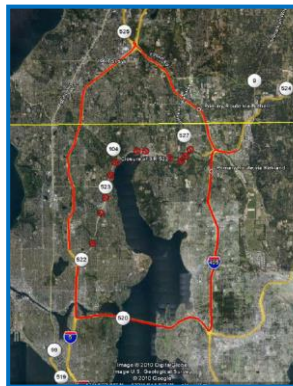# Puget Sound Region

TRANSPORTATION RECOVERY ANNEX
July 2014

Regional Catastrophic Disaster Coordination Plan

Part 1: User Guide

Part 2: Annex

The above links will take you directly to the User Guide or the Annex.

Transportation Recovery Annex

User Guide

Puget Sound Region

TRANSPORTATION RECOVERY ANNEX
July 2014

Regional Catastrophic Disaster Coordination Plan

User Guide Purpose

This User Guide is designed to 1) provide an overview of the Transportation Recovery Annex and to 2) be a practical mechanism for coordinating regional transportation system recovery after a catastrophic incident. The User Guide is not a replacement for the full text of the Toolkit.

How to Use this Guide

This document provides an overview and practical guide to using the Transportation Recovery Annex ("the Annex"). The full text of the Annex is contained in Section C and separately bound Attachments.

- Clicking on a blue link (p. #) will bring you to relevant information within this User Guide and full Toolkit document.

Alt + **←**	After clicking on a blue link, hold the **Alt** key down and press the **left arrow** key to return to the page you were viewing.

- Clicking on **blue links** will bring you to relevant external resources.

Context

After an emergency or disaster, transportation restoration is a continuous process of assessment, prioritization, mitigation and repair.
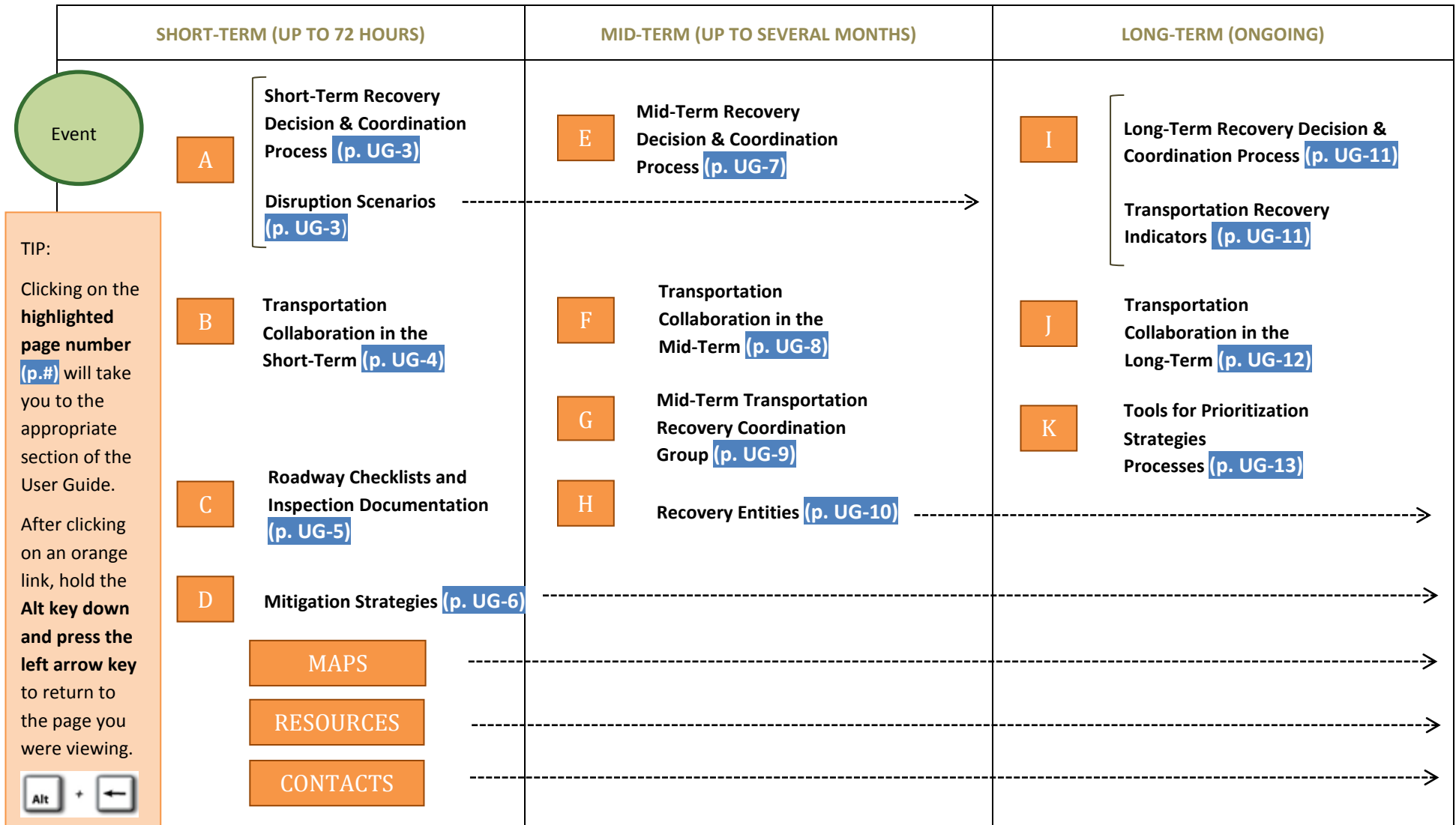
The Transportation Recovery Annex guides regional transportation coordination in a catastrophic event within the 8-county Puget Sound Region. "Regional coordination" means multiple counties or Tribal Nations are involved. The Annex supports the regional **Coordination Plan**.
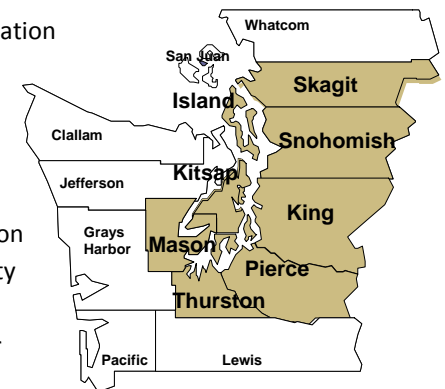
The Annex provides a comprehensive framework and guidance for regional transportation system recovery after a catastrophic incident. It provides information and recommended guidelines for regional coordination, collaboration, decision-making, and priority setting among Puget Sound area emergency response and transportation agencies and other partners across the disaster recovery spectrum. Although this Annex specifically addresses transportation recovery after a major earthquake, the principles apply to all types of transportation disruption, especially those that require multi-agency and multi-modal coordination.

The Annex describes three separate concepts of coordination corresponding to three stages of a catastrophic event:

- Initial transportation system recovery actions to support response
- Mid-term transportation system recovery actions
- Long-term transportation system recovery actions

SHORT-TERM (UP TO 72 HOURS)	MID-TERM (UP TO SEVERAL MONTHS)	LONG-TERM (ONGOING)

Event

TIP:

Clicking on the **highlighted page number (p.#)** will take you to the appropriate section of the User Guide.

After clicking on an orange link, hold the **Alt key down and press the left arrow key** to return to the page you were viewing.

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A — Short-Term Recovery Decision & Coordination Process (p. UG-3)

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E — Mid-Term Recovery Decision & Coordination Process (p. UG-7)

F — Transportation Collaboration in the Mid-Term (p. UG-8)

G — Mid-Term Transportation Recovery Coordination Group (p. UG-9)

H — Recovery Entities (p. UG-10)

I — Long-Term Recovery Decision & Coordination Process (p. UG-11)

Transportation Recovery Indicators (p. UG-11)

J — Transportation Collaboration in the Long-Term (p. UG-12)

K — Tools for Prioritization Strategies Processes (p. UG-13)

Short-term recovery normally occurs in the first 72 hours after a catastrophic event. It is driven by immediate response needs and its aim is to manage the immediate impacts of the disaster.

Short-Term Decision and Coordination Process

The short-term coordination process includes assessing the situation, followed by an iterative process of coordinating with partners and establishing detours.
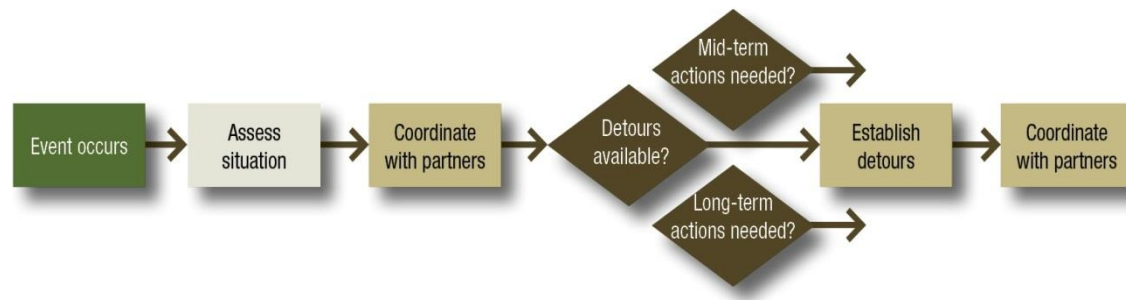
Short-Term Recovery Checklists

Short-term recovery checklists provide a list of key recovery activities to be completed in the short-term by mode and broken down by agency responsibility. Short-Term Checklists include:

- Roadways
- Waterways
- Airways
- Railways

Potential Detour Scenarios and Routes

NOTE: THIS IS ALSO RELEVANT TO MID-TERM RECOVERY

Appendix A: This Appendix provides a summary of the development of the 50 disruption scenarios, the planning process with local stakeholders and the calculations used to produce the Level of Service (LOS) map for each scenario.

Appendix B: This Appendix provides specific management and map information on each of the fifty (50) disruption scenarios.

Table B-1 is an index of the disruption scenarios.

Collaborative short-term transportation recovery measures are often temporary measures that can meet a transportation need while developing more permanent measures and intermodal diversion of freight and passengers.

Transportation Collaboration in the Short-Term Phase	
Actions	**Collaboration**
Share situational awareness	State EOC, WSDOT EOC and local EOCs share info from field assessments using all available technology, such as by e-mail, WebEOC and SharePoint sites. Agencies that manage internet-based roadway condition maps update their websites as appropriate. State EOC assembles Essential Elements of Information and shares information through the FEMA Regional Response Coordination Center (RRCC) and National Response Coordination Center (NRCC). State agencies coordinate with federal regulatory agencies through Federal Lead Agency and/or liaisons to the State EOC.
Establish roadway and transit detours	State establishes detours for state highway system in collaboration with affected jurisdictions. Local agencies establish detours in collaboration with affected adjacent jurisdictions. Transit agencies make initial service adjustments.
Utilize mutual aid for emergency repairs	Local jurisdictions may request resources from mutual aid partners.
Share public information	Public messages are shared through Joint Information Centers (JIC) and/or a Joint Information System (JIS). (See Section V - Information Collection and Dissemination.)

A significant element of the recovery process for the roadway transportation system begins with the assessment of damages to bridges and roadway structures, and the sharing of this information among local jurisdictions and the State.

