workforce needs and potential assignments
- Any pre-incident steps staff need to take to prepare to respond

Public Health's *Workforce Mobilization Annex* includes additional considerations for communicating with potential responders.

[Agency Administrator Briefing](#)

Preparedness will schedule an Agency Administrator Briefing with the Public Health Director, Public Health Deputy Director, and Local Health Officer (LHO) and present the following:

- Issued WWAs
- HeatRisk Levels
- EEIs and other critical information requirements
- Recommended incident management structure
- Recommended incident objectives and resource requirements for the first operational period

Other Public Health Office of the Director staff may also attend the Agency Administrator briefing at the request of the Public Health Director, Public Health Deputy Director, or LHO. Preparedness may also ask other Public Health divisions and programs that have identified roles in response operations to attend.

Briefing participants should agree to a final incident management structure as well as incident objectives and resource requirements for the first operational period.

Incident Management Team and responder mobilization

If HMAC is activated, Preparedness will mobilize staff from its HMAC Incident Management Team (IMT) roster to fill Command and General Staff positions within the Incident Command System (ICS). The following ICS positions are typically staffed by the HMAC IMT:

- Agency Administrator
- Incident/Area Commander
- Safety Officer
- Liaison Officer
- Equity Officer
- Public Information Officer
- Operations Section Chief
- Planning Section Chief
- Logistics Section Chief
- Finance and Administration Section Chief

The Incident/Area Commander (IC/AC) may choose to staff fewer Command and General Staff positions in consideration of the incident objectives and resource requirements for the specific WWAs, EEIs, and other critical information requirements. They may also choose to staff more positions depending on what is needed to facilitate effective incident management.

Public Health divisions and programs that have identified roles in response operations are responsible for assigning Public Health staff as responders to the Operations Section. The following services may be reflected in the roles and responsibilities of staff serving in the Operations Section:

- Surveillance and Data
- Health and Safety Guidance
- Outreach Services
- Healthcare Systems Support

Public Health's *Workforce Mobilization Annex* includes additional considerations for identifying and assigning responders.

HMAC activation is assumed in the proceeding sections of this Plan, but if HMAC is not activated, Public Health divisions and programs are still encouraged to use NIMS-compliant concepts to effectively manage the impacts of an extreme heat event as they carry out response operations. Even if not initially activated, HMAC can also be partially or fully activated in support of divisions and programs as an extreme heat event unfolds.

[Incident Briefing](#)

The IC/AC should deliver an Incident Briefing to the HMAC IMT and other responders. An ICS 201 Incident Briefing may be used to help prepare for and facilitate the briefing.

Following the briefing, an HMAC Activation Notice should be sent to Public Health leadership and staff and external partners, the HMAC IMT, and any other responders.

OPERATIONS

The Incident Briefing leads into the initial operational period and marks the start of proactive incident management for an extreme heat event. Facilitated by the HMAC Planning Section, an IAP should be developed for the first operational period and then executed. The following objectives and strategies should be considered for inclusion in an IAP for an extreme heat event.

Different objectives and strategies are recommended for each of the forecasted HeatRisk values. These are recommendations only; the impact of extreme heat during an extended duration event can fluctuate over time. **All objectives can be used at any point during an extreme heat response**, as required by the scope of the response and at the discretion of the Area Commander.

Below is a list of all objectives, organized by response areas: Information Management, Public Information and Guidance, and Technical Assistance.

[Information management](#)

MONITOR

- **Objective:** Monitor weather forecasts, alerts, and warnings.
 - *Strategy:* Monitor National Weather Service (NWS) forecasts and expected population impacts.
 - Lead: HMAC Planning Section
 - **Attachment:** *Response Resources for Extreme Heat Operations*
 - *Strategy:* Monitor WebEOC for updates.
 - Lead: HMAC Planning Section
 - *Strategy:* Liaise with King County Office of Emergency Management (KCOEM) for key briefings and updates.
 - Lead: HMAC Planning Section
- **Objective:** Collect data on heat-related illnesses, deaths, and other heat-related impacts to populations.
 - *Strategy:* Track heat-related visits to emergency departments.
 - Lead: APDE
 - *Strategy:* Track heat-related emergency calls and drowning events.
 - Lead: EMS
 - *Strategy:* Track heat-related deaths.
 - Lead: Medical Examiner's Office
 - *Strategy:* Track veterinary surveillance, if needed.
 - Lead: Environmental Health
- **Objective:** Track open cooling centers/locations.

