



WASHINGTON STATE EMERGENCY MANAGEMENT COUNCIL

2022 ANNUAL REPORT TO THE GOVERNOR



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June 30, 2023

The Honorable Jay Inslee
Governor of Washington
P.O. Box 40002
Olympia, WA 98504-0002

Dear Governor Inslee:

On behalf of the Washington State Emergency Management Council (EMC), I am honored to present the 2022 EMC Annual Report on the status of statewide emergency preparedness. This document fulfills the Council's responsibility to provide an annual assessment of statewide emergency preparedness (RCW 38.52.040) and contains recommendations that the Council believes will improve the state's emergency preparedness. The EMC members, constituents, and stakeholders value the opportunity to inform you on the status of emergency management in our state and to provide recommendations that address identified issues.

The EMC, through its committees and workgroups, continues to support activities that strengthen our state's collective ability to respond to, and reduce the risks of natural, technological, and human-caused hazards.

We remain appreciative of your support of the Council's work, and we intend to provide you with additional recommendations on state and local emergency management issues annually. We appreciate any feedback you or your staff have on this report and the recommendations presented herein. If you would like to discuss the report further, please contact Sharon Wallace, Deputy Director, Washington Emergency Management, at 253-312-1738 or sharon.wallace@mil.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Chandra Fox'.

Chandra Fox, CEM
Chair, Washington State Emergency Management Council
Deputy Director, Spokane County Department of Emergency Management

Washington Emergency Management Council

RCW 38.52.040 lists the membership of the EMC as follows:

Representatives of City and County Governments

Sheriffs and Police Chiefs

The Washington State Patrol

The Military Department

The Department of Ecology

State and Local Fire Chiefs

Seismic Safety Experts

State and Local Emergency Management Directors

Search and Rescue Volunteers

Medical Professions with Expertise in Emergency Medical Care

Building Officials

Private Industry

Office of the Superintendent of Public Instruction

Representatives of Federally Recognized Tribes

Coroners and Medical Examiners

Two Members at Large

Executive Summary

Purpose: In accordance with RCW 38.52.040, this report fulfills the Emergency Management Council's (EMC) responsibility to provide an annual assessment of statewide emergency preparedness to the Governor and the Adjutant General (TAG).

Scope: This EMC Annual Report covers the 2022 calendar year and contains recommendations that the Council believes will improve the state's preparedness. These are high level recommendations that are not currently resourced or funded, and are presented for future consideration by the Governor, the Legislature, and any EMC stakeholders.

Background: Washington is the fourth most disaster-prone state in the country. Its emergency management community faces a myriad of challenges, including, but not limited to, earthquakes, severe winter storms, extensive wildfires, civil unrest, cybersecurity, and threats to critical infrastructure. The EMC membership identified and analyzed seven critical issues for this 2022 annual report. These issues, including recommendations to address them, are summarized below and the full annual report provides additional narrative about each issue.

Issue #1: Cascadia Rising 2022 (CR22) Exercise Highlights Areas for Improvement

Synopsis: Washington participated in the CR22 exercise, which was based on a 9.0 magnitude earthquake. Focused areas of improvement from the exercise include Critical Transportation, Mass Care Services, Operational Communications and Operational Coordination.

Recommendations

1. Prioritize critical surface transportation infrastructure mitigation projects to enhance resiliency along key east-to-west corridors for bulk movement of lifesaving and life-sustaining goods and resource support.
2. Prioritize funding to mitigate damage to critical communications infrastructure to maintain emergency response coordination capabilities and provide emergency public information statewide.
3. Prioritize aerial, maritime, and rail transportation infrastructure studies to develop planning initiatives to augment the bulk movement of lifesaving and life-sustaining goods and resources.
4. Establish comprehensive mass care service and support plans, agreements, and resource support requirements for emergency sheltering, hydration (drinking water), and food and nutrition to support impacted and supporting communities, including people with Access and Functional Needs (AFN).

Issue #2: Healthcare System Stressed by Multiple Challenges

Synopsis: The medical workforce is burned out and the healthcare system is struggling. Staffing shortages have resulted in response delays and there is a critical need to mitigate impacts through legislative action, policy changes, and leveraging stakeholders in solutions.

Recommendations

1. Support and participate in regional meetings that bring together partners to develop multijurisdictional, multidisciplinary solutions.
2. Standardize diversion protocols.
3. Expedite the licensure of non-nursing staff.
4. Support legislation that funds healthcare educators' pay.
5. Increase funding for measures to reduce need for EMS transport and/or emergency room visits.

Issue #3: Cybersecurity and Critical Infrastructure at Risk

Synopsis: Cybersecurity incidents are outpacing the limited resources assigned to combat these threats, resulting in increased frequency, duration, and economic impact of these attacks. This creates risk for our state's critical infrastructure and community lifelines.

Recommendation

1. Initiate a statewide educational effort about cybersecurity threats, mitigation resources, and regular use of multi-factor authentication.

Issue #4: Managing the Risk of Lithium-Ion Batteries and Other Stored-Energy Technology

Synopsis: The increased reliance on lithium-ion batteries and other stored-energy technology for consumer products increases the risk of overheating, chemical chain reactions and fast-moving fires in residential areas.

Recommendations

1. Review and revise existing authorities under RCW 43.43 Washington State Patrol and RCW 43.44 State Fire Protection to enable the Office of the State Fire Marshal to rapidly address the complex challenges associated with these systems that have become commonplace in nearly every household in the state and the nation.
2. Assemble state agencies that are responsible for the regulation of and response to incidents involving lithium-ion batteries and other stored-energy technologies to design and implement a unified strategy to address charging, storage, and emergency response concerns.

Issue #5: Washington Mutual Aid System (WAMAS) Can Provide More Response Resources

Synopsis: Special purpose districts are not currently included in the controlling mutual aid statute, which compromises our state's ability to provide response resources to critical infrastructure during/after an emergency.

Recommendation

1. Update RCW 38.56.020 to expand mutual aid participation to special purpose districts and junior taxing districts.

Issue #6: Hazard Mitigation and Risk Reduction Needs Outweigh Available Resources

Synopsis: Disasters are happening more often in Washington compared to a few decades ago. Extreme weather, flooding, and wildfire remain the highest risk natural hazards in our state. This requires targeted support and resources to mitigate these risks.

Recommendations

1. Bolster state funding to complement and strengthen the impact of federal hazard mitigation grants.
2. Increase support for seismic and tsunami resilience improvement projects.

Introduction

This is the Washington State Emergency Management Council's annual report to the Governor. It fulfills the Council's responsibility to provide an annual assessment of statewide emergency preparedness (RCW 38.52.040) and contains recommendations that the Council believes will improve the state's preparedness.

