Washington State

2022 Cascadia Rising Exercise Series

Summary of Conclusions

Critical Transportation and Mass Care Services Tabletop Exercises

June, 2022

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Thank You

The Washington Military Department and the Emergency Management Division would like to thank all those from across our state and region – residents, tribal governments and members, volunteers, non-governmental, non-profit organizations, private sector, local jurisdictions (cities and counties), state government, and federal partners – who dedicated their time, expertise, and resources to design and conduct the second Cascadia Rising exercise series. The Cascadia Rising 2022 (CR22) design team sends a special appreciation to all the workgroup members, support staff, and local jurisdictions that provided support to CR22. Without their involvement, this exercise would not have been possible. Their tireless efforts have continued to provide the foundation for improving our collective preparedness and resilience through the exercise conduct and the After-Action and Improvement Plan process.

Message from the Director

On behalf of the Washington Emergency Management Division, I am honored to present the initial observations from the Cascadia Rising 2022 exercise. This exercise was the latest evolution of the Cascadia Rising National Level Exercise series intended to prepare Washington State for a no-notice catastrophic Cascadia Subduction Zone earthquake. A Cascadia Subduction Zone earthquake would result in devastation, loss of life, social and economic impacts, and dramatic changes to the Pacific Northwest's way of life for decades into the future.

The Cascadia Rising 2022 exercise series was developed collaboratively with representation from the public, private sector, not-for-profit, non-governmental organizations, and all levels of government. The collaborative process focused on two essential core capabilities needed to provide lifesaving and life-sustaining activities during a catastrophic earthquake response: Critical Transportation and Mass Care Services. The exploration of these two primary core capabilities provided critical insight that will aid in the response to a Cascadia event as well as local or regional disasters.

This Summary of Conclusions outlines the initial observations from exercise analyses conducted during the first phase of the after-action process. These observations represent common threads or themes from across the state to provide a broad understanding of the complexity of issues continuing to impact response and recovery operations. In addition, a further examination of each theme identified issue areas, courses of action, and core capabilities to guide the second phase of the After-Action process. Final observations and recommendations will be promulgated in the final After-Action Report and Improvement Plan to be published in Spring 2023.

The initial observations and recommendations outlined within this document are intended to improve the state's preparedness, response, and mitigation strategies through tribal, local, regional, and statewide initiatives. Preparedness, response, and mitigation activities are needed to address life-safety and life-sustainment, stabilization of critical infrastructure and community needs, as well as short and long-term recovery. It is imperative that Washington State continue to strive for and develop a culture of preparedness and mitigation at all levels of government, with inclusion of the public and private sectors to mitigate the impacts of a catastrophic event.

I would like to thank the exercise design and workgroup team members, and exercise participants for their significant contributions. Your collective work made Cascadia Rising 2022 a successful exercise and set the stage to further strengthen the resilience of Washington State.

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Robert Ezelle, Director
Washington Emergency Management Division

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Executive Summary

Purpose: The purpose of this Summary of Conclusions is to provide an assessment of Washington State's Cascadia Rising 2022 (CR22) National Level Exercise (NLE) focused on testing the prioritization of critical ground transportation routes and the assessment of emergency mass care service and support capabilities to impacted jurisdictions following a Cascadia Subduction Zone (CSZ) event.

Scope: This Summary of Conclusions covers the period of June 13-16, 2022 and was influenced by several NLE exercise initiatives between February and May 2022.

The CR22 exercise primarily focused on the Federal Emergency Management Agency's (FEMA) Core Capabilities of Critical Transportation and Mass Care Services; however, Operational Communications, Operational Coordination, Situational Assessment, and Logistics and Supply Chain Management were also assessed as supporting capabilities.

Background: CR22 was the next evolution of exercises focused on responding to a CSZ earthquake, with exercise play beginning at the 96th hour after the initial rupture. This exercise gathered more than 600 participants from tribal partners, the private sector, faith-based organizations, healthcare providers, higher education and school districts, non-governmental/non-profit organizations, cities, counties, state agencies, and federal partners. It was also supported by FEMA's National Exercise Division (NED) in a collaborative partnership to align the NLE objectives of Stabilization, Initial Recovery, and Strategic Coordination.

Issue: Prioritize the reopening of critical surface transportation infrastructure along key east-to-west routes to move lifesaving and life-sustaining bulk goods and resource support statewide.

Synopsis: The Critical Transportation Table-Top Exercise (TTX) identified several issues with the movement of supplies from eastern to western WA over highways, roads, and bridges. Surface transportation infrastructure may be heavily damaged or destroyed following a CSZ event, necessitating the need for emergency repair and reopening. The exercise discovered a critical issue with a lack of a current planning timeline for the reopening of critical surface transportation routes, specifically the key east-to-west corridors. The lack of an understanding of the potential delays in reopening these critical routes limited the ability to conduct accurate planning for the logistical movement of public and private sector bulk goods and resources, including fuel and medical supplies. In addition, the timeframes needed for emergency repair and re-opening of the highways is necessary to plan for the movement and evacuation of displaced survivors within the local jurisdictions and along the highways between eastern and western Washington. Without a re-opening and movement control plan and associated timelines as planning assumptions, decision-makers are challenged to determine the scope, scale, and duration of needed air and maritime response.

The CR22 exercise looked closely at the severity of these impacts to damaged and degraded surface transportation infrastructure. Mitigation efforts are urgently needed to significantly improve and strengthen prioritized state, tribal, and local surface transportation corridors and routes for the delivery of bulk goods and resource support statewide. The lack of additional mitigation funding directly impacts the ability to improve surface transportation repair and restoration planning and does not afford state officials the ability to establish an effective timeline for re-opening prioritized state corridors; specifically, the key east-to-west corridors, and alternate local jurisdictional routes. In addition, the mitigation of airports, along with the transportation routes to and from airports, is

urgently needed to augment the delivery of bulk goods and resources in concert with surface movement. Furthermore, the lack of coordinated local and state evacuation plans does not afford officials the ability to establish the coordinated and controlled movement of people self-evacuating and bulk goods and resources delivery along limited prioritized surface transportation routes. Furthermore, a comprehensive and integrated business re-entry plan is needed to augment coordination between the public and private sectors for goods and resource support to impacted, supporting, and isolated communities. In addition, the Energy Office of the Department of Commerce has developed an initial Fuel Action Plan and is responsible for overall coordination with the public and private sectors regarding fuel distribution and planning. However, additional assessments are needed to fully understand the needs of tribal and local jurisdictional communities (through the Stakeholder Preparedness Review and state and local planning efforts). Fuel requirements must be coordinated and distributed along prioritized surface transportation routes when critical infrastructure, typically responsible for transporting fuel, is severely damaged and degraded.

Recommendations:

1. Prioritize state funding to support mitigation and build resiliency 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 enhances the ability to provide lifesaving and life-sustaining delivery of fuel, food, water, and medical supplies.

2. Develop catastrophic planning initiatives aligned with funded mitigation efforts including, but not limited to:
    a. State and local surface transportation repair, re-opening, and restoration plan(s),
    b. State and local surface and air response coordination and movement control plan(s),
    c. State and local evacuation, reunification, and community re-establishment plan(s), and
    d. State and local private sector business re-entry and commodity distribution plan(s).

3. Establish and implement a joint effort between the Military Department and the departments of Commerce and Transportation to develop, implement, and maintain a comprehensive assessment(s) of tribal and local jurisdictional fuel needs.

4. 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.

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

Synopsis: The CR22 exercise looked closely at the severity of the impacts of damaged and degraded communications infrastructure on the state, tribes, and local jurisdictions. Mitigation efforts are urgently needed to significantly improve and strengthen state, tribal, and local redundant communications infrastructure statewide. Extensive damage to our communications infrastructure would negatively impact the ability of first responders and emergency management organizations to effectively communicate emergency repairs to re-open critical transportation infrastructure, collect and disseminate essential emergency response and public information, and coordinate with federal partners. It would also significantly degrade the state's ability to prioritize and provide lifesaving and life-sustaining delivery of bulk goods and resource support to impacted, isolated, and supporting communities. In addition, the inability of state and local officials to effectively communicate,

coordinate, and control the movement of people self-evacuating and the delivery of bulk goods and resources along limited prioritized surface transportation routes will significantly impact life safety and life sustainment operations. Furthermore, the inability to effectively communicate and coordinate the delivery of fuel, food, water, and medical supplies significantly degrades the state's ability to provide for the healthcare community and the needs of mass care service and support for sheltering, hydrating, and feeding displaced survivors and people with Access and Functional Needs (AFN). Finally, the significantly damaged and degraded communications infrastructure significantly delays state and local officials' ability to begin damage assessments and individual and public assistance recovery operations.

Recommendations:

1. 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.
2. Prioritize state funding to support comprehensive resiliency in voice and data public warning and information communications infrastructure for primary and alternate state emergency operations sites. This will enhance the ability of state and local officials to provide emergency public information and warning for impacted or isolated communities including people with AFN.
3. Prioritize state funding to mitigate and replace legacy communications infrastructure and systems to reduce the effect on impacted and isolated communities, first responders, and emergency management organizations.
4. Establish funding, guidelines, and mechanisms for newly approved communication packages that encourage and provide state agencies, tribes, and local jurisdictions' the ability to procure communications equipment and elect to participate in compliant networks.

Issue: Prioritize the study of critical aerial, maritime, and rail transportation infrastructure to plan for and move lifesaving and life-sustaining bulk goods and resource support statewide.