- *Strategy:* Receive reports from KCOEM on cooling center updates.
 - Lead: HMAC Planning Section
- *Strategy:* Monitor WebEOC updates and KCOEM heat response website.
 - Lead: HMAC Planning Section
 - **Attachment:** *Response Resources for Extreme Heat Operations*
 - **Support Document:** HMAC Playbook
- **Objective:** Monitor heat impacts to healthcare facilities.
 - *Strategy:* Receive WATrac Bed Status and Boarder Report from NWHRN.
 - Lead: HMAC Liaison Officer
 - *Strategy:* Receive reports from NWHRN on impacts to healthcare facilities and any activation of DMCC.
 - Lead: HMAC Liaison Officer
- **Objective:** Conduct outreach to assess disproportionate heat impacts on key communities across King County.
 - *Strategy:* Receive input and updates from Office of Equity and Community Partnerships.
 - Lead: HMAC Equity Officer
- **Objective:** Monitor heat impacts to Public Health services and sites.
 - *Strategy:* Ask COOP Liaisons to report on impacts to Priority 1 functions and facility status.
 - Lead: Preparedness

DOCUMENT

- **Objective:** Document information on heat-related illnesses, deaths, and other heat-related impacts to populations.
 - *Strategy:* Document heat-related illness and health impacts data.
 - Lead: HMAC Planning Section
 - **Attachment:** *Heat Issues Tracking*
 - **Attachment:** *Extreme Heat Surveillance Response Guidance*

DISSEMINATE

- **Objective:** Disseminate information on heat-related illnesses, deaths, and other heat-related impacts to populations.
 - *Strategy:* Produce HMAC snapshots and IAPs as needed and disseminate.
 - Lead: HMAC Planning Section
 - **Supporting Document:** HMAC Playbook
 - **Supporting Document:** WebEOC SOP
 - **Supporting Document:** HMAC Distribution List
- **Objective:** Disseminate information on cooling center availability and locations.
 - *Strategy:* Disseminate to ESF-8 partners through Situation Reports/Snapshots via email.
 - Lead: HMAC Planning Section
 - **Supporting Document:** HMAC Playbook
 - **Supporting Document:** HMAC Distribution List
- **Objective:** Disseminate information on heat impacts to Public Health services and sites.

- *Strategy:* Utilize COOP Liaisons to track impacts to Priority 1 functions and facility status.
 - Lead: HMAC Planning Section
 - **Supporting Document:** HMAC Distribution List
- **Objective:** Respond to public health-related information requests from partners and others.
 - *Strategy:* Monitor regular communication channels, WebEOC, and community channels for requests.
 - Lead: HMAC Planning Section
 - *Strategy:* Participate in planning meetings and briefings held by Seattle OEM and King County OEM as requested.
 - Lead: HMAC Liaison Officer

[Public information and guidance](#)

HEAT HEALTH & SAFETY GUIDANCE

- **Objective:** Develop health and safety guidance relating to ongoing heat event.
 - *Strategy:* Adapt existing heat guidance and resources to any event-specific information (ongoing disease impacts relating to heat; ongoing public events; beach/lake closures due to bacteria; etc.).
 - Lead: Environmental Health
 - **Attachment:** *Heat Response Guidance: Thresholds and Recommendations*
 - **Attachment:** *PHSKC Recommended Heat Measures*
 - **Attachment:** *Response Resources for Extreme Heat Operations*
- **Objective:** Develop heat-related health and safety recommendations for King County services and operations.
 - *Strategy:* Recommend the opening of cooling centers based on population health impacts.
 - Lead: Environmental Health
 - Approval: Local Health Officer
 - *Strategy:* Recommend reduction of services across King County departments due to heat exposure impacts (ie, COOP activation for services in outdoor settings; staff heat safety resources).
 - Lead: Environmental Health
 - Approval: Local Health Officer
 - Enforcement: Human Resources
 - **Attachment:** *PHSKC Employee Extreme Heat Resources*
- **Objective:** Develop heat-related health and safety recommendations for reduction of outdoor activities and services.
 - *Strategy:* Use thresholds to determine recommendations for outdoor workers and outdoor activities (youth camps, events, sports, leisure).
 - Lead: Environmental Health
 - Approval: Local Health Officer