This report covers the 2022 calendar year. The recommendations contained herein are based on assessments of certain events, activities, and emerging issues identified by the Council.

In 2022, local, state, tribal, and federal emergency management partners participated in the Cascadia Rising exercise, known as CR22. Our state again faced a summer wildfire season that stretched existing resources with more than a dozen significant wildfires. The state also managed additional emergencies including urban fires, severe winter storms, floods, landslides, Mpox, the ongoing COVID-19 pandemic, and response to the European Green Crab invasive-species emergency.

The Emergency Management Council recognizes that this annual assessment is a representation of the opportunities that our stakeholders have before them. This is not intended to serve as a comprehensive assessment, but rather focused areas that, if prioritized and resourced, could yield significant benefits for our residents by improving preparedness, response, and resilience across the state in the years to come. This report does not supersede or replace the recommendations provided in the 2020-2021 EMC Annual Report and those recommendations continue to be supported by the EMC.



Cascadia Rising 2022 participants talk on the state wide map at the Pierce County Readiness Center on Camp Murray, Wash. on May 12, 2022.

Cascadia Rising 2022 (CR22) Exercise Highlights Areas for Improvements

Issue: There are decades of work ahead of us before government, private industry, non-profits, non-government organizations, and the people of Washington are prepared for a disaster of this magnitude. This exercise identified key actions that should be addressed now to reduce the impacts of this well-known hazard.

Background: The Cascadia Subduction Zone (CSZ) is a 700-mile-long megathrust fault that stretches offshore from Northern Vancouver Island, British Columbia (BC), to Cape Mendocino, California. It is formed by the intersection of the Juan de Fuca and North American tectonic plates.

Evaluation of Issue: The CR22 scenario was based on a magnitude 9.0 CSZ earthquake along the length of the fault with no distinct epicenter. An event of this type occurs on average once every 200 to 500 years. The last CSZ earthquake and tsunami occurred on January 26, 1700, placing Washington within the recurrence interval for another event. It is estimated that ground movement resulting from a rupture of the fault could last four to six minutes, with subsequent tsunamis and aftershocks, as well as liquefaction, landslides, and rock falls.

A CSZ earthquake is anticipated to be potentially the largest natural disaster the United States could face and be one of the most complex disaster scenarios for emergency managers, public safety officials, government agencies, and policymakers to respond to. To prepare for and practice a comprehensive emergency response, Washington's Emergency Management Division, in conjunction with stakeholders from around the state, developed and coordinated the Washington CR22 exercise series to capitalize on lessons learned from the CR16 Full-Scale Exercise and continue to develop response capabilities within Washington. The exercise was one component of other CR22 National Level Exercise (NLE) events spanning the entire 2022 calendar year to examine the ability of all levels of government, private industry, and non-profit or non-governmental organizations to respond to and recover from a large rupture along the CSZ fault line.

Focused areas for improvement from the CR22 Summary of Conclusions and After-Action Report/Improvement Plan (AAR/IP) fall in the areas of Critical Transportation, Mass Care Services, and Operational Communications and Operational Coordination. An overview of the recommendations is provided below.

Recommendations

1. Prioritize critical surface transportation infrastructure mitigation projects to enhance resilience along key east-to-west corridors for bulk movement of lifesaving and life-sustaining goods and resource support.

- A. Prioritize state funding to support mitigation and build resilience of priority transportation routes statewide, specifically, the east-to-west corridors through the Cascade Mountain Range, adjoining I-5 priority connections, and other US, state, and local routes to and from federal, state, and local staging areas. This priority funding will enhance the ability to provide lifesaving and life-sustaining delivery of fuel, food, water, and medical supplies.
- B. Develop catastrophic planning initiatives aligned with funded mitigation efforts, including the development of, and not limited to:
 - i. State and local surface transportation repair and restoration plan(s),
 - ii. State and local surface and air response coordination and movement control plan(s),
 - iii. State and local evacuation, reunification, and community re-establishment plan(s), and iv. State and local private sector business re-entry and commodity distribution plan(s).
- C. Establish and implement a joint effort between the Military Department, the Department of Commerce, and the Department of Transportation to develop, implement and maintain comprehensive assessments of tribal and local jurisdictional fuel needs.
- D. Prescribe and support tribal and local coordination with other tribes and jurisdictions regarding critical surface transportation priority route alignment, including gap analyses, capabilities, and mutual aid support to inform state and federal planners, responders, and public/private-sector supply chains.

2. Prioritize funding to mitigate damage to critical communications infrastructure to maintain emergency response coordination capabilities and provide emergency public information statewide.

- A. Prioritize state funding to mitigate and build comprehensive, continuity-based, and resilient voice and data communications infrastructure for primary and alternate state emergency operations sites. This will enhance the ability of emergency management organizations and first responders to establish and coordinate emergency response, emergency repair, evacuation, and the delivery of goods and resource support. It will also enhance the ability of state and local officials to provide emergency public information and warning for impacted or isolated communities, including people with Access and Functional Needs (AFN).
- B. Prioritize state funding to replace legacy communications infrastructure and systems to avoid losing communication with impacted and isolated communities, first responders, and emergency management organizations.

- C. Establish funding, guidelines, and mechanisms for newly approved communication packages that encourage and provide state agencies, tribes, and local jurisdictions the ability to procure equipment and elect to participate in interoperability-compliant networks.

3. Prioritize aerial, maritime, and rail transportation infrastructure studies to develop planning initiatives to augment the bulk movement of lifesaving and life-sustaining goods and resources.

- A. Prioritize critical airport infrastructure and transportation resilience, specifically those airports directly supporting coordinated federal and state staging areas and commodity distribution. Improve resilience to augment the bulk delivery of fuel, food, water, and medical supplies to impacted and isolated populations.
- B. Prioritize critical maritime infrastructure and transportation resilience, specifically coastal communities, and ports throughout Puget Sound (includes islands with isolated communities). Improve resilience to augment limited surface and aerial distribution of bulk fuel, food, water, and medical supplies to impacted and isolated communities.
- C. Prioritize critical rail infrastructure and resilience and strongly encourage the legislature to provide guidance for federal, state, public, and private partners to collaboratively study and plan statewide critical rail transportation resilience. Improve resilience to augment limited surface, aerial, and maritime distribution of bulk fuel, food, water, and medical supplies to impacted and isolated communities.

4. Establish comprehensive mass care service and support plans, agreements, and resource support requirements for emergency sheltering, hydration (drinking water), and food and nutrition to support impacted and supporting communities, including people with Access and Functional Needs (AFN).