WSDOT Bridges and Roadway Structures Checklist (p.E-1)

- Provides a process for local jurisdictions for inspecting bridges and coordinating with neighboring cities and/or counties upon closure of bridges.

WSDOT First Response Bridge Inspection Documentation Form (p.E-5)

- First Response Inspection Documentation Form is already in use for state owned bridges. This form has been recommended for use by local public works agencies and/or bridges inspection departments for Level I inspections.
- The form is part of the new WSDOT "Handbook for the Post-Earthquake Safety Evaluation of Bridges." (This handbook is not yet available).

The Highway Facilities Checklist p.E-7

- Checklist lists highway facilities eligible for FHWA Emergency Relief

WSDOT Flow Chart for the Post-Earthquake Inspection of Bridges (p.E-3)

BPO - Bridge Preservation Office
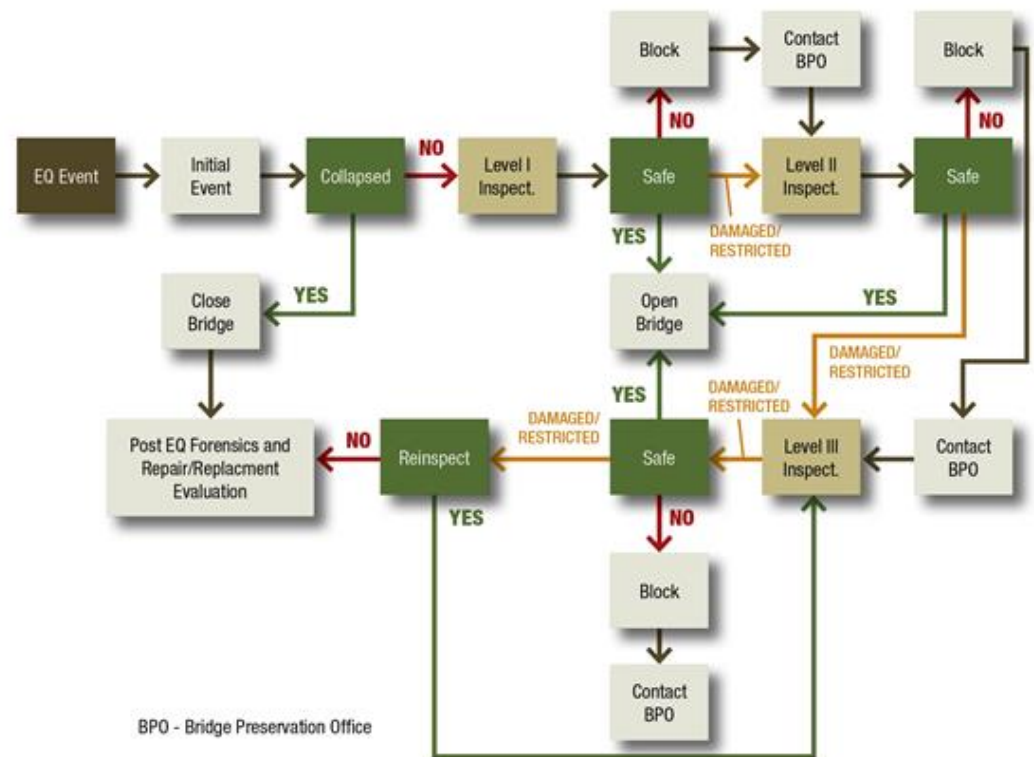
NOTE: THIS IS ALSO RELEVANT TO MID-TERM AND LONG-TERM RECOVERY

Transportation mitigation strategies are grouped into four (4) categories based on the desired results. The strategies are classified as Increasing Capacity on Existing Lanes, Technology, Diverting or Redirecting Traffic and Demand Management.

Transportation Mitigation Strategies (p.E-14)

These mitigation strategies are generally related to Road and Railways systems.

- Provides an overview of a range of strategies, from how to increase capacity on existing lanes to demand management, organized by the phase of the recovery effort in which they usually occur.
- Lists general transportation mitigation strategies and identifies which of the individual strategies can be applied during short-, mid- or long-term phases of recovery. (See Appendix 2 for applications to specific mitigation strategies associated with each disruption scenario.)
- Subsequent sections describe each set of strategies, and provide information on how the strategy fits into the overall recovery plan, with considerations for ease of implementation.

Waterways Mitigation (p.F-1)

- Summarizes waterways strategies and the recovery phases.
- Additional information on each element is provided.

Airways Mitigation (p.G-1)

- Summarizes airways strategies and the response phase in which they would come into play.
- Additional information on each element is provided.

Mid-term transportation recovery measures are those actions implemented from the first hours to several weeks or months after the disaster.

Mid-Term Decision and Coordination Process (p.II-6)

The mid-term coordination process provides an overview of the process for mid-term transportation recovery actions.
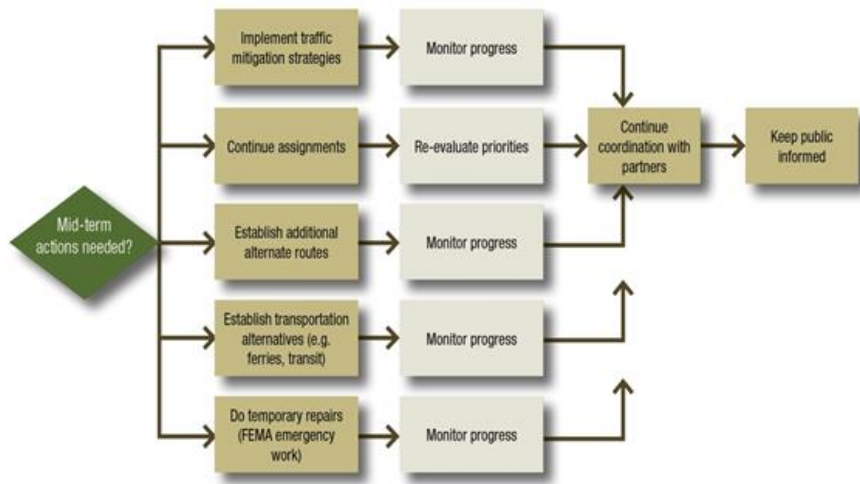
Mid-term Recovery Checklists (p.II-20)

Mid-term recovery checklists provide a list of key recovery activities to be completed in the short-term, broken down by mode and agency responsibility. Checklists include:

- **Roadways** (p.II-20)
- **Waterways** (p.II-21)
- **Airways** (p.II-22)
- **Railways** (p.II-22)

Disruption Scenarios

NOTE: FOR MORE INFORMATION WITHIN THIS USER GUIDE, SEE (UG-7).

Collaborative mid-term transportation recovery measures are often temporary measures that can meet a transportation need while developing more permanent measures and intermodal diversion of freight and passengers. **(p.II-7)**

Transportation Collaboration in the Mid-term Recovery Phase	
Actions	**Collaboration**
Form coordination committee	• Counties, in consultation with their cities, tribes and the State convene a joint committee to coordinate mid-term transportation recovery decisions that cross county lines. • Works groups may be formed on a geographic and/or functional basis. • Existing entities such as Metropolitan Planning Organizations (MPOs) may be appropriate venues for the joint committee and/or its work groups.
Develop common operating picture	• The joint committee assigns responsibility to develop complete map(s) of the transportation network status.
Prioritize and design interim repairs	The joint committee and/or its work groups: • Anticipate long term recovery needs. • Consider financing opportunities and considerations. • Prioritize interim needs. • Design multi-modal solutions that integrate roadway, maritime, rail and aviation resources. • Identify funding sources.
Manage transportation demand	The joint committee and/or its work groups will: • Identify the magnitude of demand. • Identify available capacity under alternative demand management scenarios. • Identify new capacity provided by emergency repairs and or expanded detour routes. • Implement demand management strategies.
Build public support	Local and state agencies will: • Ensure community involvement in prioritization and design of interim repairs. • Provide common public messages through Joint Information Centers (JIC) and/or a Joint Information System (JIS) in support of demand management strategies. (See Section V - Information Collection and Dissemination.) • Begin long term recovery processes.

Mid-Term Transportation Recovery Coordination Group (p. II-8)

As outlined in the Coordination Plan, a local, state or federal agency may recommend a Transportation Recovery Coordination Group be convened. There will likely be two different groups, one for Long-Term planning for permanent restoration, and a Mid-Term Recovery Coordination Group for temporary measures that will be regional in nature.

The Mid-Term Group will consist of a Steering Committee and several Working Groups. The Group would focus on coordinating and resolving cross-jurisdictional issues during the temporary repairs and detours phase.

Steering Committee

Steering Committee members should have the ability, authority, and jurisdictional knowledge such that they can evaluate needs and commit resources where needed. Steering Committee members should include one person from:

- Each impacted county
- Each impacted major city
- Washington State DOT
- Each impacted tribe
- Transit Authorities
- Ports
- Impacted private industries

Work Groups

Working Group membership will be Subject Matter Experts (SME) in the specific topic. SMEs should have in-depth knowledge of their jurisdiction's status, needs, and available resources. SME's should also have an understanding of regional impacts, regional economic needs, and regional planning efforts. Possible Working Groups include:

- Bridges/ Roadways
- Freight Movement
- Fueling
- Traffic management/policy
- Airports
- Ferries
- Mass Transit (Bus, Light Rail)
- Seaports

Objectives

1) Identify available major, inter-jurisdictional transportation modes and pathways available.
2) Coordinate temporary solutions and repair efforts between jurisdictions to maximize recovery efforts.
3) Develop work-arounds/detours to maximize the use of undamaged infrastructure
4) Identify other routes/modes where quick fixes are possible and categorize those by feasibility, effectiveness and cost.
5) Work with State Recovery groups in all sectors to ensure transportation issues receive sufficient consideration.
6) Set measureable goals and timelines.
7) Engage the public (e.g.; customers, vulnerable populations, shippers) in the process.

NOTE: THIS IS ALSO RELEVANT TO LONG-TERM RECOVERY

There is a range of ways that recovery entities along several modes can be organized. From utilizing grassroots methods through an existing agency or working top down from a state agency, this range includes:

Local Transportation Entity Concept (p.C-4)

Local jurisdictions may form regional transportation recovery entities that are designed to facilitate regional recovery situational assessment communication, priority setting or decision making. These entities could also play a role in any recovery organization established by the State. If local regional coordination entities are formed, coordination with the State could occur so structures and organizations established locally could be integrated into any state structure formed under the Governor's authority.

Existing Organizations Recovery Entity Concept (p.C-6)

Local leadership has the authority to delegate some recovery decision making to existing organizations, including Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Organizations (RTPOs), which are primary entities responsible for transportation planning in a region.

Washington Restoration Organization (WRO) (p.C-8)

The purpose of the WRO is to accelerate recovery by providing a single point of contact at the state level for Washington citizens, the private sector, and local, state and federal governments to facilitate, coordinate and manage restoration operations.

Long-term transportation recovery measures for the purposes of this Annex are defined as permanent measures implemented to return the regional transportation network to pre-disaster or better condition.