Synopsis: Throughout the discussion-based exercise, it became clear the damage and degradation of surface and airport infrastructure will significantly impact how efficiently and effectively Washington State responds to and recovers from a CSZ earthquake. The impacts to state and local prioritized routes and the repair and restoration times needed to re-open surface infrastructure and airports will significantly delay lifesaving and life-sustainment efforts. Additional capabilities, such as maritime and rail re-opening for the delivery of bulk goods and resource support will be needed to begin the response and support short-term recovery operations. A 2019 Regional Resiliency Assessment Program (RRAP) assessment mentioned some maritime and rail impacts in the report; however, the premise of the 2019 RRAP was dedicated to and supportive of surface transportation routes (bridges and highways) to establish the flow or commodities into western Washington. The lack of a dedicated maritime resiliency study to assess capability and risk does not afford the state the ability to effectively understand how to open ports for the evacuation of people or to support bulk resource movement and critical infrastructure repair resources needed for coastal and Puget Sound communities. In addition, islands throughout the Puget Sound and coastal communities will be isolated from the main surface transportation corridors and will not have the ability to effectively navigate evacuation routes or receive surface transportation of bulk goods and resource support. Furthermore, the current unknowns on repair and restoration capability or time frames for maritime port(s) re-opening is another factor in the delay of effectively responding to and recovering from a

CSZ event. The lack of a dedicated rail(road) resiliency study and collaborative partnership with rail owners and operators significantly prevents the understanding of the repair and restoration capabilities and time frames to deliver bulk goods and resource support to impacted communities.

Recommendation:

1. 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.
2. 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.
3. 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.

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

Synopsis: The CR22 exercise looked closely at how well the state, tribes, and local jurisdictions assessed, planned for, identified, and aligned shelter and community points of distribution (CPOD) locations. The intent is to align priority routes and coordinate emergency shelter, hydration (drinking water), and food/nutrition support for shelters, impacted/isolated communities, and people with AFN. Many local jurisdictions have completely, or in large part, deferred to the American Red Cross (ARC) as the sole source for their respective local jurisdictional shelter operations, planning, and support. While the ARC provides resource support, resources during a catastrophic incident will be rapidly exhausted and depleted. Therefore, local jurisdictions should strongly consider adopting a whole community-based approach to shelter and mass care service and support operations. The state should provide local jurisdictions with standardized criteria to support shelter and mass care service and support. The lack of standardized criteria to assess the needs of emergency community-based shelters led to varying degrees of what a shelter should consist of and how it should be supported. In addition, the lack of standardized criteria to establish and maintain local jurisdictional comprehensive mass care service and support and shelter plans significantly degrades the ability of local jurisdictions to provide emergency life safety to displaced survivors, including those with AFN. The lack of standardized mass care services planning, on-hand inventories, and gap analyses across the state does not afford state and local officials the ability to effectively support and coordinate shelter, hydration, and food/nutrition needs for impacted communities and people with AFN. On top of that, the lack of coordination between local jurisdictional prioritized transportation routes and the location of shelters, local staging areas, and CPOD(s) significantly impacts the ability to effectively deliver fuel, hydration (drinking water), food/nutrition, and medical supplies. Furthermore, widely inconsistent local volunteer management staffing resources significantly impacts the ability to provide emergency lifesaving and life-sustainment support to local shelters and CPOD locations.

Recommendations:

1. Establish minimum requirements necessary for local jurisdiction emergency management programs to establish catastrophic emergency shelter operations, including wrap-around mass care services and support needs for impacted, isolated, and supporting communities.
2. 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.
3. Prescribe and support, through grant guidance, the ability for emergency management programs to maintain the 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.
4. 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 planning and enhance response to impacted persons and those impacted with AFN.
5. 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 (SPR).

Administrative Handling Instructions

1. The title of this document is the Washington State Cascadia Rising 2022 (CR22) Exercise Series "Summary of Conclusions."

2. This Summary of Conclusions (SoC) provides exercise participants, stakeholders, Washington residents, tribes/nations, private sector, non-governmental, non-profit organizations, local jurisdictions, federal partners, and state agencies with an initial review and summary of exercise observations, focus areas, key findings, and the continuing After Action and Improvement Plan processes.

3. The information contained in this document is intended for public release.

4. For more information about the exercise, please consult the following points of contact (POCs):

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Exercise Objectives

CRITICAL TRANSPORTATION OBJECTIVES AND CORE CAPABILITIES

Exercise Objectives	Core Capability	Mission Area
1. Examine and assess the coordination of response phase transportation activities between state, tribal, and local transportation entities.	Critical Transportation; Operational Coordination; Situational Assessment	Response
2. Discuss how initial damage assessments of transportation infrastructure will be coordinated across all impacted jurisdictions.	Critical Transportation; Operational Coordination; Situational Assessment	
3. Assess and discuss the procedures for the coordination of prioritized critical transportation needs across all jurisdictions.	Critical Transportation; Operational Coordination; Logistics and Supply Chain Management	
4. Discuss how to determine the elements needed as input to develop a plan for reopening the statewide transportation system.	Critical Transportation; Operational Coordination	

MASS CARE SERVICES OBJECTIVES AND CORE CAPABILITIES

Exercise Objectives	Core Capability	Mission Area
Sheltering Objectives. a) Assess the shelter needs of people and pets within the community. b) Describe organized community sheltering strategies and operations. c) Describe how to effectively coordinate temporary sheltering needs among jurisdictions.	Mass Care Services; Operational Coordination; Operational Communication; Situational Assessment; Logistics and Supply Chain Management; Infrastructure Systems (water – drinking)	Response
Hydration Objectives. a) Assess the hydration needs of people and pets within the community. b) Describe organized community hydration strategies and operations. c) Describe how to effectively coordinate hydration needs among jurisdictions.		
Feeding and Nutrition Objectives. a) Assess the feeding and nutrition needs of people and pets within the community. b) Describe organized community feeding strategies and operations. c) Describe how to effectively coordinate feeding and nutrition needs among jurisdictions.		

Introduction

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 plates. The Juan de Fuca plate is moving eastward toward and driving (subducting) beneath the North American plate.

The CR22 scenario is 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 State within the recurrence interval for another event. It is estimated shaking resulting from a rupture of the fault could last four to six minutes, with subsequent tsunamis and aftershocks that will continue for hours to months. Additional impacts and cascading events include damage resulting from liquefaction-prone soils and landslides or 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 prepare for and practice an emergency response, Washington's Emergency Management Division, in conjunction with stakeholders from around the state, developed and coordinated the Washington State CR22 exercise series to capitalize on lessons learned from the CR16 Full-Scale Exercise (FSE) and continue to develop response capabilities within Washington State. This exercise is one component of other CR22 National Level Exercise events spanning the entire 2022 calendar year to examine the ability of all levels of government, private industry, and non-profit or governmental organizations to respond to and recover from a large rupture along the CSZ fault line.

The exercise series consisted of three primary events:

- Critical Transportation Virtual Tabletop Exercise (TTX), held on June 13, 2022
- Mass Care Services Virtual TTX, held on June 15, 2022
- Consolidated Hotwash, held on June 16, 2022

Exercise documents provided to participants included:

- Critical Transportation TTX Situation Manual
- Critical Transportation Regional Placemats (Coastal, I-5 Corridor, and Eastern WA)
- Mass Care Services TTX Situation Manual
- Mass Care Services Regional Placemats (Coastal, I-5 Corridor, and Eastern WA)

Registration and attendance (see Appendix A for additional information):

- 605 people registered
- 14 Washington State Tribes and Nations participated
- 15 State Agencies participated
- 19 other Governmental Organizations participated
- 31 Cities and Towns participated
- 32 County's participated
- 379 people and/or organizations attended the Critical Transportation TTX
- 385 people and/or organizations attended the Mass Care Services TTX

METHODOLOGY

While the CR22 after action process is inclusive of the entirety of the three-day exercise, this Summary of Conclusions focuses on and provides an overview of four themes closely related to the most significant operational and strategic objectives from the exercise, which will be thoroughly addressed in the final CR22 After Action Report (AAR) scheduled to be promulgated in the spring of 2023.

Two primary FEMA Core Capabilities were selected to be exercised during CR22: Critical Transportation and Mass Care Services. Two virtual TTX(s) were developed to explore the plans, policies, and procedures necessary to perform these core capabilities.

The virtual setting provided and allowed for an inclusive environment with far greater representation across the state. Engagement with the whole community provided an increased level of understanding to better inform planning, organizing, equipping, training, and exercising for necessary resources and tasks.

Exercise play was organized with a plenary introduction and three distinct geographically aligned regions (Coastal, I-5 Corridor, and East of the Cascades). This model facilitated localized exploration of the exercise objectives at the small group level before returning to the plenary session to share the lessons learned. Regions shared a common scenario with additional region-specific impacts and content to facilitate localized exploration of the exercise objectives. The regional breakout rooms were facilitated by support staff, including facilitators, note-takers, and continuous improvement moderators. Figure 1 depicts these regions; see Appendix C for further information and the legend.