- A. Establish minimum requirements necessary for local jurisdiction emergency management programs to develop the ability to establish catastrophic emergency shelter operations, including wrap-around mass care services and support needs for impacted, isolated, and supporting communities.
- B. Establish guidelines or technical updates to current statutes to enable emergency management programs the ability to develop comprehensive shelter and mass care service and support plans, including gap analyses, capabilities, and mutual aid support for a shelter inventory/database, wrap-around services (health, sanitation, etc.), needs assessment, and staff training and certification.
- C. Prescribe and support, through grant guidance, the ability for emergency management programs to maintain a comprehensive Community Point of Distribution (CPOD) site inventory with gap analyses and capabilities for fuel, hydration (drinking water), and food/nutrition. This should also be included in the Stakeholder Preparedness Review.
- D. Establish a state or grant funding mechanism to support additional staffing resources for emergency management programs to improve volunteer and Community Organizations Active in Disaster (COAD) participation in planning and enhance response to impacted persons and those impacted with AFN.

E. Prescribe and support tribal and local jurisdictional collaborative coordination with adjoining jurisdictions of mass care services and support functions (shelter, hydration, food/nutrition), including gap analyses, capabilities, and mutual aid support. This should also be included in the Stakeholder Preparedness Review.

These strategic recommendations also include 27 courses of action which culminated in local jurisdictions, tribes, and state agencies collectively and collaboratively developing 90 individual improvement action items to influence local, tribal, and state resilience planning and mitigation activities.





Healthcare System Stressed by Multiple Challenges

Issue: A healthcare system struggling with the capacity to meet day-to-day demands means Washington will require even more assistance from outside of the area following a large-scale disaster. The delay in waiting for these additional medical resources could mean more casualties in Washington.

Background: The healthcare system throughout Washington faces extreme challenges. Across the entire healthcare spectrum – from pre-hospital to long-term care – the COVID-19 pandemic placed an enormous burden on an already strained system. The U.S. Department of Health and Human Services notes that “pandemic-related challenges have taken place in a context of significant pre-existing workforce shortages and maldistribution, as well as in a workforce where burnout, stress, and mental health problems (including an ongoing risk of post-traumatic stress disorder) were already significant problems” (Office of Health Policy, 2022). The outlook for the rest of the decade looks grim, with projections indicating there will be 203,200 Registered Nurse (RN) openings each year through 2031 (American Association of Colleges of Nursing, 2022)

Our hospitals and Emergency Medical Service (EMS) providers have expressed concerns about the direness of the situation. Hospitals struggle with attrition and compete to hire qualified staff throughout the country. Ambulances spend extended times at hospitals, waiting for the facility’s thinly stretched staff to assume care for their patients.

These delays mean some areas of the state may go without the availability of local EMS providers, a particularly acute problem in the rural areas where there are fewer medical resources. An assisting ambulance may need to travel long distances to respond to an emergency. Frustration mounts as EMS providers seek faster transitions of care at hospitals that have reached maximum patient capacity.

This situation further hinders our emergency management system’s ability to respond to disasters. We already anticipate massive challenges following a Cascadia subduction zone earthquake. The state’s current Threat and Hazard Identification and Risk Assessment/ Stakeholder Preparedness Review (THIRA/SPR) indicates that our capability target (i.e., what we need) is “Within 7 days of an incident, complete triage, begin definitive medical treatment, and transfer to an appropriate facility 10,000 people requiring medical care,” while our current capability (i.e., what we have), is “Within 7 days of an incident, complete triage, begin definitive

medical treatment, and transfer to an appropriate facility 360 people requiring medical care.” At our current level of capability even a localized earthquake, like an eruption of the South Whidbey Island Fault, would require out-of-state assistance that may take days to arrive.

Evaluation of Issue

Multiple options exist to address this ongoing crisis and mitigate its potential impact on our ability to respond to a disaster. These options include legislative action and policy changes at the local, state, and federal levels of government. They also include the intervention of our state’s three healthcare coalitions, the various associations involved, and the private/non-profit entities that serve as our larger healthcare systems.

Because the EMC represents state and local governments, it is important that our recommendations fall within the purview of those levels of government. We do recognize the need for other entities such as the hospital systems, the Northwest Healthcare Response Network, the Washington State Hospital Association, and the Washington Ambulance Association to provide their input into and/or support for these measures.

A second criterion focused on what could be done via policy change versus requiring legislative action. The Legislature took positive steps (e.g., approving the nursing compact) during the recent session; however, this crisis requires more immediate intervention than waiting for the next session allows. That said, future legislative sessions should consider ways to mitigate the impacts of healthcare surge.

Recommendations

- 1. Support and participate in regional meetings that bring together partners to develop multijurisdictional, multidisciplinary solutions.** Hospital systems span county borders, and our tiered trauma system means that multiple counties may rely on one system (e.g., Harborview) to provide the required level of care. Encourage regional leaders to convene groups to bring forward recommendations to the appropriate state agencies.
- 2. Standardize diversion protocols.** Each county currently creates their own diversion protocol for their hospitals. This creates confusion for EMS agencies that traverse county lines. The Department of Health’s EMS and Trauma Care Steering Committee is an obvious body to task with creating a standardized protocol.
- 3. Expedite the licensure of non-nursing staff.** Ancillary service staff in hospitals can help reduce the amount of time a patient spends in the emergency department and therefore reduce the dwell time of an EMS crew. Creating a provisional license for newly hired non-nursing staff who have submitted their paperwork and fees would allow them to begin working sooner.
- 4. Support legislation that funds healthcare educators’ pay.** The Washington State Nurses Association (WSNA) supports funding for nurse educators at four-year universities. There should be consideration for expanding this program to educators in two-year RN programs offered through the community college system.
- 5. Increase funding for measures that will reduce the need for EMS transport and/or emergency room visits.** Funding to support nurse lines, community paramedics, and facilities that address behavioral health crises would decrease the number of people seeking in-patient care. This would reduce the number of EMS transports and the number of people seeking medical care at emergency departments.



Cybersecurity and Critical Infrastructure at Risk

Issue: There is a continued and growing threat and risk of cybersecurity incidents which may compromise critical infrastructure in our state.

Background: Washington faces unprecedented cybersecurity risks, which include increasingly sophisticated adversaries, widespread vulnerabilities in hardware and software, and broad dependencies on networked technologies for critical infrastructure. This deeply interconnected cyber environment represents an ever-widening threat landscape that requires innovative, coordinated, and comprehensive cyber risk management to ensure that Washingtonians are secure in their ability to make use of the critical infrastructure within the state—e.g., wastewater systems, healthcare, energy, transportation, commerce, food, and agriculture, and other Cybersecurity Infrastructure Security Agency (CISA) Critical Infrastructure Sectors. These intersect with what FEMA identifies as Community Lifelines which consist of Safety and Security, Food and Water, Shelter, and many others.