Long-Term Decision and Coordination Process (p.II-14)

The long-term coordination process provides an overview of the decision and coordination process for long-term transportation recovery actions.
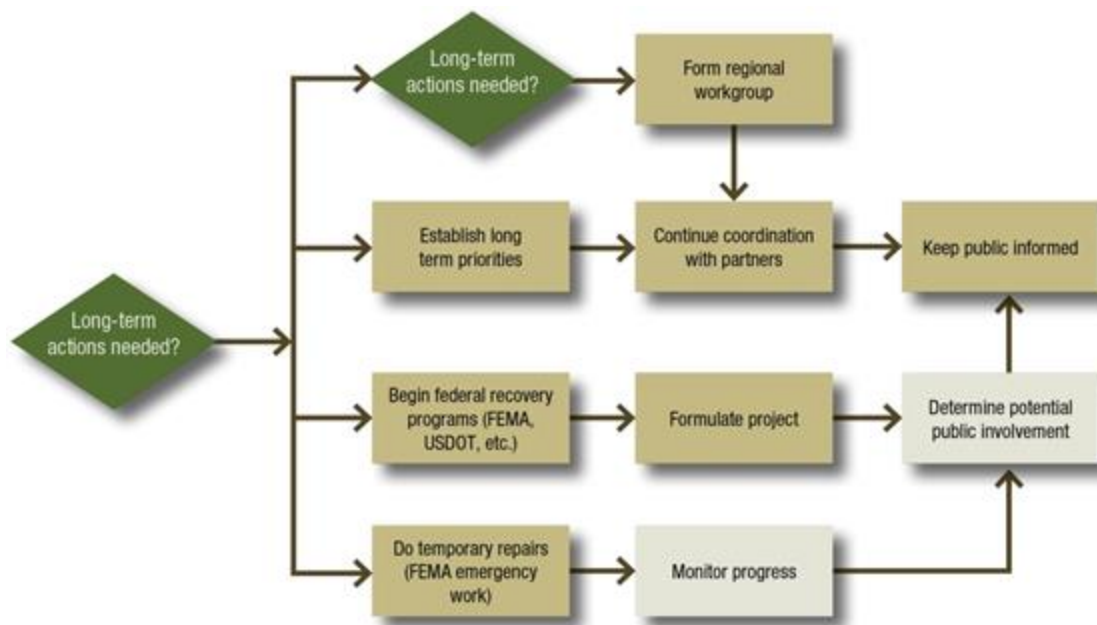
Long-Term Recovery Checklists (p.II-23)

Long-term recovery checklists provide a list of key recovery activities to be completed in the long-term by mode and broken down by agency responsibility. Long-term Checklists include:

- **Roadways** (p.II-23)
- **Waterways** (p.II-23)
- **Airways** (p.II-25)
- **Railways** (p.II-25)

Transportation Recovery Indicators (p.V-5)

- Different user groups and stakeholders will need to work together to identify indicators of recovery for their specific area that strive for some percentage of the pre-disaster level of service within a certain amount of time as a recovery goal.
- Some potential metrics and indicators can be viewed at (p.V-5).

The table on the left shows the transportation recovery activities, on which agencies need to collaborate in the long term after a catastrophic incident. More information on transportation collaboration in the long-term can be found at (p.II-14).

Transportation Collaboration in the Long-term Recovery Phase	
Actions	**Collaboration**
Form working groups in support of recovery committee(s)	Recovery committee members: • Identify functional and/or geographic work groups. • Determine extent of work group authority.
Working group(s) update common operating picture	• Evaluate disaster impact on transportation services. • Estimate timelines for repair and reconstruction. • Develop cost estimates.
Working group(s) prioritize and design permanent repairs	• Develop long term plans to restore and/or revise local and regional traffic movement. • Develop long term plans to restore and/or revise transit operations. • Develop long term plans to restore and/or revise inter-modal freight movement.
Recovery committee(s) and Working group(s) build public support	• Involve community representatives on committees and working groups. • Conduct public meetings. • Seek public input. • Provide timely information. • Keep process transparent. • Demonstrate inter-agency collaboration.

The links below will connect to Recovery Concepts important to long-term recovery previously discussed in this User Guide on (UG-10).

Local Transportation Recovery Entity Concept (p.C-5)

Existing Organizations Transportation Recovery Entity Concept (p.C-7)

Washington Restoration Organization Recovery Concept (p.C-9)

Prioritization is an iterative process that requires information gathering, assessing the outcome, and adjusting the weights in the ranking spreadsheet based upon the situation at the time of the catastrophe.

Prioritization Tool for Long-Term Transportation Recovery (p.D-1)

Prioritization is an iterative process that requires the following:

- Information gathering
- Ranking segment repair
- Assessing the outcome
- Adjusting the weights in the ranking spreadsheet based upon the situation at the time of a catastrophe

Priority Regional Transportation Asset Factors and Values (p.D-3)

- Jurisdictions establish priorities about which transportation assets should be repaired/restored first. The prioritization process entails scoring a set of criteria developed in relation to the transportation network. Circumstances at the time of the incident will determine the selection of criteria and weighting of the categories.

Priority Ranking for Repair/ Restoration of the Regional Transportation Assets (p.D-4)

- Provides a spreadsheet for calculating the priority ranking for repair/restoration of regional transportation assets.

The links below will connect to mitigation strategies and processes important to long-term recovery previously discussed in this User Guide.

Transportation Mitigation Strategies (p.E-14)
NOTE: FOR MORE INFORMATION WITHIN THIS USER GUIDE, (UG -6)

Medicaid Transportation Regions (p.E-27)
NOTE: FOR MORE INFORMATION WITHIN THIS USER GUIDE, (UG -14)

Waterways Mitigation Strategies (p.F-1)
NOTE: FOR MORE INFORMATION WITHIN THIS USER GUIDE, (UG -6)

Airways Mitigation Strategies (p.UG-1)
NOTE: FOR MORE INFORMATION WITHIN THIS USER GUIDE, (UG -6)

Aviation Implementation Process (p.UG-4)
NOTE: FOR MORE INFORMATION WITHIN THIS USER GUIDE, (UG -15)

Relevant maps to the short-term, mid-term and long-term recovery process include:

Transportation Broker Regions Map (p.E-29)

The transportation broker map shows the six Medicaid Transportation Regions for special needs patients in northwest Washington State.

Northwest Washington

Key

Region 3A
Region 3B
Region 4
Region 5
Region 6A
Region 6B
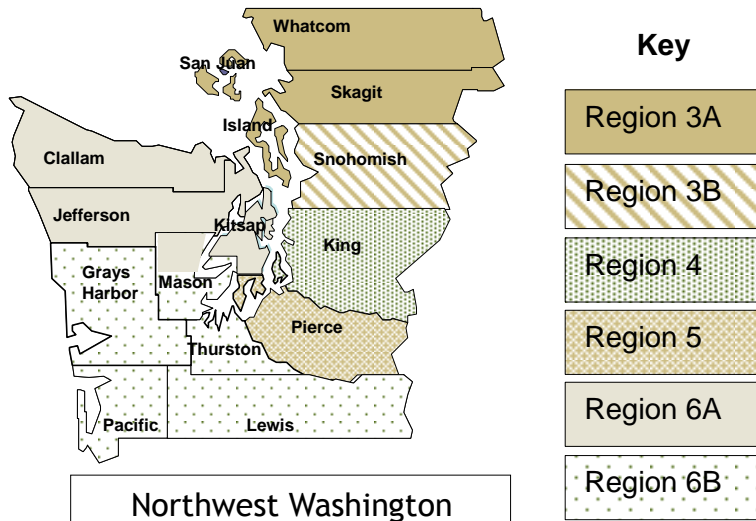
Transportation System Maps

The Transportation Systems Maps include general maps of the roadway, transit, waterway, airway and railway transportation systems in the region.

Roadway (p. I-13)
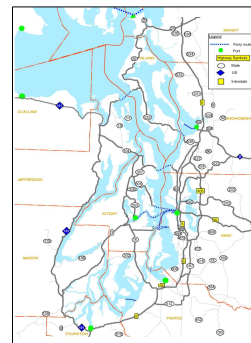
Transit (p. I-14)

Railway (p. I-17)

Airway (p. I-16)

Airport Maps (p.G-6)

Waterway (p. I-15)

Important resources for short-, mid-, and long-term recovery include:

General Resources: Primary Federal Recovery Programs (p.VII-1)

The established primary recovery programs are the USDOT FHWA Emergency Relief (ER) program and the FEMA Public Assistance Program.
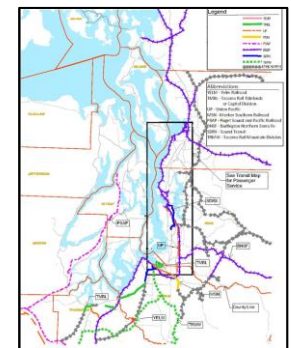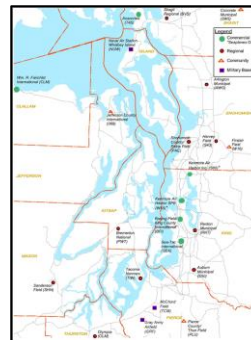
Primary Federal Transportation Recovery Programs	
Agency	**Information**
FHWA	Under Title 23, USC, Section 125, for the restoration of damaged roads and bridges *on functional classified systems (National Highway System).*
	Funds are available after the governor has issued a Proclamation of Emergency (Note: a presidential declaration of major disaster is not necessary.)
FEMA	Under Public Law 93-228, as amended by PL 100-707, the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, for the restoration of damaged roads and bridges *off functional classified systems (I.e. off the federal aid system).*
	Funds are available after a presidential declaration of major disaster.

Glossary of Terms (p.H-1)

Common transportation terms used in this plan and in transportation recovery operations.

Transit Resources (p.E-26)

- Table E-9 provides a summary of regional transit resources and routes.
- This resource focuses on Bus and Streetcar Transit Systems throughout different counties, the capacity of the fleet, the service areas covered, and the additional/ connecting service areas.

Training and Exercise (p.I-1)

Provides information about multi-jurisdictional regional transportation system recovery in the Puget Sound Region.

Airways Resources

Aviation Implementation Processes for Passengers and Freight Service (p.G-4)

Implement New Aviation Service

If, as a result of capacity reductions in other transportation modes, a new aviation service is needed to move either people or freight. These steps outline that implementation.

Implement/ Expand/ Relocate Passenger Service

Decisions to implement new services or modify existing services through expansion or relocation must consider the availability of connections at both ends of the route.

Airport Capabilities in the Puget Sound Region (p.G-7)

- Table G-3 outlines the capabilities of airports in the Puget Sound.
- Information provided includes name of airport, owner/ operator, FAA airport, airport reference code, whether or not the airport is included in NPIAS, and the NPIAS role.

Information regarding waterways service strategies:

Waterways Service Resources

Long- Term Ferry Service Strategies

- Because the region's waterways are likely to provide one of the few operational transportation corridors after a major catastrophe, passenger ferry services will be in high demand.

- Decisions to implement new services or modify existing services through expansion or relocation must consider the availability of intermodal connections at both ends of the route.

- The issues associated with new, expanded, or relocated ferry services are summarized at (p.F-6).