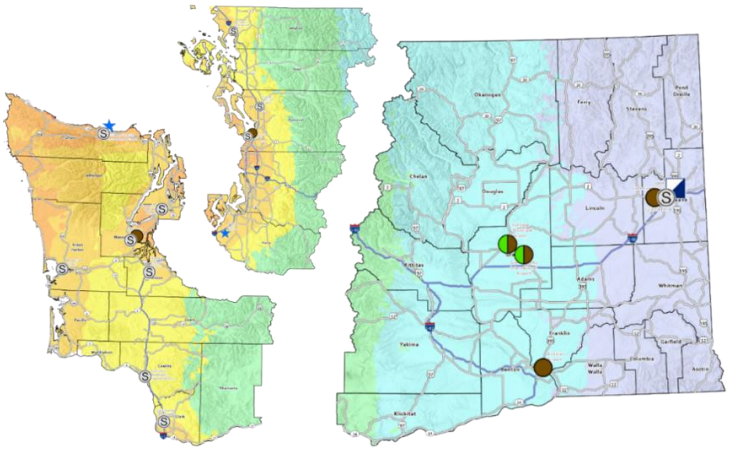

Figure 1. Geographically Aligned Breakout Rooms

At the conclusion of each TTX, facilitators, note takers, and continuous improvement moderators submitted their exercise documents, notes, and observations to the exercise team for consolidation and inclusion within the After-Action Process. Additionally, on June 16, exercise participants, observers, and support staff were invited to attend the consolidated hotwash and provide additional qualitative feedback. Finally, the exercise team developed participant feedback surveys to collect quantitative and qualitative data for each event. Data collected within the daily lessons learned, the hotwash, and the surveys focused on providing additional clarity to the performance of exercise objectives, outcomes, observed strengths, areas for improvement, recommendations, and to provide qualitative comments in an individual and optionally anonymous setting.

This SoC outlines the initial observations, priority themes, and focus areas to provide Washington State a basis to guide the After Action and Improvement Planning (AAR/IP) process. Furthermore, the initial observations, priority themes, and focus areas will be included in the 2023 Integrated Preparedness Planning Workshop (IPPW) to help prioritize needs moving forward, which will aid in the development of an exercise strategy designed to increase proficiency leading up to the next Cascadia focused NLE.

LIMITATIONS

While the after-action process is inclusive of the entirety of the exercise, both in terms of the full exercise timeframe and the full spectrum of discussions and partners, there are several important factors that limit the after-action review team's ability to collect and analyze the data which informed this report. These factors were considered in the analysis and development of this report and should be considered by the reader as well.

COVID-19 and concurrent real-world response efforts and resource limitations at all levels of the statewide emergency management system, including within EMD and the SEOC, required the exercise to shift from an operational to a discussion-based exercise. An operational exercise offers a more realistic analysis of the coordination of activities and task performance during which data can be collected and analyzed. A discussion-based exercise limits the ability of evaluators to effectively evaluate outcomes. As a result, the extent of data collection and analysis was limited. It is important to note that full root cause analyses have not been performed for identified areas for improvement. Additional effort is needed to investigate and understand the root causes and contributing factors for each reported strength and area for improvement, as well as to validate and/or refine recommended improvement actions specified in this report. These necessary next steps are planned to occur following the conclusion of this Summary of Conclusions process.

The interim priorities and focus areas outlined within this document were developed by a small team examining cross-cutting themes that were evident in exercise documents and participant feedback. An in-depth review and root cause analysis have not been conducted. The volume of data will also require greater time and staffing to fully evaluate findings. Furthermore, much of the analysis will require discipline/functional area and capability-specific subject matter experts to provide insight, clarity, and recommendations for improvement. However, based on the pervasive nature of these cross-cutting themes, the exercise team believes the priorities and focus areas provided within this document capture the high-level elements needed for further development within the AAR/IP process.

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Analysis of Capabilities

Aligning the CR22 exercise executive summary issues/observations with the FEMA core capabilities and exercise objectives provides a consistent and succinct method for informing and setting the stage for strategic and operational programmatic updates. State, tribal and local jurisdictional continuous improvement and evaluation efforts transcend individual exercises and individual or organizational priorities to support preparedness reporting and trend analyses. The following analyses are a list of courses of action derived from the after action hotwash, participant feedback, state agency priorities, executive summary issues, observations, and lines of effort mentioned above.

This is not an all-inclusive list; additional issue areas, focus areas, improvement items, and/or identified parking lot items may be included during Phase II of the CR22 Improvement Planning effort.

ANALYSES OF ISSUES AND CAPABILITIES

Issue 1 – Surface Transportation Infrastructure:

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

Improvement Item 1:

Observation:

Representatives from tribes and local jurisdictions spanning both Critical Transportation and Mass Care Service TTX(s) expressed discontent with the inability to effectively understand how the state, tribes, and local jurisdictions were coordinating the prioritization and re-opening of critical state, tribal, and local surface transportation routes to allow for the delivery of bulk goods and resource support and community movement to life safety services such as shelters and healthcare facilities.

Analysis:

Initial response efforts will largely depend on the rapid ingress of resources into Washington State. These capabilities are contingent on federally and state pre-coordinated response plan logistical nodes that can receive resources and transition them to surface transportation routes into the affected area. Restrictive terrain across the cascade mountain range and those into the coastal region pose significant challenges to the viability of surviving surface transportation routes.

It was unclear how long it would take to conduct emergency repairs to each bridge and/or section of the highway and provide an aggregate timeframe to begin re-opening the key east-to-west corridors. It remained unclear how state and local policy and the Unified Coordination Group were going to prioritize and operationally coordinate delivery of federal bulk goods and resources to federal staging areas, state staging areas, and local community points of distribution without having emergency repair estimates and/or re-opening timelines.

Participants highlighted the critical nature of urgent mitigation projects needed to improve the resiliency of surface transportation lifelines along key routes connecting eastern and western Washington, I-5 to support impacted communities south, north, and west of the I-90/I-5 interchange, and those alternate local jurisdictional routes that connect to impacted and isolated communities.

Limited and susceptible routes over the Cascades and those that connect large airfields offer the only viable heavy-volume routes to support the response.

The east-to-west routes are the primary surface ingress route across the Cascades to connect logistics nodes in eastern Washington with the logistics nodes at Everett's Payne Airfield and Joint Base Lewis McChord. These seismic lifelines are anticipated to be the first routes to reopen to support responders and logistical support west of the Cascades. Both lifelines include numerous bridges susceptible to damage or failure, including elevated spans and sections that have reached their service lives. While portions of these routes have been upgraded, ongoing and extensive mitigation projects are needed to improve their resiliency.

Course(s) of Action:

1. Develop a comprehensive surface transportation mitigation decision package(s) that urgently implores state lawmakers to allocate and invest mitigation funding to support the critical surface transportation infrastructure (bridges and highways) along east-to-west ground transportation routes and priority alternate routes.

2. Conduct in-depth analysis to develop a comprehensive plan, led by the Washington State Department of Transportation (WSDOT), focused on connecting state and interstate highways to federal and state staging areas that provide: [1]
    a. A timeframe analysis for emergency bridge and highway inspections,
    b. A timeframe analysis for emergency bridge and highway repairs, and
    c. An individual bridge timeframe and an aggregated highway timeframe for re-opening key east-to-west corridors.

3. Prescribe and support (through funding, staffing, and workload assistance) local jurisdictions to develop a comprehensive plan, with analyses, listing all locally identified priority route bridges and roadways to connect state highways to local community points of distribution and emergency shelters that provide:
    a. A timeframe analysis for emergency bridge and roadway inspections,
    b. A timeframe analysis for emergency bridge and roadway repairs, and
    c. An individual bridge timeframe and aggregated route timeframe for re-opening.

4. Prescribe and support (through funding, staffing, and workload assistance) state and local emergency management programs to collaboratively explore, develop, and integrate coordinated evacuation (and publicly communicated) strategies and plans using the limited and available surface transportation routes. These plans should be deconflicted with commodity distribution management plans and public safety disciplines.

Core Capabilities: Critical Transportation, Operational Coordination

Critical Transportation identified in previous AAR? Yes

[1] *Please see the 2016 Cascadia Rising Exercise After-action Report for added insight: Appendix D, Core Capability 7: Planning, Observation 7.1, pp. 19-20. Link: 2016 Cascadia Rising Exercise After-action Report*

Improvement Item 2:

Observation:

Representatives from tribes and local jurisdictions recognized the significant impact damages to the critical surface transportation corridors will have to the traditional public and private sector logistics supply chain. With the current inability of state and local officials to determine an estimated time frame for providing emergency repairs to, and the re-opening of, key ground transportation routes, it is currently unknown what the consequences will be for impacted communities west of the Cascade Mountain range, as well as communities east of the Cascade Mountain range who are dependent on the delivery of goods and resource support from western Washington.

Analysis:

Discussions throughout both the Critical Transportation and Mass Care Services TTX(s) illustrated the strategically important role western Washington public and private sector facilities and infrastructure provides to logistics and the statewide supply chain. This infrastructure includes, and is not limited to, traditional points of distribution, warehouses, communications capabilities, and fuel supply points.

A CSZ 9.0 magnitude event will cause significant damage to aerial, maritime, and rail(road) infrastructure supply chain embarkation and debarkation points and surface infrastructure throughout western Washington. The disruption to surface transportation infrastructure will prevent the movement of public and private delivery of traditional and bulk goods and resource support to impacted or isolated communities and people with AFN. In addition, communities that receive traditional public and private sector supply chain materials and goods will also be impacted by potential self-evacuees from the impacted areas. The additional burden on eastern Washington communities from displaced survivors who can travel will increase the likelihood of extreme shortages in goods, services, and resource support above normal community capacity.