Evaluation of Issue: A single cyber incident can significantly impact the safe and effective operations of critical infrastructure in our state, and can result in economic losses, human casualties, and an inability to provide critical services to the communities we serve. Many federal, state, local, and private sector stakeholders are working in different forums to identify best practices, promote information sharing, and strengthen cyber networks. Cyber security incidents are outpacing the limited resources assigned to combat these threats, resulting in increased frequency, duration, and economic impact of these attacks. Examples below:

Incidents: The Washington State Fusion Center (WSFC) provided 1,013 cyber outreach notifications to government agencies and private industry partners in 2022. This is a very small representation of the yearly number of cyber incidents or threats in the state and is a tertiary activity for the WSFC.

Ransomware: Ransomware is an ever-evolving form of malware designed to encrypt files on a device, rendering any files and the systems that rely on them unusable. Malicious actors then demand ransom in exchange for decryption. In the past two years, several ransomware attacks within Washington have made headlines. Pierce Transit was temporarily affected after their systems were breached and ransom was requested. A Washington school district, a global freight company, a payment processing company, a Washington port facility, and a local public health jurisdiction were affected by ransomware attacks. These are only a few that made headlines and there are countless others that either did not make the news or impacted entity chose not to publicly report. The Washington State Attorney General's Office reported more than 150 ransomware attacks occurred in Washington in 2021 alone, a sharp increase from prior years.

Reporting and oversight of cyber incidents remain difficult because any report of a cyber incident highlights vulnerabilities in an existing system. Private industry stakeholders often maintain proprietary information and may be reluctant to share information with governmental agencies or other subject matter experts and instead rely on the ever-growing cyber insurance industry to bridge the financial effects of ransomware attacks.

Data breaches: The Washington State Attorney General's Office is required to maintain statistics regarding data breaches. In 2021, there were 285 reported data breaches, resulting in over 6.5 million Washingtonians impacted by one or more breaches in that year alone. The cost to mitigate these breaches can cause significant financial damage to businesses and government.

Recommendation

1. Initiate a statewide educational effort about cyber security threats, mitigation resources, and regular use of multi-factor authentication.

There are several state agencies with visibility of or responsibility for cybersecurity efforts. By combining these efforts with some common goals, it is hoped that our state can keep pace with the ever-changing cyber threat landscape and further protect our state's critical infrastructure, community lifelines, and economic viability.

Initial partners should include EMC members, as needed, as well as:

- WaTech Office of Chief Information Officer/Office of Cybersecurity
- State Emergency Management Division, Cybersecurity and Critical Infrastructure Protection
- Department of Commerce, Energy Resilience and Emergency Management Office
- Washington State Fusion Center
- Washington State Office of the Attorney General
- DHS Cybersecurity & Infrastructure Security Agency, Region 10
- Washington Cyber Information Sharing and Analysis Center

Once goals are established and an operating structure is formed, this group may expand to other sub-groups or merge into an EMC subcommittee. The ultimate intent is to create a unity of effort among the individual entities currently working in the cybersecurity field and to make marked improvements in our state's resilience and ability to prevent, mitigate, respond to, and recover from cyber-attacks. In the 2022 legislative session, SB 5518 took a step toward this with the creation of a Cybersecurity Advisory Committee as a subcommittee of the state Emergency Management Council.



Managing the Risk of Lithium-Ion Batteries and other Stored-Energy Technology

Issue: The work environment for emergency services personnel and firefighters is increasingly impacted by fire incidents where the cause is related to batteries powering mobility devices, electric vehicles, and energy storage systems.

Background: Lithium-ion batteries power many commonly used consumer products, including electric toothbrushes, vaping pens, cell phones, and laptops, as well as personal transportation modes such as e-bikes and e-scooters (micro-mobility devices), and electric vehicles. They are a daily part of consumer lives. As manufacturers design slimmer batteries with more hours of battery life to meet customer expectations and reliance on batteries increases and as we introduce more batteries into our households, we are also increasing the storage of flammable materials in our homes and our workplaces. This creates cascading issues regarding safe charging, storage, and emergency responses to battery fires and explosions. The national first responder community is experiencing higher incidents of battery fires and measures can be taken within our state to help mitigate this hazard for our communities.

Evaluation of Issue: Lithium-ion batteries are generally safe if they are free from defects, are not charged for longer than recommended, and are properly replaced or disposed of when they begin to degrade. Nationally, we see images of electric vehicle battery systems, laptops, hover boards, and other battery-powered devices damaged and rapidly catching fire. The State of New York is leading the nation with 59 lithium-ion rechargeable battery incidents by mid-April 2023, and five fatalities to date this year. Within the past several months, Washington has experienced several of these lithium-ion rechargeable battery residential incidents, including: a residential fire that resulted in the total loss of a \$725,000 home; an apartment fire in Seattle caused by improper charging of e-scooters; and an electric vehicle involved in a high-speed crash with entrapment and the damaged battery began degrading and exploding while responders were working to extricate the victims.

If a lithium-ion battery system is damaged from overheating, electrical fault or short circuit, or punctured, a “thermal runaway” could occur where battery cells heat up faster than the heat can be dissipated. This causes a chemical chain reaction in the battery cell which results in smoldering, fire, and possibly an explosion. When multiple cells are stored near each other, such as in an electric vehicle, more cells may be compromised during a thermal runaway, increasing the risk of ignition and/or explosion. Lithium-ion can burn without oxygen present and delayed re-ignition of fire is possible anytime within a 21-day period.

The transportation of lithium-ion batteries is regulated by the United States Department of Transportation (USDOT) for road, rail, marine, and air transport. While the commercial transportation of lithium-ion batteries is regulated, batteries may be transported by individuals not following USDOT regulations. Incidents have occurred involving used lithium-ion batteries that were in transit to a recycling facility or to a location that reclaims the products of the batteries.

The Department of Homeland Security, Transportation Security Administration (TSA) requires that all lithium-ion batteries must be in carry-on luggage and not in checked baggage because of the risk of in-flight fires.