New Ferry Service Template (p.F-30)

Provides a spreadsheet listing the elements of a new ferry terminal to assist in determining the feasibility of a proposed new service or alternate terminal. When evaluating landing sites, consideration should be given to the urgency of the need for and anticipated duration of the service. A landing site that is inadequate for permanent service may be quite serviceable for a week or two. Potential landing sites include:

- Marinas
- Accessible docks
- Navy shore facilities
- State and local waterfront parks
- Vessel maintenance facilities
- Recreational boat ramps

Maritime Assets Inventory (F-10)

Table F-3 provides information on Puget Sound Maritime Assets.

The data is organized by:

- Ports
- Facilities and Vessels
- Charters
- Tugs, Barges and Salvage Companies
- Marinas
- Labor
- Bridges over Navigable Waters
- Boat Ramps

Additional Road Conditions and Transit Websites (p.V-9)

Jurisdiction	Website Address	Provides real time:
WSDOT	wsdot.wa.gov/traffic/	Traffic information to travelers
WSDOT	www.wsdot.wa.gov/traffic/trafficalerts/	Traffic Alerts for travelers
King Co Road Info	gismaps.kingcounty.gov/roadalert/	Traffic Alerts and Road information in King County
City of Seattle	www.cityofseattle.net/html/citizen/traffic.htm	Traffic Alerts and Road information in the City of Seattle
City of Bellevue	www.ci.bellevue.wa.us/traffic_advisories.htm	Traffic Alerts and Road information in the City of Bellevue
Metro	metro.kingcounty.gov/	Route information, safety information and rider alerts for any schedule and Metro route changes
Sound Transit	www.soundtransit.org/	Route information, safety information and rider alerts for any schedule and Sound Transit route changes
Pierce County	https://member.everbridge.net/index/453003085611267	Emergency and Traffic Notification Sign-Up for Traffic Alerts and Road Information in Pierce County
City of Tacoma	www.cityoftacoma.org/government/city_departments/public_works/street_operations/	Traffic Alerts and Road information in the City of Tacoma
Pierce Transit	www.piercetransit.org/	Route information, safety information and rider alerts for any schedule and Pierce Transit route changes
Intercity Transit	www.intercitytransit.com/Pages/default.aspx	Route information, safety information and rider alerts for any schedule and Intercity transit route changes
Mason County	www.co.mason.wa.us/public_works/road_closures.php	Traffic Alerts and Road information in Mason County
Mason Co Transit	www.masontransit.org/	Route information, safety information and rider alerts for any schedule and Mason County Transit route changes

Kitsap County	www.kitsapgov.com/pw/roadwork.htm	Traffic Alerts and Road information in Kitsap County
Kitsap Co. Transit	www.kitsaptransit.org/	Route information, safety information and rider alerts for any schedule and Kitsap County Transit route changes
Island County	www.islandcounty.net/publicworks/	Traffic and road condition information
Island Co. Transit	www.islandtransit.org/	Route information, safety information and rider alerts for any schedule and Kitsap County Transit route changes
Skagit County	www.skagitcounty.net/reporting/roadclose/	Current Road Closures in Skagit County
Skagit Co. Transit	www.skagittransit.org/	Route information, safety information and rider alerts for any schedule and Kitsap County Transit route changes
Snohomish County	www.co.snohomish.wa.us/PWApp/roads/emclosure/	Road Maintenance and Restrictions in Snohomish County
City of Everett	www.ci.everett.wa.us/default.aspx?ID=65	Traffic Alerts and Road information in the City of Everett
Community Transit	www.commtrans.org/	Route information, safety information and rider alerts for any schedule and Snohomish County Transit route changes
Thurston County	www.co.thurston.wa.us/publicworks/Alerts_Current.aspx	Traffic Alerts and Road Closures in Thurston County

Other Important Contacts for Short, Mid, and Long-Term Recovery Include:

- Local Jurisdiction Websites and Public Information Networks (p.V-8)
- Utility Purveyors and Contact Information (p.E-24)
- Bridge Inspection Contacts for the Puget Sound Region (p.E-9)
- Airport Contact List (p.G-14)

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Puget Sound Region

TRANSPORTATION RECOVERY ANNEX

July 2014
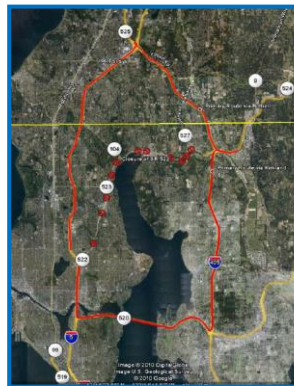
Regional Catastrophic Disaster Coordination Plan

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I. Introduction and Overview

A. General Information

The Puget Sound Transportation Recovery Annex (Annex) supplements the Puget Sound Regional Catastrophic Coordination Plan (Coordination Plan). It provides recommended guidelines for coordinating multi-jurisdictional regional transportation system recovery in the Puget Sound Region after a catastrophic incident. This Annex addresses transportation issues in Island, King, Kitsap, Mason, Pierce, Skagit, Snohomish and Thurston Counties. It provides information and recommended guidelines for regional coordination, collaboration, decision-making, and priority setting among Puget Sound area emergency response and transportation agencies and other partners across the disaster recovery spectrum. (See Figure I-1 for a map of the Puget Sound Regional Catastrophic Planning Program area)

Figure I-1: Puget Sound Regional Catastrophic Planning Program area

Although this Annex specifically addresses transportation recovery after a major earthquake, the principles apply to all types of transportation disruption, especially those that require multi-agency and multi-modal coordination.

This Annex also provides information, strategies and guidance for local jurisdictions to develop their respective local implementation plans to address local issues and procedures for connecting local transportation recovery measures with the restoration of the regional transportation network, as well as establishing coordination linkages with other local jurisdictions, state and federal transportation agencies, traffic management systems, and applicable private sector stakeholders who own or operate applicable infrastructure components.

B. Scope

This Annex offers general guidelines on regional multi-jurisdictional coordination and priority setting for the recovery of transportation networks. In addition, the Annex includes Appendices that can be used as toolboxes for traffic mitigation strategies, waterway alternatives and bridge and roadway reconstruction. These Appendices provide a multi-modal guide for implementing strategies consistent with regionally available abilities and resources that will facilitate restoration of critical transportation links.

Finally, the Annex includes traffic mitigation strategies for 50 major road disruption scenarios identified by stakeholders in each of the eight (8) counties. Appendix A describes the process of identifying the disruption scenarios and developing the Level of Service (LOS) Maps. Appendix B (published separately) describes each of the 50 scenarios and identifies the lead agency, the supporting agencies and jurisdictions, and who needs to be notified and by whom of alternative detours.

C. Planning Assumptions

This Annex assumes the following:

- The Annex will be available to assist local, state, and federal officials in preparing for, responding to and recovering from transportation disruptions.
- The Annex applies to any emergency or disaster, including human caused incidents that may disrupt the transportation system.
- The Annex builds upon existing local and state emergency management and transportation related plans.
- The Annex is consistent with Washington State emergency management plans.
- Although this is a recovery planning effort, implementing initial recovery actions will involve response elements.
- Recovery of the transportation system will require multi-jurisdictional coordination.
- The federal government can provide technical assistance and physical assets to establish multi-modal transportation alternatives and to support transportation recovery in accordance with Federal statutes, plans, and policies.

D. The Transportation Restoration Process

After an emergency or disaster, transportation restoration is a continuous process of assessment, prioritization, mitigation, and repair. The process begins at the onset of an emergency, as soon as field crews begin sending condition information.   As more data is collected, managers assign priorities, and crews commence maintenance and repairs based on available data. At the same time, mitigation measures are put in place to help manage the functioning components of the transportation system.

As the process continues, more specific information becomes known about the extent of damage and duration of repairs for individual elements. That information often results in a revision of priorities and mitigation strategies. As repairs are completed, managers reassess field conditions and the cycle of prioritization, mitigation, repair, and assessment continues.

In a catastrophic incident, maintaining the integrity of this process can be a challenge. The basic principles remain the same; however, the scope of the incident may require dividing the affected area into manageable

units from a span of control stand point necessitating regional coordination structures, communications discipline and the management of a large amount of information. Pre-existing relationships and reporting protocols can mitigate these challenges.

The transportation restoration process is summarized in Figure I-2 below.

Figure I-2: Transportation Restoration Process

- Inspections
- System Performance Measures
- Repair Progress

- Evaluation

Assessment

Prioritization

Repairs

Mitigation

- Temporary
- Partial
- Permanent

- Demand Management
- System Operations
- Capacity Improvements
- Capacity Additions
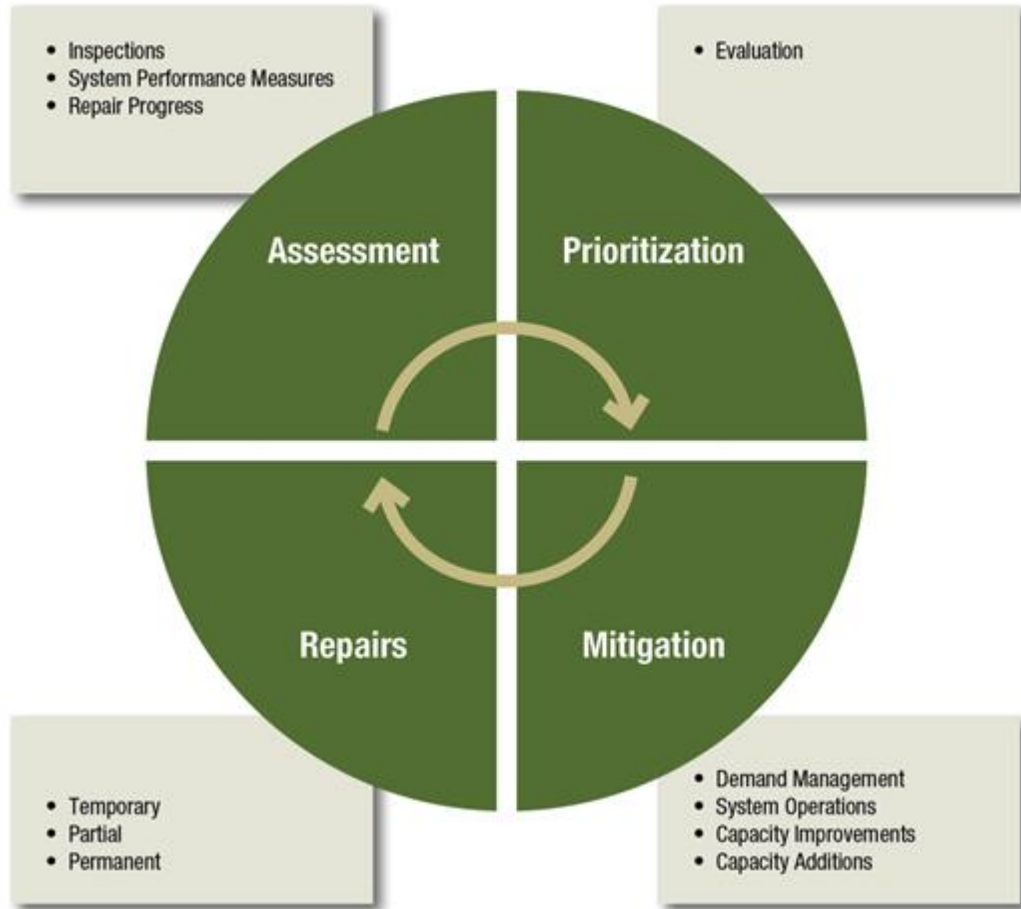
E. The Transportation System

1. Roadways

Multiple jurisdictions own and share responsibility for the roadway system in Washington State. The Washington State Department of Transportation reports that state highways, including federally funded highways and interstates, carry almost 56% of the traffic statewide. County roads carry approximately 16% and local roads carry 26%, with the remainder being carried by park, tribal and port roads. State and local roads account for approximately 155 million vehicle miles traveled on a daily basis. (See Attachment 1 – Roadway Map.)