In addition, non-traditional pre-identified emergency shelters and community points of distribution along the prioritized state and local jurisdictional routes will create another supply need in impacted and supporting communities. This additional community strain complicates state and local officials' ability to develop a comprehensive understanding of the supply-demand for food, water, fuel, and medical supplies to support survivors, people with AFN, and people with pets.

Furthermore, fuel needs across the state are unknown. State agencies, tribes, and local jurisdictions indicated fuel will be an urgent need for communities statewide; however, state agencies, tribes, and local jurisdictions could not provide details or data on what the fuel needs will be following a CSZ event. Healthcare communities, first responders (fire, law enforcement, emergency medical services, etc.), shelters, public works, and transportation (road clearance and debris removal), public and private commodity distribution services, will all require fuel for generators, supply chain ingress and egress, busses for mass evacuating displaced survivors, and more. Finally, fuel delivery will be impacted by significant damage and/or degradation to fuel critical infrastructure throughout the impacted areas. State and local officials will be unable to prioritize and effectively provide guidance on fuel distribution without a comprehensive understanding of the emergency repair and restoration of the fuel distribution critical infrastructure.

Course(s) of Action:

1. Conduct a traditional statewide supply chain commodity flow study to understand commodity distribution impacts to normal supply chain routes along the key east-to-west corridors and determine alternate local jurisdictional routes to re-open.

2. Conduct a non-traditional statewide supply chain commodity flow study to understand commodity (including, but not limited to, fuel, drinking water, food/nutrition) distribution impacts along identified and prioritized surface transportation routes in eastern and western Washington. This should include post-incident distribution to pre-identified emergency shelters and community points of distribution.
3. State, tribal, and local jurisdictions should conduct a collaborative fuel needs assessment through the Stakeholder Preparedness Review (SPR), appropriate planning, and essential elements of information. This should then be coordinated with the state Energy Office for consideration within fuel planning factors for surface transportation and delivery of fuel.

Core Capabilities: Critical Transportation, Logistics and Supply Chain Management, Operational Coordination

Identified in previous AAR: No

Improvement Item 3:

Observation:

Representatives from tribes and local jurisdictions recognized the need to evacuate and temporarily relocate people, including those with AFN, and pets from the impacted areas, including isolated communities along the coast and islands within Puget Sound. With significant impacts to surface transportation infrastructure, those electing to self-evacuate will find safe passage difficult into potentially less or non-impacted communities.

In addition, the need to allow freedom of movement via prioritized and publicly communicated surface transportation routes will be challenged by factors such as continued emergency repair and/or restoration, additional seismic shifts, limited access to available routes, and commodity distribution. These additional factors stress the importance of the need for a comprehensive surface and aerial movement control plan.

Analysis:

Incident severity may necessitate the evacuation of large numbers of survivors from isolated communities or areas where reestablishing effective mass care services is unattainable. Large-scale evacuation requires extensive planning and coordination with other lines of effort, including the transportation network, logistics nodes, and mass care services. Current planning is limited to the identification of essential elements of information, roles, and responsibilities, and supporting core capabilities.

Interagency planning and coordination are needed to develop a comprehensive and inclusive whole-community evacuation plan that is nested with other planning efforts. Focus areas should include resource needs, as well as the identification of assembly points, respite sites, reception centers, and shelters. Additional focus areas include transportation models, people with AFN, pets, reunification, traffic management, public safety support, and public messaging.

Impacts on the state and local surface transportation network will create isolated communities, including the islands throughout Puget Sound. Emergency repairs to the surface transportation infrastructure will potentially create the ability to begin re-opening surface routes working outwardly to expand mobility corridors. In an environment where communications and coordination may be severely degraded, coordinated state and locally integrated interagency plans, executable at all

levels with available resources, will be critical to establishing evacuation and supply chain corridors into affected areas.

Current planning is jurisdictionally limited and focuses on local or state-level priorities. Plans are limited to intra-agency resources or those expressed within existing mutual aid agreements. Additionally, plans are lacking a whole community approach to include routes necessary to access public health and safety, shelters, CPODs, logistical nodes, essential work, or routes that are essential to jurisdictions beyond agency boundaries.

Many communities have tsunami evacuation plans; however, those evacuation routes and planning considerations are limited to the coastal communities and do not expand further into the interior of western Washington, including through the Cascade Mountain range. State-level planners identified the need to develop systems and products to identify and deconflict priority routes at all levels across the state. Previous models relied heavily on snow removal routes which were developed with an emphasis on interstate travel, throughput, and economic impact. These previous models omitted the need for an all-hazards approach and coordination with tribal and local jurisdictions to identify routes that will be needed to support public health and safety, evacuation, sheltering, CPOD(s), and response resources.

A series of outreach events have been held to socialize the ongoing project and collect tribal and local data. Current participation is limiting the program's effectiveness in some areas where minimal information exists. Furthermore, information regarding jurisdictional capabilities is also limited.

During recent weather events, many of these limitations were highlighted during incident response. Mutual planning, aid agreements, and coordination are necessary to speed the reopening of priority routes. These complications would be exacerbated in an environment where communication and coordination may be degraded, especially along routes into rural/coastal areas that are dependent on other jurisdictions to reopen corridors of mobility.

Course(s) of Action:

1. Prescribe and support (through funding, staffing, and workload assistance) state, tribal, and local jurisdictions to explore, develop, and vertically integrate operational surface evacuation strategies and plans aligned with movement control plans.
2. Prescribe and support (through funding, staffing, and workload assistance) state, tribal, and local jurisdictions to expand and further explore the integration of self-evacuation, planned evacuation, and commodity distribution with public safety and transportation officials when limited access routes are available for all Washingtonians.
3. Prescribe and support (through funding, staffing, and workload assistance) state, tribal, and local jurisdictions to explore, develop, and vertically integrate private sector business re-entry and commodity distribution plans.
4. Prescribe and support (through funding, staffing, and workload assistance) state, tribal, and local jurisdictions to explore, develop, and vertically integrate operational community re-establishment and reunification plans aligned with movement control plans.
5. Explore, develop, and vertically integrate catastrophic air and surface traffic movement strategies and plan(s) to support first responders, evacuation, and commodity distribution movement via templated logistical nodes and known priority routes.

Core Capabilities: Critical Transportation, Operational Coordination

Critical Transportation identified in previous AAR? Yes

Issue 2 – Communications Infrastructure:

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

Improvement Item 1:

Observation:

Representatives from tribes and local jurisdictions identified increasing gaps in the ability to effectively communicate vertically and horizontally using non-internet-based radio, satellite, and emerging communications technologies and systems. Legacy statewide communications systems and those supported by tribes and local jurisdictions have experienced reduced capabilities resulting from system lifecycle and prohibitive upgrade/replacement costs.

To effectively communicate and coordinate, the critical communications infrastructure must be operational and capable for both voice and data communications. This allows for effective coordination for the response and emergency management collaboration and coordination of support resources for impacted and supporting communities.

Analysis:

Discussions throughout both the Critical Transportation and Mass Care Services TTX(s) illustrated the strategically important role that both voice and data communications infrastructure have on the ability to communicate holistically throughout the emergency management community. Without the ability to communicate, state and local officials are either completely unable or significantly degraded in their capacity to understand and respond to the needs of the tribes and local jurisdictions, as well as vertically coordinate with federal partners.

The inability of state and local officials to effectively communicate emergency repairs to re-open critical transportation infrastructure, collect and disseminate essential emergency response and public information, and coordinate with federal partners significantly degrades the state's ability to prioritize and provide lifesaving and life-sustaining delivery of bulk goods and resource support to impacted, isolated and supporting communities.

In addition, the inability of state and local officials to effectively communicate, coordinate, and control the movement of people self-evacuating and the delivery of bulk goods and resources along limited prioritized surface transportation routes will significantly impact life safety and life sustainment operations. Furthermore, the inability to effectively communicate and coordinate the delivery of fuel, food, water, and medical supplies significantly degrades the state's ability to support the healthcare community and the needs of mass care service and support for sheltering, hydrating, and feeding displaced survivors and people with AFN.

Finally, the significantly damaged and degraded communications infrastructure significantly delays state and local officials' ability to begin individual and public damage assessments and assist recovery operations.

Course(s) of Action:

1. Develop long-term mitigation strategies to support comprehensive communications decision package(s) to strengthen and improve interoperable emergency management primary and alternate voice and data communications, public information and warning systems, and interoperable first responder communications infrastructure capabilities statewide.

2. Review current continuity planning and explore redundant and compatible communications infrastructure for alternate SEOC relocation site(s) and EMD Field Office(s) to enhance the state's capabilities to swiftly and seamlessly, continue to provide effective interoperable coordination with emergency management programs and EOCs statewide.
3. Establish a vertical data coordination mechanism, using situational assessment, to locally identify and prioritize critical transportation and mass care service and support gaps and needs (e.g., consolidated shelter and CPOD location databases).

Core Capabilities: Operational Communications, Operational Coordination

Operational Communications identified in previous AAR? Yes

Improvement Item 2:

Observation:

Representatives from tribes and local jurisdictions recognized the need for a greater understanding of operational communications capabilities and protocols supporting operational coordination horizontally with adjoining tribes and jurisdictions but also vertically with their respective regional Multi-Agency Coordination Groups (MACG) and the State Emergency Operations Center (SEOC).