PUBLIC INFORMATION

- **Objective:** Develop relevant, specific, and actionable public information to assist the public in staying safe in high temperatures.
 - *Strategy:* Promote heat safety messages via Public Health’s blog, social media, Community Communication Network, and other outlets.
 - Lead: Communications
 - **Attachment:** *Heat Risk Communications Resources*
 - *Strategy:* Print heat-related health education materials in multiple languages.
 - Lead: Communications

AT-RISK POPULATIONS and KEY SETTINGS GUIDANCE

- **Objective:** Develop relevant, specific, and actionable messaging for key at-risk populations to stay safe in high temperatures: those experiencing homelessness, elderly, infants, those on certain medications, pets, outdoor workers, those without cooling systems in their homes, etc.
 - *Strategy:* Promote heat safety messages on platforms in addition to Public Health’s regular channels, considering alternative outlets to target the specific at-risk populations [radio spots; community blogs and newspapers; schools; libraries; etc.]
 - Lead: Communications
 - *Strategy:* Provide heat messaging and recommended actions in multiple languages.
 - Lead: Communications
 - **Attachment:** *Heat Risk Communications Resources*
 - **Attachment:** *Heat Messages in Translation*
- **Objective:** Develop relevant, specific, and actionable messaging for cooling center/shelter operators.
 - Lead: Communications
- **Objective:** Develop relevant, specific, and actionable messaging for regulated settings/locations.
 - *Strategy:* Provide relevant messaging for swimming pools, beaches, and water parks (drowning caution, water temperature warnings, burn caution for playground structures, etc.).
 - Lead: Environmental Health
 - **Attachment:** *Food & Facilities Heat Response*
 - *Strategy:* Provide relevant messaging for restaurants about food spoilage.
 - Lead: Environmental Health
 - **Attachment:** *Food & Facilities Heat Response*

REGULATORY ROLE

- **Objective:** Determine closures/restrictions of key regulated spaces and settings (beaches, shelter sites, parks, etc.).
 - *Strategy:* Determine cooling center facility/location compliance.
 - Lead: Environmental Health
 - *Strategy:* Determine closures/restrictions of beaches, rivers, lakes.
 - Lead: Environmental Health

Technical support

AT-RISK POPULATION OUTREACH

- **Objective:** Distribute relevant, specific, and actionable heat safety messaging to at risk populations and key partners that serve at risk populations.
 - *Strategy:* Disseminate messaging to KC Libraries, KC Parks, and other Public Health partners.
 - Lead: Communications
 - *Strategy:* Distribute messaging developed by Communications to those experiencing homelessness.
 - Lead: Healthcare for the Homeless Network (HCHN)
 - *Strategy:* Distribute relevant, specific, and actionable messaging to cooling centers/shelter operators.
 - Lead: Healthcare for the Homeless Network (HCHN)
 - Key Partner: DCHS, KC RHA
 - *Strategy:* Disseminate messaging to partners serving outside laborers.
 - Lead: Communications
 - Support: Equity Officer
 - *Strategy:* Disseminate messaging to partners serving agencies serving seniors and the elderly, such as Long-Term Care Facilities and pharmacies.
 - Lead: HMAC Liaison Officer
 - Informed by: NWHRN
 - **Attachment:** *Heat Risk Communications Resources*
 - *Strategy:* Disseminate messaging to partners serving childcare facilities.
 - Lead: Communications
 - Support: Environmental Health; Best Starts for Kids
 - *Strategy:* Disseminate messaging to partners serving restaurant workers.
 - Lead: Environmental Health
 - *Strategy:* Disseminate Public Health employee resources upon request and direct questions on employee guidance or mandates to Human Resources.
 - Lead: Environmental Health
 - Authority: Human Resources: Safety & Claims
 - **Attachment:** *PHSKC Employee Extreme Heat Resources*
 - **Reference:** *HR Heat-Related Illness (HRI) Prevention*
- **Objective:** Conduct outreach to individuals experiencing homelessness and at high risk of heat-related illness.
 - *Strategy:* Liaise with the Regional Homelessness Authority to prioritize outreach scope.
 - Lead: Healthcare for the Homeless Network (HCHN)
 - *Strategy:* Connect individuals with available cooling center locations and shelter information.
 - Lead: Healthcare for the Homeless Network (HCHN)
 - *Strategy:* Provide limited first aid care services to key at-risk individuals.
 - Lead: Healthcare for the Homeless Network (HCHN)
 - *Strategy:* Provide volunteer management support for outreach activities, if necessary.