As sections of the road network become unusable during a catastrophic incident, the remaining roadways must perform the essential functions of providing emergency response routes; local access to homes, schools and businesses; vehicle parking and queuing near terminal points such as transit stations, park-ride and ridesharing locations, and marine and aviation facilities; and bypassing the incident location.

Transportation mitigation strategies are grouped into four (4) categories based on the desired results. The strategies are classified as Increasing Capacity on Existing Lanes, Technology, Diverting or Redirecting Traffic and Demand Management. These strategies can be utilized in short-, mid- and long-term recovery phases to assist with recovery of the regional transportation network. (See Appendix E – Roadways Toolbox)

> ### *Traffic Recovery Alternatives*
>
> - *Short-term alternatives to manage travel demand and increase efficiencies.*
>
> - *Alternatives for providing transit, maritime and aviation solutions.*
>
> - *A set of real-time transportation actions in response to changing conditions during recovery.*

a. Bus, Streetcar and Passenger Rail Transit

- **Bus and Streetcar Transit Systems**

    Transit's people-moving capacity and flexibility in adjusting to network disruptions is critical during recovery of the transportation system. Transit operations perform one of the basic requirements for recovery, moving large numbers of people in the fewest number of vehicles. Transit agencies include trained staff that can easily transition to emergency operations. Transit systems have the versatility to change routes, communicate directly with the public and relay real time conditions from the drivers. Transit also aids successful regional recovery by providing the needed links between locations of marine, highway, air and rail facilities, and the actual destination of the individual passengers. Transit systems have the history and ability to work together in coordination with other transportation authorities to adjust routes, increase service and provide information to the public concerning alternatives. (See Appendix E – Roadways Toolbox for information concerning transit resources)

- **Passenger Rail**

    o **Sound Transit** provides commuter rail service between Everett and Seattle and between Seattle and Tacoma. In 2010, Sound Transit ran 26 "Sounders" (round trips)—eight (8) Everett to Seattle and 18 Seattle to Tacoma. The agency plans to extend service to South Tacoma and Lakewood by 2012. Sound Transit's Light Rail system consists of a 1.6-mile (2.6 km) line in Tacoma called *Tacoma Link* and a 14.6-mile (22.4 km) line in Seattle, Tukwila, and SeaTac called *Central Link*.

    Tacoma Link connects the city's Downtown and Tacoma Dome area.

    Central Link runs between downtown Seattle and the SeaTac International Airport.

    Current and future routes for Light Rail are shown on the map in Attachment 2.

    o **Amtrak** is a quasi-governmental organization that operates passenger rail service. It operates on tracks owned by BNSF Railway and coordinates transit through the BNSF Railway Dispatch Center in Fort Worth, Texas. Amtrak offers two long distance passenger train services through Washington State: the *Empire Builder* traveling east through Spokane to Minneapolis and the *Coast Starlight,* traveling south through Portland to Los Angeles.

In addition, *Amtrak Cascades* is the main short distance train that offers passenger service through the Puget Sound region. It operates two roundtrip routes from Seattle south to Eugene, Oregon, four roundtrips from Seattle south to Portland, Oregon, and two round trips north from Seattle to Vancouver, B.C.

Amtrak Cascades operates in partnership with the States of Washington and Oregon and the Province of British Columbia. Through a recent partnership with Sound Transit, Cascades will utilize Sounder stations at King Street, Edmonds, and Everett to expand daily round-trip commuter rail service between Seattle and Everett at peak hours. (See Attachment 2 – Regional Transit Map)

b. Transportation Providers for Persons with Special Needs

Several transportation providers serve persons with special needs in the Region. They are a combination of public transit authorities, non-profit and for profit "special needs" transportation providers, volunteer transportation organizations and 211 programs, local coalitions and Medicaid Transportation Brokers. They are supported by the Washington State Department of Social and Health Services (DSHS) and the Washington State Department of Transportation. (See Appendix E – Roadways Toolbox for further information)

> *Medicaid Transportation Brokers* maintain databases of "special needs" patients and have access to qualified non-profit and for profit transportation providers throughout the state.

2. Waterways

The Puget Sound Region includes approximately 2,500 miles of shoreline and multiple industrial and public port facilities, with waterway access available in all eight counties of the region. Some of the most populated cities in the region (Everett, Seattle, and Tacoma) have waterfront access. The waterways, facilities and vessels that comprise the regional maritime network can help mitigate the effects of disruptions to the on-shore transportation network (i.e., bridge closures) by providing alternatives for the movement of people and goods. (See Appendix F – Waterways Toolbox for information concerning maritime resources)

> *Maritime Recovery Alternatives*
>
> - New ferry routes.
> - New freight loading and unloading locations.
> - New multi-modal facilities.

Recovery from a catastrophic incident will involve alternative transportation solutions that make use of maritime transportation assets and the communication channels used by government and industry to integrate the maritime industry into regional response and recovery efforts. This Annex provides a general framework for relationships among maritime stakeholders and local, state and federal transportation and emergency response agencies, including, but not limited to, the following:

- Identification of critical waterways and maritime assets.

- Identification of alternative navigational routes and/or infrastructure for passenger and freight due to damage at ports and/or terminals, which may require modified land-based transportation operations.

- Identification of alternative maritime routes for passengers, vehicles, and freight due to road or rail system disruptions.

> *Maritime stakeholders estimate that the capacity of moving freight via deck barges was at around 5% of roadway capacity, but it could be as much as 20% to 30%.*

Portions of sounds, bays, rivers and channels in the region are under the jurisdiction of the United States Coast Guard (USCG). Disruptions to maritime infrastructure (such as the loss of a vessel) that are independent of land-based transportation operations are outside the scope of the maritime transportation recovery portions of this plan.

a. Ferry Service

The Washington State Department of Transportation operates the largest ferry system in the nation with reported annual ridership in 2009 of approximately 23 million passengers. Ferry routes are considered part of the state highway system. Many different ferry services within the region offer various vessel types, capacities and facilities. Table I-1 summarizes ferry services in the region. (See Attachment 3 - Regional Ferry Service Map)

The WSF Pier 52 terminal provides links to numerous roadway and transit connections on the downtown Seattle waterfront. Other ferry terminals with such connections include Fauntleroy, Vashon Island, Point Defiance, Southworth, Bremerton, Bainbridge Island, Kingston, Anacortes, Port Townsend, Edmonds, Mukilteo and Clinton.

Table I-1: Regional Ferry Services

Ferry Service	Description
The Washington State Ferries	Passenger/Vehicle Ferries • Downtown Seattle to Bremerton • Downtown Seattle to Bainbridge Island • Anacortes to San Juan Islands (Orcas, Shaw, Lopez, and Friday Harbor) • Edmonds to Kingston • Mukilteo to Clinton • Port Townsend to Keystone • Fauntleroy to Vashon to Southworth • Fauntleroy to Southworth • Anacortes to Sidney BC • Point Defiance to Tahlequah
King County Ferry Service	Passenger-Only Ferries • Downtown Seattle to West Seattle • Downtown Seattle to Vashon Island
Kitsap Transit Foot Ferries	Passenger-Only Ferries • Bremerton to Port Orchard or Annapolis
Pierce County	Passenger/Vehicle Ferry • Steilacoom to Ketron Island or Anderson Island
Skagit County	Passenger/Vehicle Ferry • Anacortes to Guemes Island
Hat Island Community Association	Private Passenger-Only Ferry & Landing Craft • Port of Everett to Hat Island
Clipper Navigation	Private Passenger-Only Service • Seattle to Victoria BC • Friday Harbor to Victoria BC
Black Ball Ferry Line	Passenger/Vehicle Ferry • Port Angeles to Victoria
Whatcom County Ferry System	Passenger/Vehicle Ferry • Mainland Gooseberry Point (near Bellingham) to Lummi Island

3. Airways

Alternative transportation solutions through the use of aviation assets and communication channels may be part of the recovery and restoration of the regional transportation network after a catastrophic incident. The concepts and methods for aviation recovery and aviation's connection to other modes of transportation builds upon existing plans developed in the region. This plan describes two alternatives:

> *Airways Recovery Alternatives*
>
> - Alternate routes for passengers and freight.
> - Diversion of air cargo to other transportation modes.
> - New multi-modal facilities

- Alternative aviation transportation routes for passengers, vehicles, and freight due to road or rail transportation disruptions.

- Alternative aviation routes for passenger and freight due to damage or stability issues at airports, which may require modified land-based transportation operations.

The Puget Sound region hosts five commercial airports: SeaTac International (Seattle), King County International/Boeing Field (Seattle), Kenmore Air Harbor, Inc. (Seattle), Kenmore Air Harbor SPB, and Anacortes. SeaTac International airport is the largest commercial airport in the region. SeaTac Airport operations in 2008 involved approximately 345,000 aircraft, transporting approximately 32 million total air passengers, and 291,000 (metric tons) of cargo. Boeing Field is also known for its movement of freight within the region with more than 300,000 operations per year. Seaplanes use Lake Union and Lake Washington to service areas such as the San Juan Islands.

In addition to the commercial airports, ten regional service airports and three community service airports serve the Puget Sound area. This regional aviation network can provide alternatives for passenger and freight service and be used to minimize the effects of disruptions in the transportation network.

In particular, aviation assets can aid where roadway and rail network disruptions prevent local freight distribution. Airport traffic is expected to increase due to delays in road-based freight routes. The 18 different airports for this region provide options for rerouting road-based freight.

Tables 1-2 and 1-3 provide information about Class I through III airports per the Washington State Long-Term Air Transportation Study with the addition of military airfields. (See Attachment 4 - Regional Airways Map and See Appendix G – Airways Toolbox for an inventory of airports within the region and their associated capabilities.)