Analysis:

Many existing communications systems, resources, modes, and frequencies are available during an incident. A variety of systems and radio services are identified within current planning: Land Mobile Radio (LMR), Comprehensive Emergency Management Network (CEMNET), On-Scene Command and Coordination Radio (OSCCR), State Emergency Communications Using Radio Effectively (SECURE), FEMA SHAred RESources (SHARES), National Warning System (NAWAS), and Amateur Radio (voice and data). While a Primary, Alternate, Contingency, and Emergency (PACE) plan(s) is identified, each of these systems and services have unique requirements that must be encapsulated within state and local jurisdiction communications priorities. Greater clarification and communication of specific needs to assist state agencies and local jurisdictions in developing communications capabilities is needed. Further clarity is needed to develop an understanding of the SEOC process of progression through the PACE plan strategies. Additionally, there is a need to explore potential emerging technologies for inclusion within PACE plan strategies.

Communications infrastructure within Washington State faces additional challenges across the public and private sectors using a combination of localized and potentially disparate digital, analog, and legacy technologies, some of which are at or beyond their life expectancy. State and local communications officials currently do not have a comprehensive understanding of respective, adjoining jurisdiction and supporting (state and federal) communications capabilities. The lack of understanding of communications interoperability, or what communications capabilities will be prioritized for use, creates a path for significant delays in the ability to understand and respond to the needs of impacted and supporting communities.

Course(s) of Action:

1. Develop and socialize a comprehensive statewide operational communications strategy and plan, incorporating tribal, local jurisdiction, and state agency PACE.
2. Develop a comprehensive situational assessment plan, including a methodology for how to coordinate the horizontal and vertical collection of essential elements of information (EEIs) and incorporation into geographical information systems (GIS).

Core Capabilities: Operational Communications, Operational Coordination

Operational Communications identified in previous AAR? Yes

Issue 3 – Aerial, Maritime, and Rail Transportation Infrastructure:

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.

Improvement Item 1:

Observation:

Establishing an effective emergency critical transportation response to a CSZ event is not limited to the surface transportation infrastructure and takes a whole-transportation community approach to fully respond to, recover from, and re-establish Washington State communities impacted by a catastrophic earthquake. Surface transportation infrastructure is one of the four transportation lifelines and is severely limited by an already constrained number of route options. To respond and recover faster, additional transportation modes, including aerial, maritime, and rail(road) transportation resources and infrastructure, will be needed to allow for the delivery of bulk goods, resource support, and community movement.

Analysis:

The impacts to state and local prioritized surface transportation routes and the repair and restoration times needed to re-open surface, aerial, and multi-modal ports will significantly delay lifesaving and life-sustainment within impacted communities. Additional capabilities such as maritime and rail(road) re-opening for the delivery of bulk goods and resource support are going to be needed to begin the response and support short-term recovery operations efficiently and effectively.

A 2019 Regional Resiliency Assessment Program (RRAP) assessment was conducted and briefly mentioned some airport, maritime, and rail impacts in the report; however, the premise of the 2019 RRAP was dedicated to, and supportive of surface transportation routes (bridges and highways) to establish a commodity flow into western Washington from federal logistics nodes established in eastern Washington.

A 2021 Aerial Port resiliency study between state and federal partners illustrated some of the challenges within current airport resiliency; however, during the CR22 Critical Transportation TTX (influenced by the FEMA Region 10 Rehearsal of Concept (ROC) Drill in May 2022), it became clear there is not a comprehensive understanding of how long it would take to conduct emergency repairs to each of the major airports and identified Aerial Ports of Debarkation (APOD). APODs augment surface transportation supply chain efforts by providing locations to transfer commodities and resources to the surface transportation network. An aggregated timeframe to begin re-opening airports for the bulk delivery of goods and resource support to federal logistics nodes, state staging areas, and local community points of distribution is needed to inform planning for lifesaving and life-sustainment.

The lack of a dedicated maritime resiliency study to assess capability and risk does not afford the state the ability to effectively open ports for the evacuation of people, support bulk resource movement, or allow for the ingress of critical infrastructure repair resources needed for coastal and Puget Sound communities. In addition, islands throughout Puget Sound and coastal communities will be isolated from the main surface transportation corridors and will not have the ability to effectively navigate survivor evacuation or reception of bulk goods and resource support. Furthermore, the

current unknowns concerning repair and restoration capabilities or time frames for maritime port(s) re-opening is another factor delaying an effective response to and recovery from a CSZ event.

The lack of a dedicated rail(road) resiliency study and collaborative partnership with rail(road) infrastructure owners and operators significantly prevents the understanding of rail(road) infrastructure issues, repair and restoration capabilities, and time frames to deliver bulk goods and resource support to impacted communities. In a resource-constrained environment, rail(road) delivery may be one of the most efficient modes for transporting large quantities of commodities and resources into logistics nodes and impacted communities.

Course(s) of Action:

1. Collaboratively partner with statewide airfield managers to understand and effectively plan for emergency repair and determine reopening timeframes for delivery of bulk goods and resource support.
2. Fund maritime infrastructure and coastal suitability studies to assess the resiliency and ability of naval and maritime resources and systems to support post-disaster response and recovery and prioritize maritime infrastructure, waterways, and potential over the beach operations to inform a long-term bulk commodity transportation infrastructure mitigation strategy.
3. Prioritize critical rail infrastructure and resilience through legislative intent for federal, state, public, and private partners to collaboratively study and plan statewide critical rail transportation resilience.
4. Fund a rail infrastructure study to assess the resiliency and ability of the rail transportation system(s) to support post-disaster response and recovery and prioritize multimodal infrastructure and rail lines to inform a long-term bulk commodity transportation infrastructure mitigation strategy.
5. Conduct joint exercise(s) with federal partners, including the Department of Defense and the Washington Military Department, to evaluate and improve response planning to support airports, Federal Staging Areas, and other logistics nodes that rely on large, rotary, and fixed-wing capable airfields to support response and recovery.
6. Improve coordination with federal partners, including the Department of Defense, to explore and develop plans and methodologies for rotary and fixed-wing aircraft support for lifesaving and life-sustaining resources in isolated communities during the initial response.

Core Capability(ies): Critical Transportation, Operational Coordination

Critical Transportation Identified in previous AAR: Yes

Issue 4 – Mass Care Service and Support:

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 and people with Access and Functional Needs (AFN).

Improvement Item 1:

Observation:

Representatives from the state, tribes, and local jurisdictions recognized, through the Mass Care Services (MCS) TTX, the need for vastly improved planning and operational capabilities to support operations for shelters, hydration, and food/nutrition needs of impacted and isolated communities, people with AFN, and communities providing direct and indirect support for displaced survivors. Local shelters and shelter operations across the state are inconsistently coordinated and planned, or in some cases, non-existent. Statewide water (hydration) critical infrastructure impacts, delivery system capabilities, supply chain demand and needs, and local water planning efforts are not well understood. Statewide food/nutrition service and support capabilities, supply chain demand and needs, and local food/nutrition planning efforts are also not well understood.

Analysis:

The impacts on communities statewide from a CSZ event will significantly challenge the ability of Washington State to effectively provide support and service operations to displaced survivors, people with AFN, and those communities absorbing and supporting displaced survivors. The lack of effective state and local emergency management program mass care service and support gap analyses, planning initiatives, staffing, training, and coordination between the public, private, non-profit, and non-governmental organizations, and volunteer communities, exacerbates these impacts.

Participants across the state realized the inconsistencies with effective shelter, hydration, and food/nutrition coordination and planning. In addition, there is a lack of understanding of what constitutes the necessary shelter capabilities. For instance, some jurisdictions have good working relationships with their respective volunteer communities in working with their AFN communities and are looking to expand that further into CSZ planning, whereas some jurisdictions lack effective planning and rely solely on the American Red Cross to support their respective shelter planning efforts. Complicating the issue is the lack of a standardized set of criteria that constitutes the minimum requirements for establishing a shelter. Minimum requirements needed include, and are not limited to, beds, blankets, sanitation, staffing support, security, equity for people with AFN, and pet considerations.

Volunteer and Community Organizations Active in Disasters (VOAD/COAD) organizations are a vital resource and are uniquely suited to aid local jurisdictions in sheltering, donation management, survivor advocacy and other mass care services planning efforts. However, during the exercise, jurisdictions discussed approaches to volunteer support and management, which highlighted the numerous and disparate mechanisms in place across the state. While national organizations such as the American Red Cross and Salvation Army have standardized protocols to vet, train, and certify volunteers, the varied organizations and systems within the state limit the potential employment of local VOAD/COAD organizations across jurisdictional boundaries to provide mutual aid or assistance.

The reality is that the ARC and Salvation Army are a very limited resource within the state that will also be impacted by a CSZ event. This limited resource capability (throughout the state) will limit their ability to provide support to every impacted jurisdiction. For this reason, communities currently lacking mass care service and support plans will be further challenged by a no-notice event requiring sheltering, hydration, and food/nutritional support to displaced survivors, including those with AFN.

Furthermore, state and local emergency management programs should consider additional statewide and regional cross-jurisdictional coordination and planning, including conducting gap analyses for mass care services and support operations. The lack of coordinated statewide and regional planning and gap analyses for sheltering (including additional wrap-around services such as,

but not limited to, healthcare, medications, crisis counseling, etc.), hydration, and food/nutrition services, does not allow state and local programs to be self-sufficient during the immediate response and short-term incident stabilization following a CSZ event.