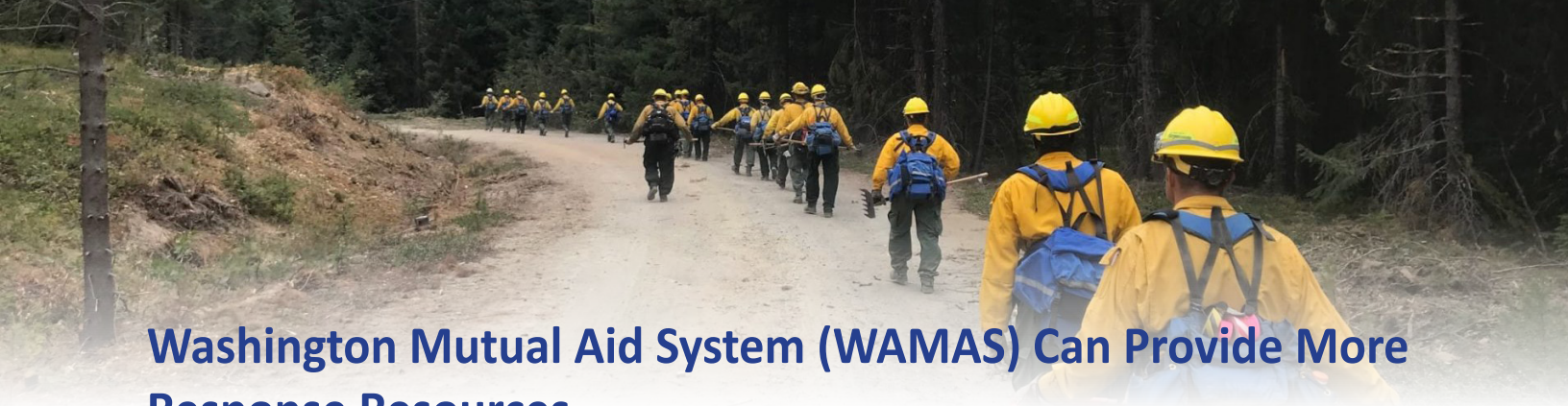
In many areas of the country, including Washington, unregulated third parties are hired by commercial micro-mobility companies to collect rentable e-scooters and e-bikes and charge them overnight. Without code enforcement and public education, these mobility devices can create significant fire hazards due to overcharging and unsafe charging environments in residences. Washington fire service relies on the expertise of the State Fire Marshal's Office to provide resources, training, education, outreach, and cross-agency communication as consumers continue expanded use of the batteries and home-based systems. Additionally, the fire service must continue to properly respond and protect firefighters from the inherent risks of responding to an incident involving lithium-ion batteries.

Recommendations

1. **Review and revise existing authorities under RCW 43.43 Washington State Patrol and RCW 43.44 State Fire Protection to enable the Office of the State Fire Marshal to rapidly address the complex challenges associated with these systems that have become commonplace in nearly every household in the state and the nation.**
2. **Assemble state agencies that are responsible for the regulation of and response to incidents involving lithium-ion batteries and other stored-energy technologies to design and implement a unified strategy to address charging, storage, and emergency response concerns.** The plan must include:
 - A. **Public Education/Outreach:** The average consumer may not understand the risk of charging an e-bike, scooter, or electric vehicle in a home. The average consumer may also not understand the risk of overcharging a cellphone, laptop, power tool, or children's toy (such as overnight, as most consumers do). The risk is significant for the average technology user as most fires occur in residential settings while devices are charging. More robust public education must occur since a common consumer likely has multiple lithium-ion battery-powered devices charging in their homes.
 - B. **Code Enforcement:** Significant fires have been documented as a result of multiple devices being charged together in an unsafe manner; refurbished batteries are being introduced to the market without proper oversight; lower quality control for batteries in commercially available products increases the risk of catastrophic failure; and adequate regulations do not currently exist to effectively manage these hazards.
 - C. **Training for First Responders:** Qualified curriculum/instruction to train first and second responders on how to mitigate and respond to incidents involving lithium-

ion batteries and funding to provide and receive training on energy incidents. A fire or an explosion from a lithium-ion battery requires different hazmat response and firefighting tactics than other fire responses.

- D. Environmental Impact Mitigation: Safety concerns exist with rechargeable battery recycling efforts. Batteries that are received damaged, are damaged in transit, or damaged at the recycling facility pose hazards of explosion and fires that may be difficult to extinguish. Additional personal environmental hazards include the off-gassing and dispersion of hydrogen fluoride (HF) and phosphoryl fluoride (POF₃) when batteries catch fire, both of which can cause burns to skin and deep tissue; respiratory irritation; hemorrhage; cardiac arrhythmia; and lesser symptoms including irritation to skin, eyes and mucous membranes, as well as nausea, vomiting, and gastric pain.
- E. Emerging Technology: Energy Storage Systems (ESS) replace fossil-fuel generators and provide backup or supplemental energy. In residential settings, private individuals can install ESS systems to harness solar energy or other electricity. These lithium-ion battery banks can experience thermal runaway similar to other large cell systems like electric vehicles. Soon electric vehicles will not be limited to passenger cars and light trucks, but will expand to tractor-trailer trucks, airplanes, delivery trucks, and ferries. Mitigation strategies must be in place prior to the introduction of these vehicles to the market.



Washington Mutual Aid System (WAMAS) Can Provide More Response Resources

Issue: Special Purpose Districts are not currently member jurisdictions under RCW 38.56, which excludes them from participating in mutual aid assistance. This compromises our state’s ability to provide response resources to critical infrastructure during/after an emergency.

Background: The Washington Intrastate Mutual Aid System (WAMAS), established in RCW 38.56, provides for mutual assistance among member jurisdictions, to include every county, city, and town of the state. It does not include special purpose districts or state agencies. Federally recognized Indian Tribes located within the boundaries of the state may become a member upon receipt by the Washington State Military Department of a tribal government resolution declaring its intention to be a member of WAMAS. WAMAS does not replace current mutual aid agreements. It is a tool to use when other mutual aid agreements do not exist. When members utilize the WAMAS system, they must adhere to the procedures and forms within the current operations and deployment guide.

Current members include every county, city, and town of the state and The Confederated Tribes of the Colville Reservation.

Evaluation of Issue: The ability to provide mutual aid assistance between local jurisdictions in Washington are, at times, limited in scope and ability based on the constraints caused by exclusion of special purpose districts and junior taxing districts. By including these districts in WAMAS, additional resources would more easily be made available during emergencies. Special purpose districts own, operate, and maintain critical infrastructure.

The following list illustrates the types of special districts currently found in Washington.

- Agricultural Districts (Irrigation and Reclamation)
- Agricultural Districts (Pest and Weed Control)
- County Road District
- Diking, Drainage, and Flood Control Districts
- Economic Development Districts
- Environmental Protection Districts
- Fire Districts
- Library Districts
- Park and Recreation Districts
- Port District
- Public Health and Hospital Districts
- Public Housing Districts
- School Districts
- Transportation Districts
- Utility Districts (Water, Sewer, Electricity, etc.)

Recommendation

1. Update RCW 38.52 and 38.56 to expand mutual aid participation to special purpose districts and junior taxing districts.



Hazard Mitigation and Risk Reduction Needs Outweigh Available Resources

Issue: More must be done to meet the ongoing challenge of reducing the potential for disaster in Washington.