Table I-2: Airports per County

Airports per County				
County	Commercial Service (See Table I – 3)	Regional Service (See Table I – 3)	Community Service(See Table I – 3)	Military Airfields
Island				NAS Whidbey Island
King	SeaTac, King County Int'l/Boeing Field, Kenmore Air Harbor Inc., Kenmore Air Harbor SPB	Renton Municipal, Auburn Municipal		
Kitsap		Bremerton National		
Mason		Sanderson Field		
Pierce		Tacoma Narrows	Pierce County/Thun Field	McChord Field Gray Army Airfield
Skagit	Anacortes	Skagit Regional	Concrete Municipal	
Snohomish		Arlington Municipal, Snohomish County/Paine Field, Harvey Field	Firstair Field	
Thurston		Olympia		

Table I-3: Classifications of Airports

The classifications of airports	
Commercial Service	At least 2,500 scheduled passenger boardings per year for at least three years.
Regional Service	Serves large or multiple communities; all National Plan of Integrated Airport Systems (NPIAS)
Community Service	Serves a community; at least 20 based aircraft (community); paved runway
Military	Airfields located at military bases

4. Railways (Rail Freight Service)

All major railroad systems in the region are privately owned and operated, including the routes Amtrak uses for its passenger service. The BNSF Railway and the Union Pacific (UP) Railroad make up the state's mainline railroad system. Two of the state's three major rail corridors (the I-5 rail corridor, and Everett to Spokane) pass through the planning area covered by this Annex. This rail system primarily serves the inland transportation part of the supply chain for large volumes of import and export cargo moving through the state's ports. Port access to rail is very important to the state economy and the ports need rail access and connection to the regional transportation network to be competitive. (See Attachment 5 - Regional Railways Map)

BNSF Railway owns the mainline rail route in the I-5 corridor. BNSF Railway grants AMTRAK and Union Pacific rights to operate passenger service on this route from Vancouver, Washington to Tacoma. Between Tacoma and Seattle, both BNSF Railway and UP own and operate on their own tracks.

The state freight rail system is part of the larger freight transportation network, providing businesses, ports, and farms with competitive access to North American and international markets. Currently in Washington State, railroads move 18% of goods by weight. The trucking system is the railroad's biggest customer. Modal interchanges—ports, trans-loading facilities, and distribution centers—are critical nodes in the system.

Disruption to the rail network, particularly to the local distribution network, will tax the local and regional roadway and transit systems. Long-term disruptions may also require the implementation of maritime and aviation solutions. The railroad system may also be a part of alternative solutions for disruptions to the other components of the transportation system although railroads have minimal capacity to absorb freight movement from the highway system. Recovery of the rail network in coordination with other modes of transportation is done through existing relationships the railroads have with WSDOT, ports, the trucking industry and other customers, and through the Washington State Critical Infrastructure Protection (CIP) Program.

> The **U.S. Railroad Administration** estimates railways in Washington could increase their capacity by only 5%. If roadway capacity is reduced due to a disaster, railroads have minimal capacity to absorb freight movement from the highway system.

F. Transportation System Hazards

The Puget Sound Region is subject to potential catastrophic incidents including, but not limited to, a major earthquake, flooding, severe winter storms and terrorist attacks. As a planning scenario, the Regional Catastrophic Preparedness Program scenario envisions a magnitude 6.5 earthquake along the Seattle Fault causing not only significant disruption to the regional transportation network, but disruption to the lives of individuals, families, government and the private sector for a long period of time. More detailed hazard information is covered in the Puget Sound Catastrophic Disaster Coordination Plan (Coordination Plan). Potential hazards to the transportation system are summarized in Table 1-4.

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Table I-4: Transportation System Hazards and Impacts

System	Hazards and Impacts
Roadways	**Anything that disrupts the flow of roadway traffic and compromises traveler safety**
	• Structural damage resulting in collapse, partial collapse or concern of imminent collapse. • Debris on road surface resulting in partial or complete blockage of roadway(s). • Settlement or shifting of roadways or structures resulting in uneven or disconnected road surface. • Loss of power disabling traffic signals that control traffic flow. • Rupture of underground pipelines or utilities resulting in structural damage or imminent danger of explosion, fire or asphyxiation. • Damage to overhead electric wires resulting in danger of electrocution. • Damage to nearby structures including signs and light poles, or buildings resulting in roadway closures. Civil unrest or panic resulting in roadway closures. • HazMat release resulting in a danger of death, asphyxiation or explosion. • Traffic accidents closing all or part of a roadway. • Flooding, snow or ice resulting in partial or total roadway closures. • Soil destabilization resulting in mudslides or the danger of landslides. • Structural damage to roadway bridges over non-navigable waterways (i.e. other roadways upstream waterways that are not considered navigable by the United States Coast Guard, ravines, etc.).
Waterways	**Anything that disrupts the flow of traffic over navigable waterways, disrupts the transfer of cargo from ship to shore, or compromises passenger safety**
	• Extreme environmental conditions. • Structural failures, debris or vessel damage that blocks navigable waterways. This includes collapsed bridges and sunken vessels. • Loss of navigation aids (buoys) designating channels for safe passage of ships. • Structural damage of shore-side facilities that prevent the normal movement of people, vehicles or goods to and from vessels. • Interruption of terrestrial or airborne transportation infrastructure that prevents the movement of passengers, vehicles, or cargo to and from Ports and terminals. • Utility failures at port facilities that prevent the arrival, departure or processing of vessels. • Unavailability of trained personnel to operate systems or equipment that prevents the movement of passengers or cargo to and from vessels.

System	Hazards and Impacts
Airways	**Any condition, act or circumstance that disrupts aviation operations and compromises the safety of air travelers**
	• Extreme environmental conditions. • Runway pavement failures. • Obstructions on the airport runway such as wildlife and debris. • Wires and obstacles protruding beyond normal surface features. • Loss of FAA facilities (airport tower, air traffic control center, etc.) and navigation/approach aids.
Railways	**Anything that disrupts the flow of rail traffic and compromises the safety of railway passengers**
	• Soil destabilization resulting in settlement of the track bed or the flow of mud or soil onto the track. • The collapse or the danger of collapse of structures. • The derailment of railcars. • Debris on the tracks resulting in a track blockage. • Hazardous material spill resulting in the danger of fire, explosion or asphyxiation. • Incidents such as wildfires, flooding, snow or ice.

G. Transportation System Maps

General maps of the roadway, transit, waterway, airway and railway transportation systems in the region are found in Figures 3 through 7 on pages I – 13 through I – 17.

Attachment 1 – Regional Roadways Map (State Routes)

Figure I-3: Regional Roadways Map (January 2011)
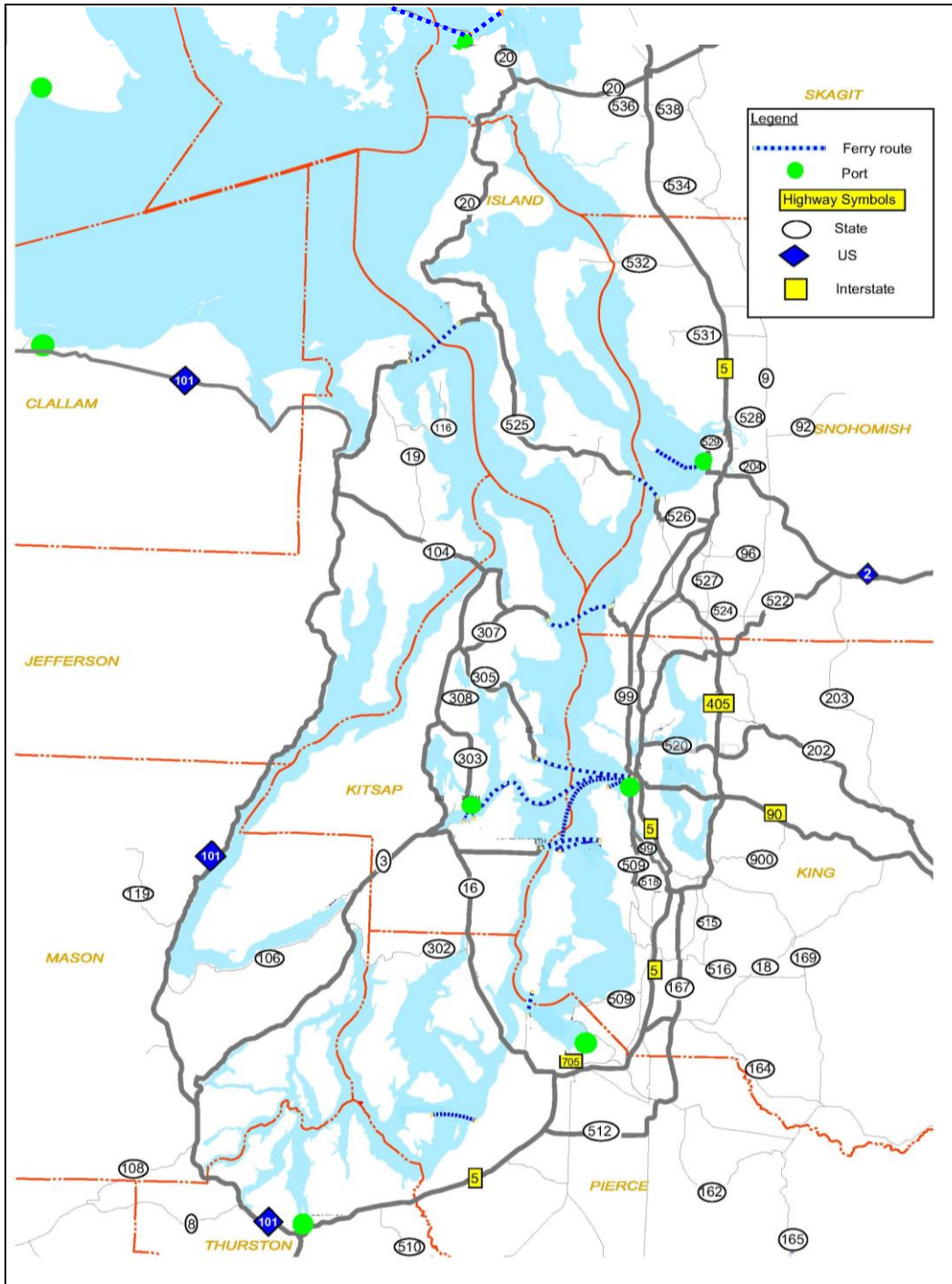
Source: KPFF Consulting Engineers