Water and wastewater systems in western Washington will be destroyed, damaged, or severely degraded due to earthquake activity and the contamination of surviving delivery systems by damaged sections or components. Previous earthquake activity indicates that eastern Washington may also experience degradation of infrastructure and/or damage to public and private wells. Each of these regions have unique considerations when addressing these elements. Furthermore, many eastern Washington Public Health authorities indicated their primary testing contractors reside west of the Cascades.

Tribes and local jurisdictions indicated the need for a comprehensive analysis of the water sector to identify providers, sources, and resources (testing, commodities, etc.) and to gain an understanding of the existing distribution network. Once stakeholders are identified and the network can be defined, collaborative planning and prioritization are needed to develop these elements and to explore mitigation measures to improve resiliency and strategies to resume distribution and delivery. Furthermore, this cooperative approach will need to explore methods to provide interim bulk distribution of lifesaving/sustaining hydration needs.

Food and nutrition assessments, demands, and commodity distribution will be challenged. As noted in the critical surface transportation analysis above, the flow of commodity distribution to impacted and supporting communities will be significantly challenged by a CSZ event. The need to provide a methodology among the public and private sectors to establish post-incident supply and demand levels will need to be explored to provide a time-based buffer and allow communities to be semi-self-sufficient for a short period of time. This will allow for the ability of state and federal partners to plan for and prioritize the distribution of food/nutritional supplies statewide.

Exercise participants identified gaps in existing, or the need for, databases and geospatial mapping products that are used to identify pre-coordinated routes, shelters, and CPOD(s). Current products have limitations in data or are maintained by external organizations, including data that is unvetted by emergency managers. Furthermore, participants expressed the need for more specificity regarding systems for providing Situational Assessment information to state-level decision-makers during incident response.

Course(s) of Action:

1. Establish guidelines to develop the minimum requirements needed by local jurisdiction emergency management programs to establish catastrophic emergency shelter operations, including wrap-around mass care service and support needs for impacted, isolated, and supporting communities.
2. 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 with gap analyses (including current tribal and local capabilities) for a shelter inventory/database, wrap-around services (health, sanitation, etc.) needs assessment, including necessary staffing, training, and certification.
3. Prescribe and support through funding, grant guidance, staffing, and workload assistance, emergency management programs to establish a comprehensive Community Point of

Distribution (CPOD) site inventory with gap analyses for fuel, hydration (drinking water), and food/nutrition, and include findings within the Stakeholder Preparedness Review (SPR) process.

4. Establish a state or grant funding mechanism for additional staffing resources to strengthen emergency management programs to improve volunteer and community organizations active in disaster planning initiatives that will enhance response to impacted communities and people with AFN.
5. Prescribe and support through funding, staffing, workload assistance, tribal and local jurisdiction collaborative coordination with adjoining jurisdictions of mass care services functions (shelter, hydration, food/nutrition), including gap analyses and mutual aid agreements, and include findings within the SPR process.
6. Conduct a comprehensive analysis of the water sector to identify providers, sources, resources (testing, commodities, etc.), and to gain understanding of the existing distribution networks.
7. Establish guidelines for the development of the minimum requirements needed to enable local jurisdiction emergency management programs and water sector partners the ability to develop best practices to aid tribes and local jurisdictions in developing hydration strategies.

Core Capability(ies): Mass Care Services, Operational Coordination

Mass Care Services Identified in previous AAR: Yes

Parking Lot Items for Improvement Plan Inclusion

During exercise conduct and phase I of the After-Action Process, several items arose that fell outside the scope of the exercise objectives, intent, or focus areas. During the initial analysis, many of these items warranted inclusion within the After Action and Improvement Plan Processes. This is not an all-inclusive, nor prioritized, list and additional improvement items and/or identified parking lot items may be included during Phase II of the CR22 Improvement Planning effort.

Below is a summary of items that emerged as consistent themes:

- Assessments and modeling of threats and hazards extending across eastern Washington are needed for both state and local jurisdiction planning.
- Increased public outreach and awareness are needed to foster a preparedness culture across the whole community – two [+] weeks ready, water filtration, etc.
- The exercise has highlighted the need for greater inclusion of the Tribes, Nations, Private Sector, and Non-Governmental/Profit Organizations (NGO/VOAD/COAD).
- Exploration of, incorporating, and leveraging emerging technologies should be considered to aid in operational communications, situational assessment, and operational coordination.
- Further exploration of the impact(s) of the evacuation and sheltering of people, people with AFN, and pets, including additional resource needs to support co-located sheltering, hydrating, and feeding plans, is needed.
- Exploration and cooperation in the development of Private Sector Business Emergency Operations Center(s), Business Continuity, and best practices to develop resilient Public-Private Sector partnerships should be incentivized.
- Non-impacted or supporting communities or jurisdictions should consider leveraging capabilities and resources (language, etc.) pre-incident to have products available to support the needs of displaced survivors.
- Explore the feasibility of pre-staging supplies and resources (i.e., bench stock(s) of sheltering supplies, water filters, fuel, etc.).
- Further exploration and/or identification of inter-state evacuee support and host communities is needed – pre-incident.
- Multiple Homeland Security Regions identified the potential need or interest in exploring further cooperation through HLS Region or Geographical Region Multi-Agency Coordination Groups(s) (MACG) to deconflict and prioritize regional objectives and requests prior to submission to the state.
- Additional exploration of non-traditional sheltering approaches to increase shelter stock is needed (e.g., soft-sided shelters).
- Explore and expand the use of the task force model to allow cross-jurisdictional coordination (e.g., sheltering and feeding).
- There is a need to identify and include, within prioritization, transportation corridors to hospitals and healthcare facilities, including routes linking healthcare to aerial transportation hubs to allow for escalation of patient care and evacuation from isolated communities.

- Public outreach and awareness within schools (K-12) is a method to aid in developing a preparedness culture within communities. This method has been beneficial in other programs to encourage households to embrace public outreach and awareness initiatives (e.g., fire education, DARE, 9-1-1, etc.).
- Planning efforts are needed to identify methods to provide bulk distribution of lifesaving/sustaining hydration, food/nutrition, and medical supplies; refine through exercise and improvement actions.

After Action Process

The CR22 After Action Process includes two primary phases: Discovery (Summary of Conclusions) and Validation (After Action Report [AAR] and Improvement Plan (IP)). Two additional phases, Resolution and Evaluation, will occur across all levels within agencies, organizations, and jurisdictions after the conclusion of the CR22 After Action Process.

Resolution and Evaluation will occur over the coming months and years as local jurisdictions refine existing plans, policies, and procedures; develop action plans to adopt Courses of Action; and, lastly, evaluate the outcomes of their improvement, and corrective action plans to address areas for improvement and resolve mission-critical issues. The publication of this document represents the conclusion of Phase 1.

Phase 1 – Discovery (Fall of 2022):

During the Discovery Phase, exercise documents were reviewed to identify issues, themes, and trends to provide initial recommendations to support further exploration during phase 2.

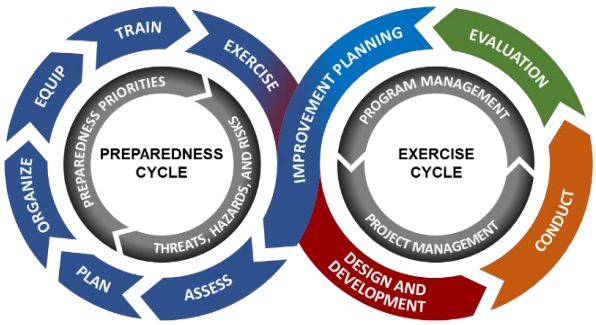
a. Develop and socialize the Summary of Conclusions document. - COMPLETE
b. Hold an initial After-Action Meeting to solicit stakeholder input/feedback. - COMPLETE
c. Publish the final Summary of Conclusions –October 2022. - COMPLETE

Phase 2 – Validation (Fall of 2022 – Spring of 2023):

Phase 2 will capitalize on the observations, focus areas, and recommendations determined in phase 1 to help core capability workgroups analyze data, conduct root cause analysis, and make refined recommendations to develop the AAR/IP with an expected publication target of early Spring 2023.

a. Build core capability workgroups to build core-capability-specific content. – in Progress
b. Consolidate core capability specific content into a single AAR/IP document.
c. Hold the final After-Action Meeting to solicit stakeholder input/feedback on the AAR/IP.
d. Publish the AAR/IP late winter/early spring 2023.

These processes are embedded within the preparedness and exercise cycles. To improve Washington State's collective preparedness and resilience, we highly encourage our response partners to participate in the THIRA/SPR and IPPW processes to aid in developing the POETE (Planning, Organizing, Equipping, Training, and Exercise) elements necessary for sustained continuous improvement. Further, as agencies, organizations, and jurisdictions develop their core capabilities, the need to exercise and reevaluate those capabilities becomes imperative. The below graphic illustrates how the preparedness and exercise cycles facilitate the conduct and performance of the Resolution and Evaluation Phases within ongoing iterative processes.