- Lead: HMAC Logistics Section
 - **Supporting Document:** *PHRC Severe Weather Shelter Guidance*

COOLING CENTERS

- **Objective:** Share cooling center recommendations and relevant health and safety guidance with partners operating cooling centers.
 - *Strategy:* Participate on coordination calls with partners operating cooling centers; share Public Health recommendations on cooling centers and applicable health and safety guidance.
 - Lead: HMAC Liaison Officer
- **Objective:** Support partner needs at prioritized cooling center sites serving those most at risk during the heat event.
 - *Strategy:* Support cooling center opening and operations.
 - Lead: Environmental Health
 - Lead: HMAC Logistics Section
 - **Supporting Document:** *Shelter Resource List: Durable Medical Supplies*
 - *Strategy:* Provide ventilation guidance, HEPA filter units, and MERV box fans to key congregate shelter locations.
 - Lead: Healthcare for the Homeless Network (HCHN)
 - **Attachment:** *Ventilation Resource Distribution Process*
 - *Strategy:* Support volunteer need for first aid and triage at cooling centers.
 - Lead: HMAC Logistics Section
 - **Supporting Document:** *PHRC Severe Weather Shelter Guidance*

HEALTHCARE SYSTEM SUPPORT

- **Objective:** Address healthcare system requests for materiel support to mitigate heat impacts.
 - *Strategy:* Coordinate with the Northwest Healthcare Response Network to fulfill non-medical resource requests from healthcare facilities (such as nursing home requests for fans).
 - Lead: HMAC Logistics Section
 - **Supporting Document:** *Logistics Section Guide*
 - **Reference:** [NWHRN Resource request process](#)
 - *Strategy:* Manage health-related resource requests from response partners (such as durable medical equipment for cooling centers).
 - Lead: HMAC Logistics Section
 - **Reference:** [NWHRN Resource request process](#)
 - **Supporting Document:** *Logistics Section Guide*
 - **Supporting Document:** *Shelter Resource List: Durable Medical Supplies*
- **Objective:** Provide public health support to communities and key settings disproportionately affected by heat-related impacts (e.g., power outages).
 - *Strategy:* Provide options for individuals to charge power-dependent medical equipment.
 - Lead: HMAC Liaison Officer

- Public Health divisions and programs
- King County Office of Emergency Management
- City of Seattle Office of Emergency Management
- Emergency management representatives from local jurisdictions
- Relevant county departments and agencies
- Northwest Healthcare Response Network
- National Weather Service

Socialization is intended to inform partners of any changes following an annual update and revision of the document. Public Health divisions and programs and key partners directly involved in heat response will have participated in the revision process, ensuring thorough engagement prior to any socialization.

Training and exercises

Preparedness maintains an Integrated Preparedness Plan (IPP), which details the training and exercise priorities for Public Health response actions. Portions of the Extreme Heat Response Plan may be integrated into the IPP to ensure key capabilities are exercised and relevant training developed.