Attachment 2 – Regional Transit Map

Figure I-4: Regional Transit Map (July 2010)
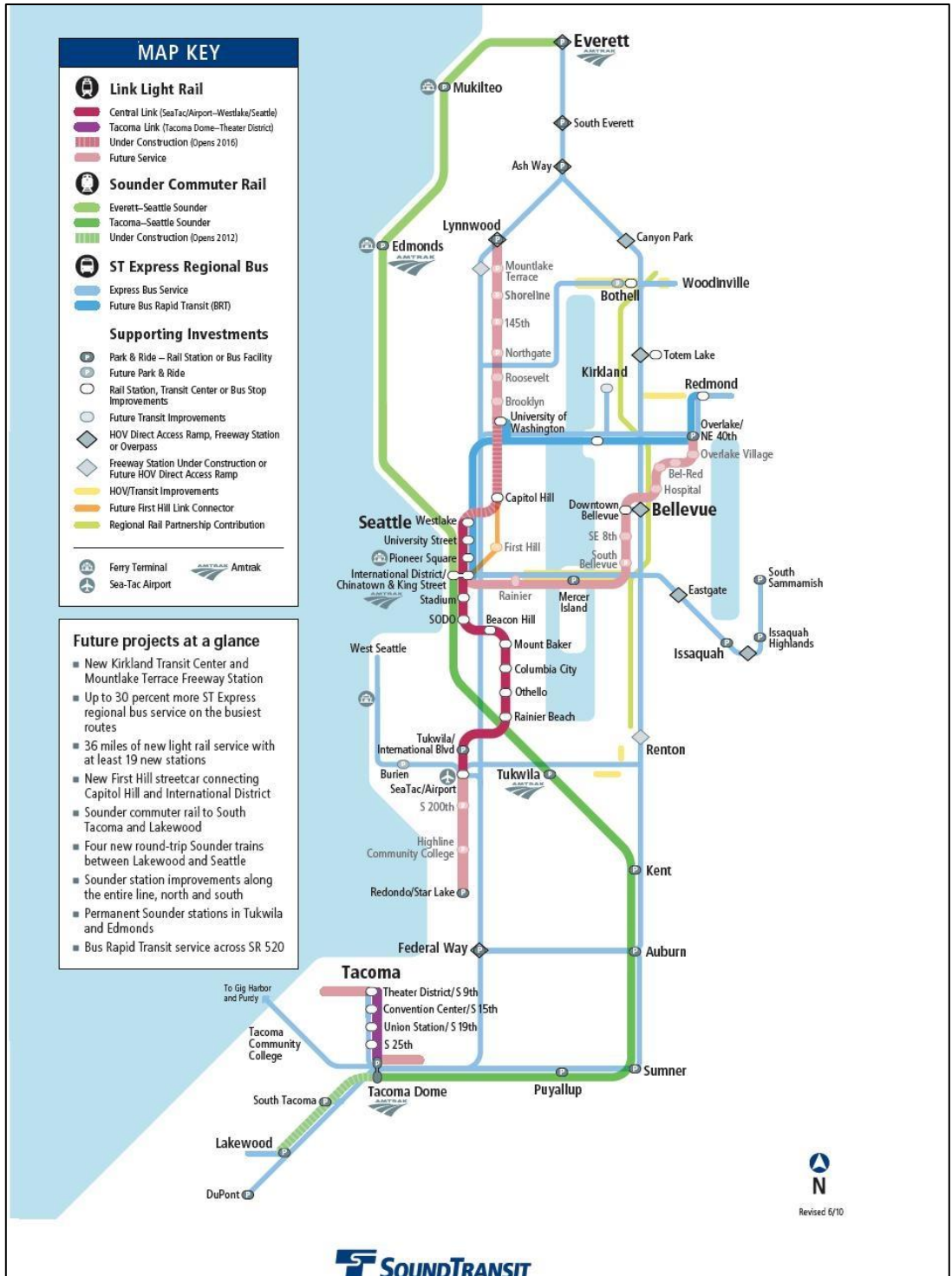
Source: Sound Transit

Attachment 3 – Regional Waterways Map

Figure I-5: Regional Waterways Map (January 2011)

Source: KPFF Consulting Engineers

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Attachment 4 – Regional Airways Map

Figure I-6: Regional Airways Map (January 2011)
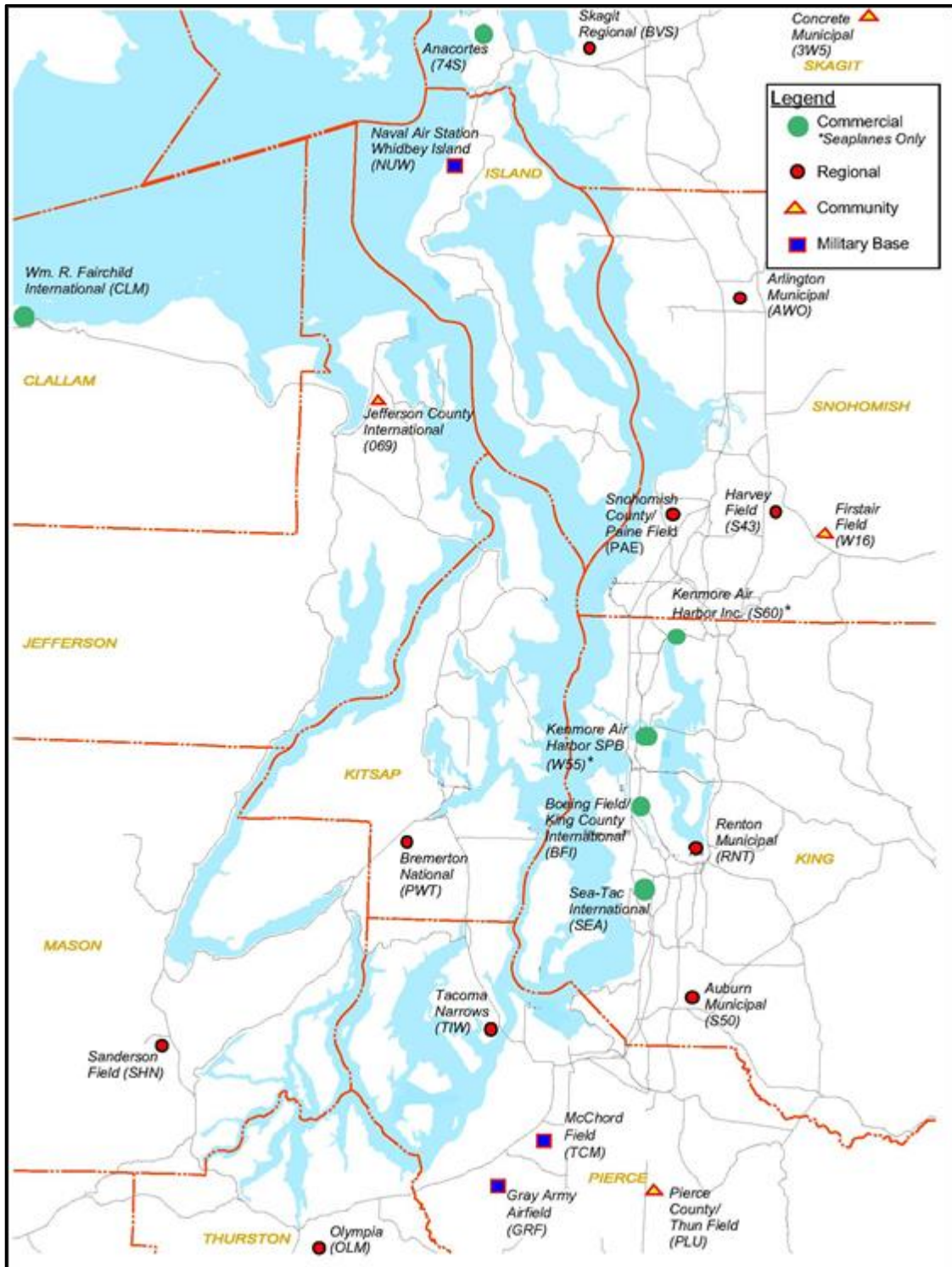
Source: KPFF Consulting Engineers

Attachment 5 – Regional Railways Map

Figure I-7: Regional Railways Map (January 2011)
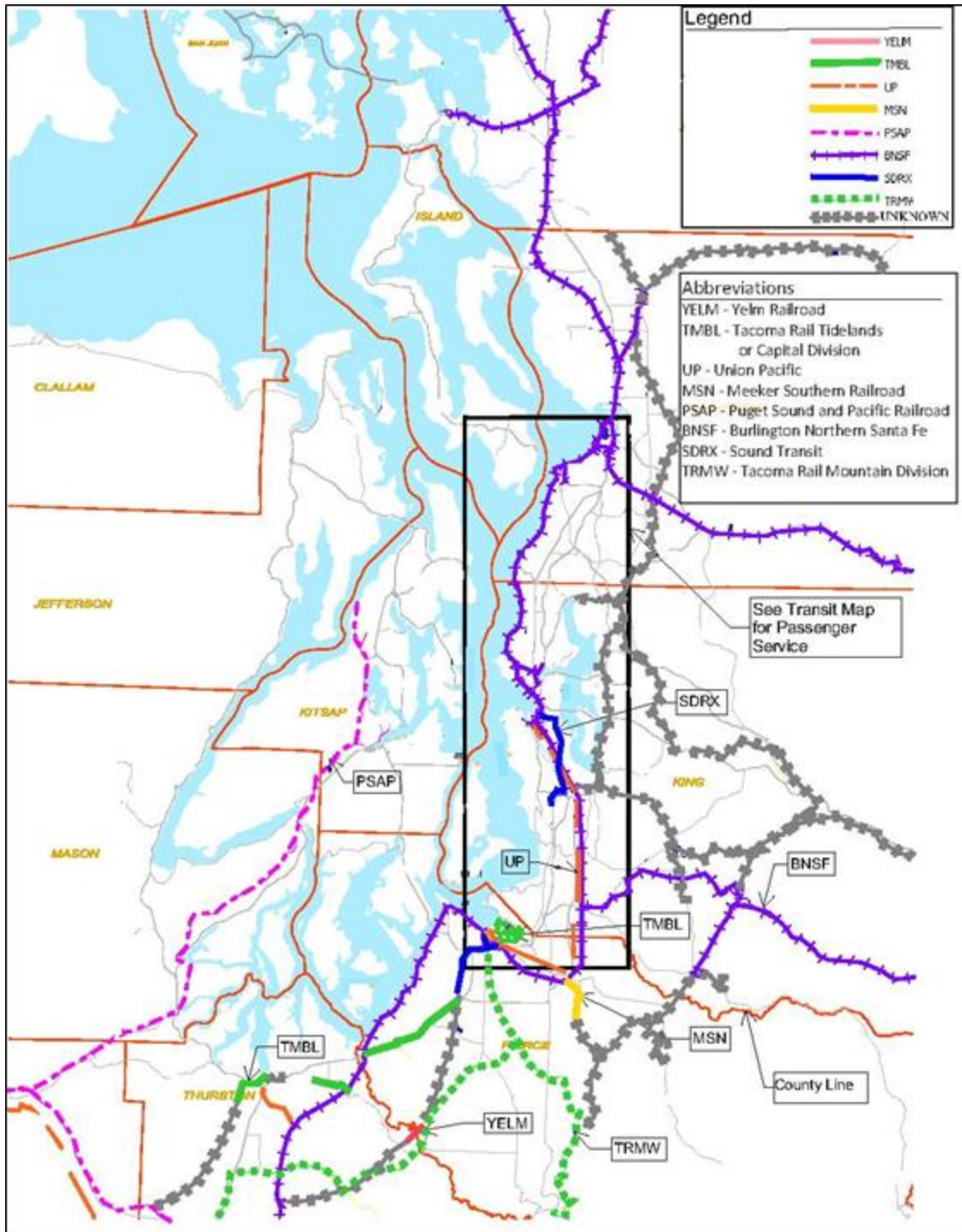
Source: KPFF Consulting Engineers

II. Concept of Coordination

A. General Information

This section describes how local, state and federal agencies, together with the private sector, will collaboratively manage recovery of the transportation network within the Puget Sound region after a catastrophic incident. Transportation system recovery actions and collaboration thereof will evolve and reflect markedly different areas of emphasis in the days and weeks after a catastrophic incident.

As with all emergency management, pre-planning for transportation system recovery will save lives and money during a catastrophic incident. Appendix C to this annex describes regional coordination and planning activities that local, state and federal agencies can initiate to help jump start any transportation recovery processes.