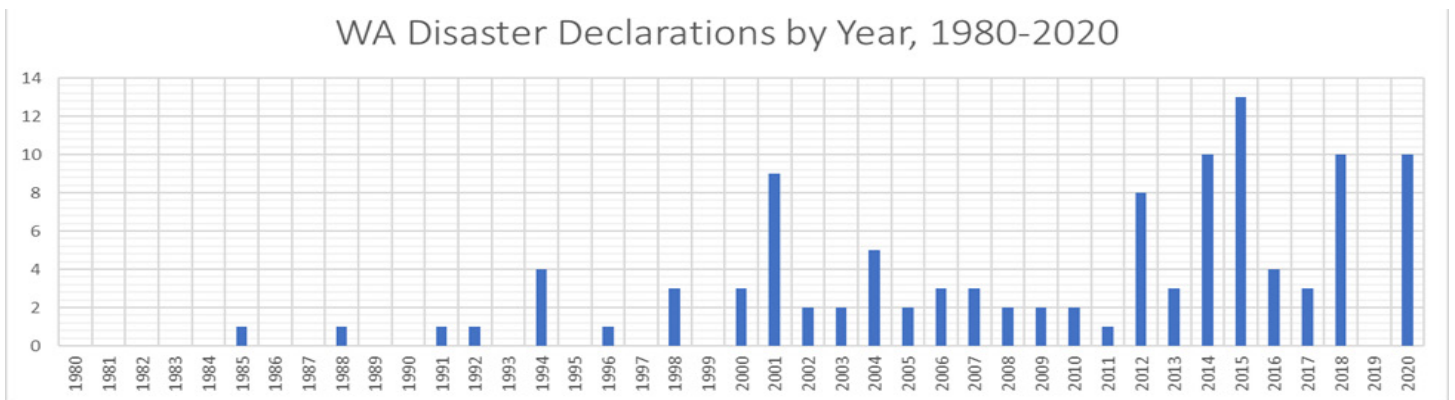
Background: In 2022, Washington received a significant increase in hazard mitigation funding while also developing the 2023 State Enhanced Hazard Mitigation Plan update. The funding received and the planning efforts both emphasize the importance of reducing the risks of climate change-related disasters, which have become more common and destructive over time – especially floods and wildfires. Recent examples include floods that damaged 75 percent of homes in Sumas, Whatcom County; and the Bolt Creek Fire which caused extensive closures of Highway 2 in both Snohomish and King County. More must be done to meet the challenge of reducing disaster risk in Washington.

Evaluation of Issue: Washington’s State Enhanced Hazard Mitigation Plan (SEHMP) is one of the many mechanisms the state uses to assess its risks and vulnerabilities to the wide range of hazards here, both natural and human caused. It is also the state’s go-to resource for planning to reduce those risks and vulnerabilities through long-term, targeted, and strategic hazard mitigation actions. The foundation of the SEHMP is the Hazard Inventory & Vulnerability Assessment (HIVA), which details the specific risks posed by each hazard, as well as the characteristics of our population and critical assets that make us vulnerable to hazard impacts. For 2023, the state’s Emergency Management Division staff used updated spatial data and analyses to provide an understanding of Washington’s hazard landscape and how it is expected to change in the near future. This methodology includes improving the way that climate change considerations are integrated into our risk analyses compared to previous SEHMPs.

Key findings from the HIVA include:

1. Disasters are happening more often in Washington compared to a few decades ago (Figure 1). The increasing frequency of disasters is driven by a combination of climate change, urbanization, and steady population growth – especially where those are co-located and occur simultaneously. Without significant investments in hazard mitigation and resilience, the combination of more people and more critical assets in increasingly hazardous areas will present overwhelming challenges to our state and significantly heighten the financial and societal impacts of disasters.

2. Given the severity of recent climate-related disasters and the increasing likelihood of future disasters related to climate change, EMD staff have determined that the natural hazards placing Washingtonians at the highest risk in the near-term are (1) extreme weather, (2) flooding, and (3) wildfire.
3. Extreme heat has become Washington's most deadly natural hazard after the 2021 Heat Dome event killed more than 150 Washington residents.
4. Floods and wildfires have historically been viewed as "high frequency, low severity" but are expected to transition to "high frequency, high severity" events in the future. The 2015 and 2020 wildfire seasons, as well as the 2021 and 2022 floods indicate this transition has begun.
5. Although the probability of a catastrophic earthquake and tsunami occurring in any given year remains low, there are more people and critical assets exposed to those hazards now than ever before due to our continued population growth and development. Because it is unclear if the rate of seismic and tsunami resilience projects in the state is outpacing the rate of population growth and development, it is safe to assume our vulnerability to earthquakes and tsunamis remains high.



The draft 2023 SEHMP is under review by FEMA Region 10.

The primary source of funding Washington uses to implement hazard mitigation actions is FEMA's Hazard Mitigation Assistance (HMA) grant programs, which includes the Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC). In 2022, Washington saw an increase in annual HMA funding due to large-scale disasters, including \$100 million from the COVID-19 pandemic federal declaration, as well as an increase in the national BRIC competitive award in 2020 and 2021. WA EMD is currently administering approximately \$200 million in awarded HMA grants, (65 percent BRIC and 35 percent HMGP). The total amount received includes HMGP rounds for COVID-19 and the 2020 wildfires. Due to our "enhanced" status, Washington receives an additional five percent in funding for all HMGP rounds. There is approximately \$145 million in sub-applications pending submission to FEMA.

Washington has ranked in the top five of states in the country in terms of BRIC funding since the inception of the program in 2020. Mitigation actions recently funded through these opportunities include various planning initiatives (e.g., local hazard mitigation plan updates), as well as construction-based projects intended to reduce the impact of disasters on the state's critical infrastructure. Specifically, these projects include efforts to improve school seismic safety through a partnership with the Washington State Office of the Superintendent of Instruction, as well as the planned creation of more tsunami vertical evacuation towers such as the one completed by the Shoalwater Bay Tribe in 2022. Other hazard mitigation efforts not related to

HMA funding include \$50 million dedicated to flood risk reduction across the state over the next biennium via the Floodplains by Design program. Wildfire risk reduction has also seen an increase over the past year, driven in part by \$25 million Washington received from the Community Wildfire Defense Grant program administered by the US Forest Service.

Recommendations

1. **Bolster state funding to complement and strengthen the impact of federal hazard mitigation grants.** As disasters increase in size and impact, we must look at the gap between available hazard mitigation funding and the total cost of all submitted mitigation grant applications. For the DR-4481 HMGP round in 2022 – which prioritized climate-related hazard mitigation projects – the total cost of all submitted grants was \$1.4 billion while the funding available for that round was \$100 million – 14 times less than the amount needed to fund all submitted projects.