Appendix A: Exercise Participants

REGISTRATION AND ATTENDANCE DATA

Participants:		
Registered	605	
CT TTX Attendees	379	
MCS TTX Attendees	385	
Agency or Organizational Participation:		
Agency or Organization:	**Quantity:**	**Individuals:**
State Agencies	13	173
Tribes, Nations, and Tribal Organizations	16	24
Counties	32	174
Cities and Other Governmental Organizations	50	111
Federal	9	38
Higher Education	2	2
School Districts	5	7
Private Sector	5	7
Healthcare	13	16
Non-Governmental/Profit	17	45
Faith-Based	2	2
International	2	6

Appendix B: Relevant Plans, Reports, and Supporting Material

PLANS AND REPORTS

1. Region 10 Cascadia Subduction Zone (CSZ) Earthquake and Tsunami Plan, Federal Emergency Management Agency, January 2022
2. The Regional Resiliency Assessment Program for Washington State Transportation
3. Washington State Comprehensive Emergency Management Plan (CEMP)
    a. Emergency Support Function 1 – Transportation
    b. Emergency Support Function 6 – Mass Care, Emergency Assistance, Temporary Housing, and Human Services
    c. Emergency Support Function 7 – Logistics Management and Resource Support
    d. Emergency Support Function 13 – Public Safety, Law Enforcement, and Security
    e. Emergency Support Function 14 – Long-Term Recovery
    f. Emergency Support Function 15 – External Affairs
4. Washington State Distribution Management Plan, December 2021
5. Washington State Enhanced Hazard Mitigation Plan
6. Washington State Catastrophic Incident Annex Base Plan
    a. Tab A: Critical Transportation
    b. Tab B: Mass Care Services
8. Washington State 2021 Tsunami Vertical Evacuation Structure Impact Analysis Assessment
9. Tribal and local plans, policies, and procedures related to supporting Critical Transportation and Mass Care Services

SUPPORTING MATERIALS

1. CR22 Warm Start Videos: Part 1 and Part 2
2. Critical Transportation TTX Situation Manual
3. Critical Transportation TTX PowerPoint Slides
4. Critical Transportation TTX Expanded Questions
5. Critical Transportation Regional Placemats (Coastal, I-5 Corridor, and Eastern WA)
6. Mass Care Services TTX Situation Manual
7. Mass Care Services TTX PowerPoint Slides
8. Mass Care Services TTX Expanded Questions
9. Mass Care Services Regional Placemats (Coastal, I-5 Corridor, and Eastern WA)
10. Ground Truth data surveys conducted with local jurisdictions
11. FEMA Cascadia Rising 2022 exercise scenario document
12. Washington State 2021 THIRA/SPR Capability Target(s)
13. Washington State 2021 WA State SPR Capability Reporting
14. Unites States Census Bureau Data (2010 and 2020)

Appendix C: Regional Breakout Rooms and Maps

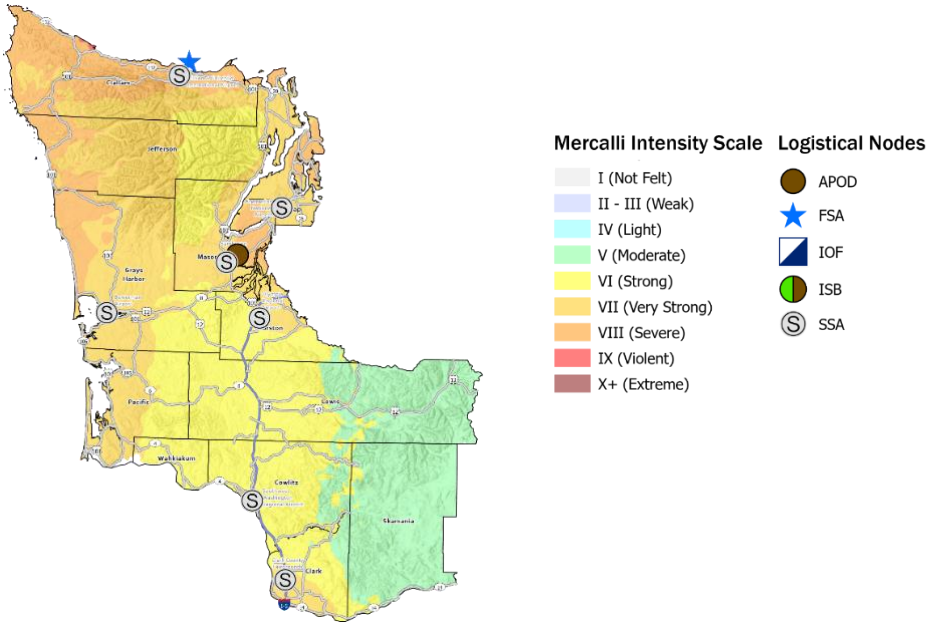


Figure 2. Breakout Room #1: WA HLS Regions 2, 3 and 4 – *Coastal Region*

Confederated Tribes of the Chehalis Reservation; Cowlitz Indian Tribe; Hoh Indian Tribe; Jamestown S'Klallam Tribe; Lower Elwha Klallam Tribe; Makah Tribe; Nisqually Indian Tribe; Port Gamble S'Klallam Tribe; Quileute Tribe; Quinault Indian Nation; Shoalwater Bay Indian Tribe; Skokomish Indian Tribe; Squaxin Island Tribe; Suquamish Tribe; and Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Kitsap, Lewis, Mason, Thurston, Pacific, Skamania, and Wahkiakum Counties

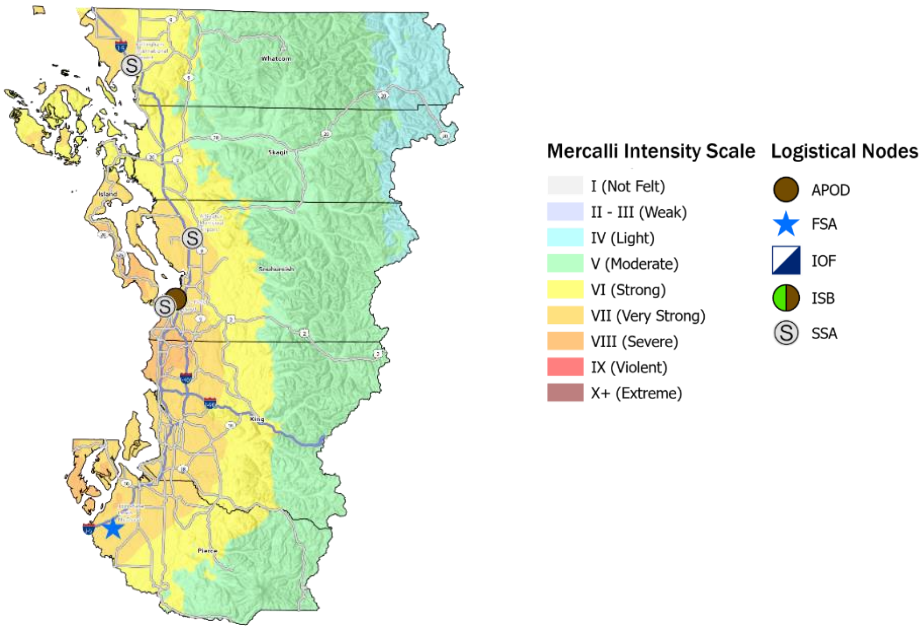


Figure 3. Breakout Room #2: WA HLS Regions 1, 5, 6 – *I-5 Corridor*

Lummi Nation; Muckleshoot Indian Tribe; Nooksack Indian Tribe; Puyallup Tribe; Samish Indian Nation; Sauk-Suiattle Indian Tribe; Snoqualmie Indian Tribe; Stillaguamish Tribe of Indians; Swinomish Indian Tribal Community; Tulalip Tribes; Upper Skagit Indian Tribe; and Island, King, Pierce, San Juan, Skagit, Snohomish, and Whatcom Counties

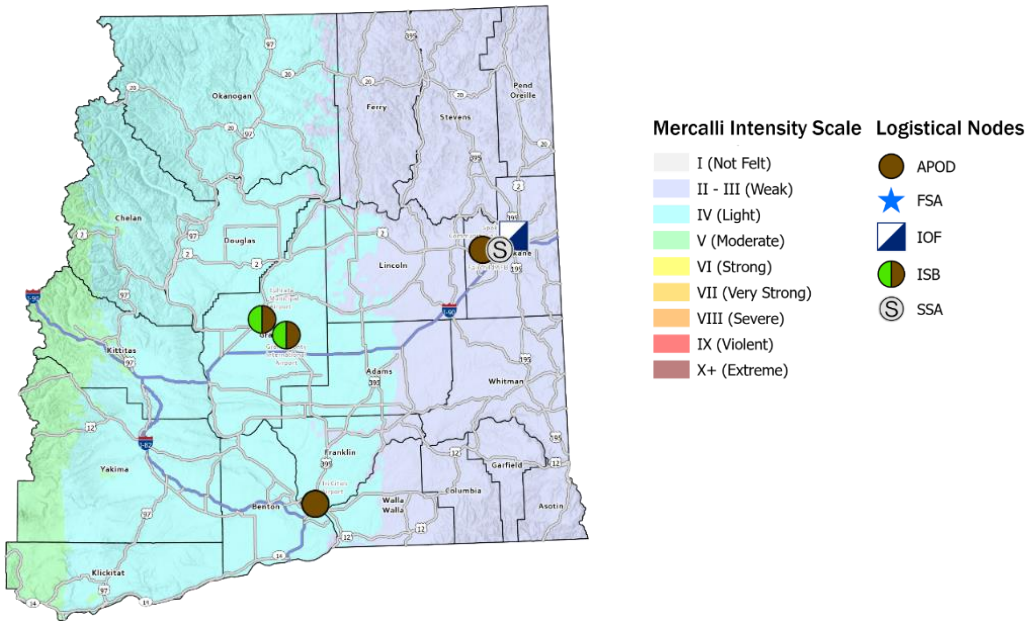


Figure 4. Breakout Room #3: WA HLS Regions 7, 8 and 9 – *East of the Cascades*

Confederated Tribes and Bands of the Yakama Nation; Confederated Tribes of the Colville Reservation; Kalispel Tribe of Indians; Spokane Tribe of Indians; and Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima Counties