Additional state funding is needed for projects aimed at mitigating the risks of climate-related disasters. Examples include integrated floodplain management using nature-based solutions, as well as providing further support for defensible space, wildfire fuels reduction, and Firewise communities on both sides of the Cascades. Additionally, the state should provide funding to support state programs responsible for analyzing and assessing disaster risk. These programs should be expanded to increase their capacity for data-driven risk assessment and foster effective partnerships across all levels of government. Such programs are crucial for not only understanding our hazard risks and vulnerabilities, but also for developing innovative risk reduction strategies. Other specific climate-related hazard mitigation efforts that require state support include efforts to address the impacts of wildfire smoke and support for extreme heat mitigation and adaptation.

2. **Increase support for seismic and tsunami resilience improvement projects.** This includes support for port resilience, vertical evacuation, implementing lessons learned from CR22, and continuing to implement the recommendations developed by the Resilient Washington State initiative. Washington has made progress, including building the first vertical evacuation structure (VES) in North America, but there are still significant gaps that must be filled. VESs are part of the state's overall tsunami preparedness strategy and provide safe and accessible high ground in places that need it while also serving as a visual reminder of the potential threat of tsunamis. WA EMD and University of Washington researchers developed a VES implementation plan that requires additional funding to expedite the construction of VESs in strategic locations. More port resilience plans and projects are also needed to ensure the state is protecting these critical community lifeline facilities, including retrofits that can minimize the time ports spend recovering post-earthquake and tsunami to avoid economic and supply chain disruptions after an event. Lastly, seismic retrofits along major transportation routes and for unreinforced masonry buildings (including many of our public schools) must be completed at a greater pace.

Hazardous Materials Report

The Revised Code of Washington, Chapter 38.52.040(2), requires an annual assessment of coordination of hazardous materials planning and response activities as part of the EMC Annual Report. This section is intended to fulfill that requirement.

The State Emergency Response Commission (SERC), a subcommittee of the EMC, coordinates hazardous chemical planning and carries out the mandate of the federal Emergency Planning and Community Right-to-Know Act (EPCRA), which provides guidance to communities in planning for chemical emergencies.

The SERC is comprised of representatives from private industry, state, and local agencies. Currently, SERC membership includes 26 individuals who represent the interests of state and local government, emergency services, industry, and the environment.

In 2022, the SERC met regularly and below are highlights:

Washington State Patrol (WSP) Training

Grant-funded training through the WSP State Fire Marshal's Office was conducted throughout the state. Training included Hazardous Materials in Awareness, Operations, Technician, Hazmat On-Scene Incident Command, Hazmat Safety, and other specialized training courses. Hazardous Materials Technician training occurred at Graham FD (Pierce County) and Walla Walla FD (Walla Walla County) providing 35 new Haz-Mat Technicians for the state.

Training specific to lithium-ion rechargeable batteries is a topic of high interest. This training included a three-day Lithium Battery Town Hall hosted by the Spokane Fire Department, with many national presenters. A lithium-ion battery training symposium in Pasco trained more than 40 responders from around the state.

Additionally, EMD and the State Fire Marshal's office facilitated two Haz-Mat Workshops (Camp Murray and Spokane FD), training upwards of 125 responders from around state. This year, during the eastside workshop, on the 10th anniversary of the West, Texas, fertilizer explosion, a presenter shared an in-depth after-action assessment of the historic incident, providing information on the identification of risks and the corresponding incident response.

Emergency Planning and Community Right-to-Know (EPCRA) Compliance

Nearly 5,000 Washington businesses submit annual Tier Two Emergency & Hazardous Chemical (Tier Two) reports as required under the Emergency Planning and Community Right-to-Know Act (EPCRA). State and local planners use collected Tier Two information to identify potential chemical hazards within their jurisdictions. First responders also depend on Tier Two information, including the business location and emergency contact information; how many people are typically on site; and chemical-specific information (e.g., physical and health hazards, the maximum and average amount of chemicals on site, and storage locations). First responders can access this information through the Department of Ecology's EPCRA Viewer app. Ecology collects and manages EPCRA information, pursuant to Chapter 70A.415.020 RCW and WAC 118-40.

Hazardous Material Emergency Preparedness (HMEP) Grant Update

The U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration's HMEP grant is used to carry out hazardous materials planning and training activities to ensure the safe transport of hazardous materials. For the Federal Fiscal Year 2022 grant, the SERC approved the following activities:

- HazMat training courses provided across the state by the WSP Fire Protection Bureau to increase response awareness for all disciplines of first responders (fire, law enforcement, emergency medical services, public works, and emergency management), at local, regional, and state levels, specific to transportation-incidents involving hazardous materials.
- The Washington State Annual HazMat Workshop, endorsed and planned through a collaborative effort of the SERC, where approximately 65 local first responders attend two to three days of courses. Past courses included HazMat On-Scene Incident Command and Responding to Incidents Involving Flammable Liquids by Rail.
- The Washington State Local Emergency Planning Committee (LEPC)-Tribal Conference, developed in collaboration between the SERC, state agencies, LEPCs, and Tribal Emergency Response Commission (TERC) representatives, brought together approximately 80 LEPC and TERC representatives to attend presentations and discussions which typically include topics such as legislative updates, tips for building a successful LEPC, EPA updates, and HazMat response lessons learned.
- LEPC projects selected through a competitive process included situational awareness training and a tabletop exercise in connection with a potential transportation HazMat incident, volunteer training for response to vehicle and ferry transportation HazMat incidences, and awareness and technician classes to establish a county HazMat response capability.
- Management and administration activities.

LEPC Planning Status

Two of the primary responsibilities of the SERC include designating the districts for LEPCs and reviewing LEPC Plans. Currently, Washington SERC has designated 43 LEPCs.

LEPCs must develop an emergency response plan and review the plan annually at a minimum. The purpose of these plans is to prepare and plan for chemical emergencies as well as ensure community awareness of the chemical risks around them. Plans are developed by LEPCs with stakeholder participation. Federal regulations in EPCRA clearly state an LEPC shall have a training program, exercise their plans at least once a year, review their plans on a yearly basis and update this plan every five years. These requirements reinforce the basic emergency management concept of the preparedness cycle. The intent of the preparedness cycle ensures a process that continually improves plans and builds and sustains response capabilities of local communities.

Currently, 35 of the 43 Washington State LEPC response plans meet or exceed the nine EPCRA planning requirements. The LEPCs with insufficient plans are currently either working on their plans or lack the resources to support a fully functional LEPC. In response to this, the SERC is currently considering combining LEPCs to alleviate resource demands on local communities to meet these requirements.