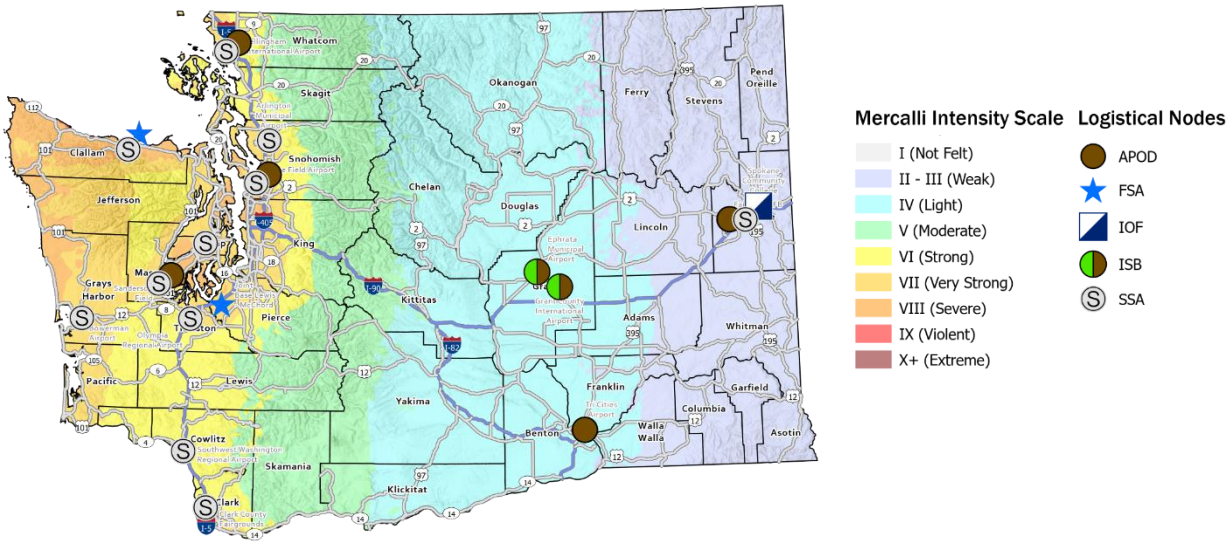


Figure 5. Washington State Map with topography, seismic activity layer, routes, and logistical nodes

Appendix D: Core Capability Descriptions

Critical Transportation:

Provide transportation (including infrastructure access and accessible transportation services) for response priority objectives, including the evacuation of people and animals and the delivery of vital response personnel, equipment, and services into the affected areas.

1. Establish physical access through appropriate transportation corridors and deliver required resources to save lives and to meet the needs of disaster survivors.
2. Ensure basic human needs are met, stabilize the incident, transition into recovery for an affected area, and restore basic services and community functionality.
3. Clear debris from routes (i.e., road, airfield, port facility, rail) to facilitate response operations.

Mass Care Services:

Provide life-sustaining and human services to the affected population, to include hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies.

1. Move and deliver resources and capabilities to meet the needs of disaster survivors, including individuals with access and functional needs.
2. Establish, staff, and equip emergency shelters and other temporary housing options (including accessible housing) for the affected population.
3. Move from congregate care to non-congregate care alternatives and provide relocation assistance or interim housing solutions for families unable to return to their homes.

Operational Communications:

Ensure the capacity for timely communications in support of security, situational awareness, and operations, by any and all means available, among and between affected communities in the impact area and all response forces.

1. Ensure the capability to communicate with both the emergency response community and the affected populations and establish interoperable voice and data communications between Federal, tribal, state, and local first responders.
2. Re-establish sufficient communications infrastructure within the affected areas to support ongoing life-sustaining activities, provide basic human needs, and a transition to recovery.
3. Re-establish critical information networks, including cybersecurity information sharing networks, to inform situational awareness, enable incident response, and support the resilience of key systems.

Operational Coordination:

Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of Core Capabilities.

1. Mobilize all critical resources and establish command, control, and coordination structures within the affected community, in other coordinating bodies in surrounding communities, and across the Nation, and maintain as needed throughout the duration of an incident.
2. Enhance and maintain command, control, and coordination structures consistent with the National Incident Management System (NIMS) to meet basic human needs, stabilize the incident, and transition to recovery.

Appendix E: Acronyms, Abbreviations, and Key Terms

ACRONYMS AND ABBREVIATIONS

Acronym	Term	Acronym	Term
AAM	After-Action Meeting	HAZMAT	Hazardous Materials
AAR	After-Action Report	HLS	Homeland Security (Region)
AAR/IP	After-Action Report/Improvement Plan	I-#	Interstate
AFN	Access and Functional Needs	IOF	Initial Operating Facility
APOD	Aerial Point of Debarkation (logistics term)	IP	Improvement Plan
ARC	American Red Cross	IPPW	Integrated Preparedness Plan Workshop
BC	British Columbia (Canada)	ISB	Incident Support Base
CEMNET	Comprehensive Emergency Management Network	LMR	Land Mobile Radio
CEMP	Comprehensive Emergency Management Plan	MACG	Multi-Agency Coordination Group
COAD	Community Organizations Active in Disasters	MCS	Mass Care Services
COVID 19	Novel Corona Virus 2019	NED	National Exercise Division
CPOD	Community Point of Distribution	NGO	Nongovernmental Organization
CR	Cascadia Rising	NIMS	National Incident Management System
CR22	Cascadia Rising 2022	NLE	National Level Exercise
CSZ	Cascadia Subduction Zone	OSCCR	On-Scene Command and Coordination Radio
CT	Critical Transportation	PACE	Primary, Alternate, Contingency, and Emergency
EEI	Essential Elements of Information	POC	Point of Contact
EMD	Emergency Management Division	POETE	Planning, Organizing, Equipping, Training, and Exercise
FEMA	Federal Emergency Management Agency	ROC	Rehearsal of Concept
FSA	Federal Staging Area (logistics term)	RRAP	Regional Resiliency Assessment Program
FSE	Full Scale Exercise	SECURE	State Emergency Communications Using Radio Effectively
GIS	Geographic Information System	SEOC	State Emergency Operations Center
SHARES	FEMA Shared Resources	TTX	Tabletop Exercise
SoC	Summary of Conclusions	VOAD	Volunteer Organizations Active in Disasters
SPR	Stakeholder Preparedness Review	WA	Washington
SSA	State Staging Area	WC	Work Cell (phone)
THIRA	Threat & Hazard Identification and Risk Assessment	WSDOT	Washington State Department of Transportation

KEY TERMS

Key Term:	Definition:
Access and Functional Needs (AFN)	Persons with or without disabilities who may have additional needs before, during, and after an incident in functional areas because of any condition (temporary or permanent) that may limit their ability to act in an emergency, including but not limited to maintaining independence, communication, transportation, supervision, and medical care. Individuals in need of additional response assistance may include those who have disabilities; live in institutionalized settings; are seniors; are children; are from diverse cultures; have limited English proficiency or are non-English speaking; have limited access to financial resources, are transportation disadvantaged, or others deemed at risk.
Aerial Port(s) of Debarkation (APOD)	An airfield for sustained air movement at which personnel and material are discharged from aircraft. Aerial ports of debarkation normally serve as ports of embarkation (APOE) for return passengers and retrograde cargo shipments.
Community Point of Distribution (CPOD)	A location from which basic material assistance is provided to the public in the form of emergency food and drinking water. The CPOD may also distribute other commodities such as ice, tarps, baby food, etc. A CPOD is not the same as a point of dispensing, which distributes or administers pharmaceuticals.
Federal Staging Area (FSA)	A temporary facility in the vicinity of the affected area at which commodities, equipment, and personnel are received and from which they may be deployed upon State request. Resources at a Federal Staging Area are assigned to the disaster, awaiting tactical assignment. These resources are under the control of the FEMA Region Office, Regional Response Coordination Center, its Incident Management Assistance Team, or the Joint Field Office and are allocated by FEMA according to specific requests by the affected State.
Interim Operating Facility (IOF)	A site identified in consultation with the state—as a precursor to the establishment of a Joint Field Office (JFO).
Incident Staging Base (ISB)	A location near an impacted disaster area at which FEMA mobilizes and pre-positions commodities and other resources in response to, or in anticipation of, a state request for assistance. Resources at an ISB are national-level resources under the control of FEMA's National Response Coordination Center and are available for deployment nationwide. FEMA considers establishing an ISB to be a valid course of action when an incident is foreseen or for multi-state incidents
State Staging Area	A temporary facility in the vicinity of the affected area at which commodities and equipment are received and from which they may be deployed. The State Staging Area is the focal point in the supply chain for resources to be delivered from multiple sources to survivors in a community. Resources staged at a State Staging Area may be distributed directly to the point of use or to a County Staging Area or Community Point of Distribution (CPOD). Co-location of state, tribal, and/or local jurisdictions will provide a more efficient transfer of ownership. The goal of each staging area, once stocked, is to provide needed resources within 12 hours of receiving a request.