Chemical, Biological, Radiological and Nuclear (CBRN) Summit in Denver, CO

WSP staff attended the CBRN summit in Denver, CO, at the beginning of October. Capabilities were discussed from the 7th Civil Support Team (CST), personnel discussed medical issues, and information on how vaccine production process was scaled down from years to months to weeks. The potential for radiological dirty bomb is always a risk, and there's a training that was done in Seattle in 2019 called "Save the City." Part of a discussion panel on hazmat team capabilities and needs, including personnel from Denver, Phoenix, Utah, and the 7th CST were on the panel with WSP. Issues discussed included training, equipment for responders, in person/virtual training pros and cons, and volunteer retention.

National Association of SARA Title III Program Officials (NASTTPO) Conference

SERC support staff attended the NASTTPO conference and annual workshop. During the conference, WSP staff provided a presentation on Washington's efforts to reduce the impact of lithium-ion battery responses. SERC support staff use information gathered at these events to improve the efforts of the Washington State SERC, keep up with regulation changes and provide input for Washington State SERC events.

Summary

The following EMC recommendations are representative of important issues affecting statewide disaster preparedness in 2022. This is not an exhaustive list and rather serves as a guide for the Governor to assist the state in bridging these identified gaps.

Summary of Recommendations

Issue #1	Recommendations
Cascadia Rising 2022 (CR22) Exercise Highlights Areas for Improvement	<ol style="list-style-type: none">1. Prioritize critical surface transportation infrastructure mitigation projects to enhance resilience along key east-to-west corridors for bulk movement of lifesaving and life-sustaining goods and resource support.2. Prioritize funding to mitigate damage to critical communications infrastructure to maintain emergency response coordination capabilities and provide emergency public information statewide.3. Prioritize aerial, maritime, and rail transportation infrastructure studies to develop planning initiatives to augment the bulk movement of lifesaving and life-sustaining goods and resources.4. Establish comprehensive mass care service and support plans, agreements, and resource support requirements for emergency sheltering, hydration (drinking water), and food and nutrition to support impacted and supporting communities, including people with Access and Functional Needs (AFN).

Issue #2	Recommendations
Healthcare System Stressed by Multiple Challenges	<ol style="list-style-type: none">1. Support and participate in regional meetings that bring together partners to develop multijurisdictional, multidisciplinary solutions.2. Standardize diversion protocols.3. Expedite the licensure of non-nursing staff.4. Support legislation that funds healthcare educators' pay.5. Increase funding for measures that will reduce the need for EMS transport and/or emergency room visits.

Issue #3	Recommendation
Cybersecurity and Critical Infrastructure at Risk	1. Initiate a statewide educational effort about cyber security threats, mitigation resources, and regular use of multi-factor authentication.

Issue #4	Recommendations
Managing the Risk of Lithium-Ion Batteries and other Stored Energy Technologies	<ol style="list-style-type: none"> 1. Review and revise existing authorities under RCW 43.43 Washington State Patrol and RCW 43.44 State Fire Protection to enable the Office of the State Fire Marshal to rapidly address the complex challenges associated with these systems that have become commonplace in nearly every household in the state and the nation. 2. Assemble state agencies that are responsible for the regulation of and response to incidents involving lithium-ion batteries and other stored-energy technologies to design and implement a unified strategy to address charging, storage, and emergency response concerns.

Issue #5	Recommendation
Washington Mutual Aid System Can Add More Support to Communities	1. Update RCW 38.56.020 to expand mutual aid participation to special purpose districts and junior taxing districts.

Issue #6	Recommendations
Hazard Mitigation and Risk Reduction Needs Outweigh Available Resources	<ol style="list-style-type: none"> 1. Bolster state funding to complement and strengthen the impact of federal hazard mitigation grants. 2. Increase support for seismic and tsunami resilience improvement projects.

The EMC welcomes feedback and further discussion on this report and any other statewide emergency preparedness topics. We stand ready to assist you in the next steps toward create a more resilient and prepared state.

Looking to the Future

2023-24 Legislative Session Bolstered Opportunities to Improve Community Resilience

The 2023-24 legislative session was an important one for emergency management. In Governor Inslee's budget, the state Emergency Management Division (EMD) received funding for: three emergency response positions in the State Emergency Operations Center; the state's Disaster Response Account; and the state and local match for the State and Local Cybersecurity Grant Program (SLCGP).

The state budget also included the establishment of an Extreme Weather Events Grant Program at EMD. These grants will be provided to local governments and federally recognized tribes for costs to respond to community needs during periods of extremely hot or cold weather or in situations of severe poor air quality from wildfire smoke.

A proviso also appropriated \$1.5 million for the biennium to provide grants to Whatcom County for disaster relief and recovery activities in response to the devastating November 2021 flooding and mudslides.

A state Disaster Resilience Program was established under House Bill 1728. EMD will be home to the program and will provide a report on the overall progress of disaster resilience efforts for hazards and issues where there is not another lead agency coordinating those efforts.

Additionally, Senate Bill 5518 was signed into law on April 20, 2023. Under it, a Cybersecurity Advisory Committee was established as a subcommittee of the state's Emergency Management Council and charged with providing advice and recommendations that will strengthen cybersecurity in both industry and public sectors across all critical infrastructure sectors.

House Bill 1170 passed and is focused on improving climate resilience through updates to the state's integrated climate response strategy. EMD will partner with the Washington State Department of Ecology (ECY) on those updates.

EMD was included as a partner with ECY in a proviso on updating coastal climate hazards. This effort will expand data analysis to assess vulnerabilities within coastal communities, deliver technical assistance, and increase local capacity to design and implement on-the-ground projects.

Finally, Senate Bill 5293 established a state hazard mitigation revolving loan account in the state treasury as part of the Safeguarding Tomorrow Through Ongoing Risk Mitigation (STORM) Act. EMD will submit annual grant applications for those funds.

Updates to State Law and the Washington Administrative Code

The Revised Code of Washington (RCW) is the compilation of all permanent laws in force in our state. Every legislative session results in changes to the RCW – some large, some small. Amendments are added and repealed laws are removed. Chapter 38.52 is the RCW governing Emergency Management. EMD is initiating a focused update of this chapter to include clarifying definitions, emergency worker coverage, tribal participation in the program, expanding participation eligibility on the Washington Mutual Aid System subcommittee, and expanding mutual aid participation to special purpose districts (Chapter 38.56.020).

The Washington Administrative Code (WAC) are the rules that codify the RCW. The Emergency Management Council is tasked with the review of these administrative rules that govern state, local, and tribal emergency management practices, and with recommending necessary revisions to them. EMD will facilitate a review of relevant rules this year.



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