This section also describes three separate concepts of coordination, corresponding to three stages of a catastrophic incident:

- Initial transportation system recovery actions to support response.
- Mid-term transportation system recovery actions.
- Long-term transportation system recovery actions.

The **Washington State Patrol (WSP)** district offices and **Washington State Department of Transportation (WSDOT)** regional offices will make initial recovery decisions about the state highway system.

The **United States Coast Guard (USCG)** and **Individual Port Authorities** will collaborate to make initial recovery decisions about the Maritime Transportation system.

The **Federal Aviation Administration (FAA)** and **Individual Port Authorities** will collaborate to make initial recovery decisions about the Air Transportation System

WSDOT and **Private Sector Infrastructure Owners** will collaborate to make initial recovery decisions about the Railway system.

B. Short-term Transportation Recovery to Support Emergency Response

Short-term transportation recovery measures for the purposes of this Annex normally occur in the first 72 hours and include initial damage and situational assessments, debris removal, implementation of pre-planned or emergency cargo handling procedures, detours, and temporary repairs to provide emergency access or help restore regional movement of passengers and cargo. Short-term activities manage the immediate impacts of the disaster and are driven by immediate response needs.

Local agencies may manage short term transportation recovery activities from established dispatch centers, operations centers, and traffic management centers until local and state emergency operations centers can be activated. At the state level, the State EOC will be gathering information from local and state sources. The WSDOT Regions report to the WSDOT EOC in Olympia which then relays information to the State EOC for dissemination to local government and others. Information from WSP is relayed to the State EOC.

> *The **Washington State Patrol (WSP)** district offices and **Washington State Department of Transportation (WSDOT)** regional offices will make initial response-oriented recovery decisions about the state highway system.*

In the early days after a catastrophic incident, federal transportation agencies monitor the situation and respond to state requests, including those for a United States Department of Transportation Declaration. Federal agencies will initially work through Regional Response Coordination Centers and the National Response Coordination Center.

Attachment 1 to this section details responsibilities and priorities for local, state and federal agencies and the private sector by mode for short-term recovery of the transportation system in support of emergency response.

In addition to individual agency activities, some limited multi-agency coordination of short-term transportation recovery actions to support emergency response will likely focus on shared situational awareness, implementation of pre-planned or emergent cargo handling procedures, detours, and potential requests for mutual aid to conduct emergency repairs. Agencies and facilities may have some limited capacity to share public information messages and/or press releases.

> *Transportation Collaboration in the Short Term*
>
> - Share situational awareness.
> - Establish alternate transportation modes and routes for freight and passengers.
> - Utilize mutual aid for emergency repairs.
> - Share public information

Figure II-1 provides a generalized overview of the short term coordination process.

Figure II-1: Short-term Decision and Coordination Process
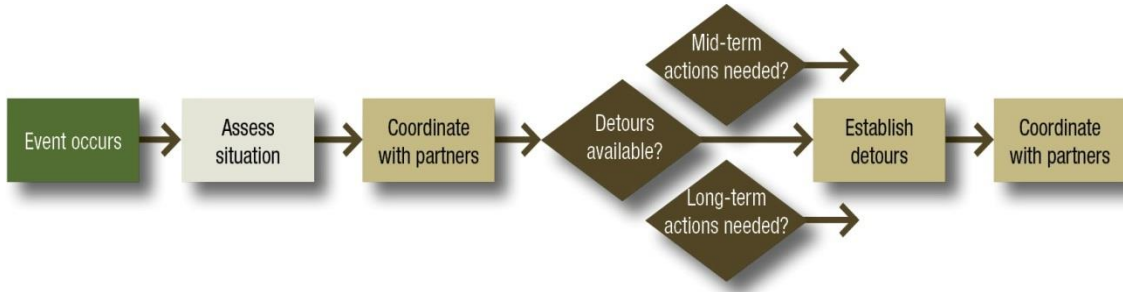
Table II-1 summarizes transportation recovery activities on which agencies may be able to collaborate in the short term after a catastrophic incident.

Table II-1: Transportation Collaboration in the Short-term

Transportation Collaboration in the Short-Term Recovery Phase	
Actions	**Collaboration**
Share situational awareness	State EOC, WSDOT EOC and local EOCs share info from field assessments using all available technology, such as by e-mail, WebEOC and SharePoint sites.
	Agencies that manage internet-based roadway, waterway, railway, and port condition maps update their websites and provide data feeds as appropriate.
	State EOC assembles Essential Elements of Information and shares information through the FEMA Regional Response Coordination Center (RRCC) and National Response Coordination Center (NRCC).
	State agencies coordinate with federal regulatory agencies through Federal Lead Agency and/or liaisons to the State EOC.
Establish alternate transportation modes and routes	State establishes detours for state highway system in collaboration with affected jurisdictions.
	USCG establishes alternate routing for navigable waterways in collaboration with affected jurisdictions.
	Ports announce terminal conditions and publish schedule changes.
	Local agencies establish detours in collaboration with affected adjacent jurisdictions.
	Transit agencies make initial service adjustments

Transportation Collaboration in the Short-Term Recovery Phase	
Actions	**Collaboration**
Utilize mutual aid for emergency repairs	Local jurisdictions may request resources from mutual aid partners.
Share public information	Public messages are shared through Joint Information Centers (JIC) and/or a Joint Information System (JIS). (See Section V - Information Collection and Dissemination.)

C. Mid-term Transportation Recovery

Mid-term transportation recovery measures for the purposes of this Annex are those actions implemented from the first hours to several weeks or months after the disaster. They are often temporary measures that can meet a transportation need while developing more permanent measures and intermodal diversion of freight and passengers. These actions may include, but not be limited to, additional traffic mitigation strategies (parking prohibitions, freight-only traffic days, etc), revised detours, completion of emergency work, or seeking recovery financing. (Appendices E, F and G provide information about additional mitigation measures)

Mid-term transportation recovery measures are often coordinated from EOCs and ECCs but may also be managed in some agencies at the public works or transportation departmental level. Some decision making may transition to other locations established for the disaster, such as a Joint Field Office (JFO) if a Presidential Disaster has been declared. This will involve federal and state agencies, as well as local planners, engineers and other personnel who were not part of the initial response support.

For example, the US Department of Transportation will also be involved through the Emergency Relief (ER) program and will work closely with local and state transportation agencies and through the Federal Railroad Administration (FRA). Other federal agencies such as the US Coast Guard and FAA will work with their counterparts at local and state agencies to begin the recovery process.

Attachment 2 to this section details responsibilities and priorities for local, state and federal agencies and the private sector by mode for mid-term recovery of the transportation system.

Multi-agency and public/private coordination of mid-term transportation recovery actions during this phase will be essential. Multiple public agencies and private entities will have a role in prioritizing and designing interim repairs, which will heavily influence the region's long-term recovery. Decision-makers must have a common operating picture and an accurate understanding of available resources.

Transportation Collaboration in the Mid Term

- *Create a coordination committee.*

- *Develop a common operating picture.*

- *Prioritize and design interim repairs.*

- *Manage transportation demand.*

- *Implement multi-modal solutions.*

- *Build public support.*

- *Form long term recovery organizations.*

- *Seek recovery financing.*

Interagency work groups may be formed to determine optimal interim multi-modal replacements for extensively damaged transportation systems (e.g. using maritime resources to supplement freight movement). Policy decisions

such as more rigorous traffic mitigation strategies (e.g. restrictions on private automobile use; freight only lanes) and detouring regional traffic through local communities for longer time periods will require broad-based agency and public support.

> *The formation of **standing or ad hoc regional working groups** could be led by the local emergency management agency and involve appropriate public and private sector stakeholders as the situation warrants.*

Local government may choose to form standing or ad hoc regional working groups to deal with mid-term transportation issues that go beyond single agency boundaries. Some regional coordination would be best organized around a specifically identified geographic area; other issues may be best organized on a specific functional basis. (Subsection F Regional Coordination within Section IV Direction, Control and Coordination describes a range of options for establishing regional transportation recovery entities.)

These actions will lay the foundation for regional cooperation for long term transportation recovery issues and provide a catalyst to the formation of long term recovery organizations (described in Section D below).

Figure II-2 provides an overview of the decision and coordination process for mid-term transportation recovery actions.

Figure II-2: Mid-Term Decision and Coordination Process
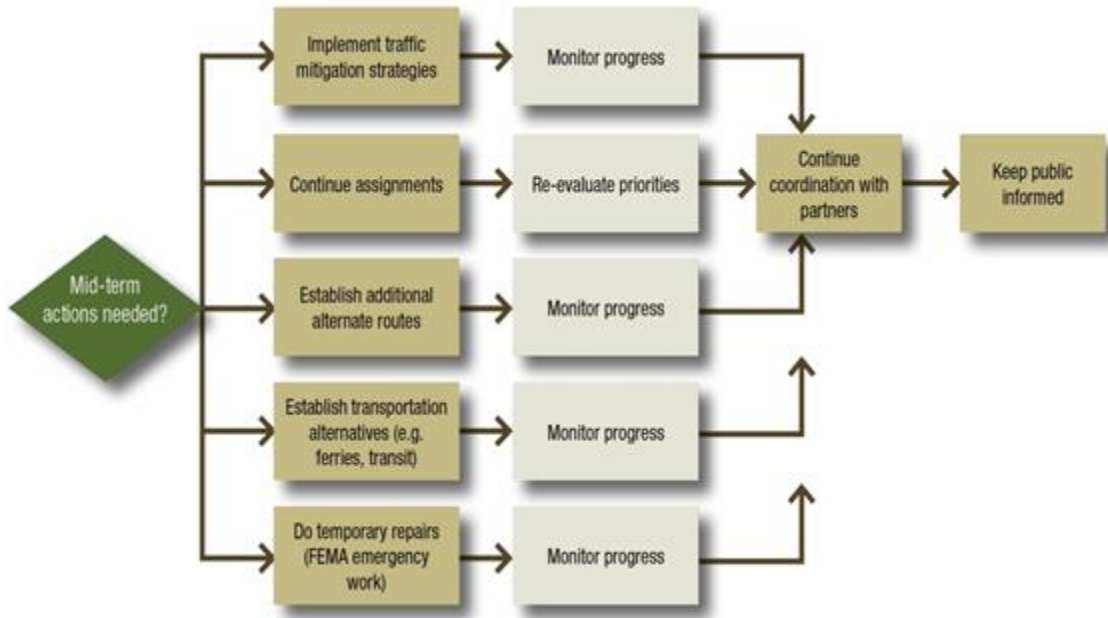
Table II-2 summarizes transportation recovery activities on which agencies will need to collaborate in the mid-term after a catastrophic incident.

Table II-2: Transportation Collaboration in the Mid-Term

Transportation Collaboration in the Mid-term Recovery Phase	
Actions	**Collaboration**
Form coordination committee	Counties, in consultation with their cities, tribes and the State convene a joint committee to coordinate mid-term transportation recovery decisions that cross county lines. Works groups may be formed on a geographic and/or functional basis. Existing entities such as Metropolitan Planning Organizations (MPOs) may be appropriate venues for the joint committee and/or its work groups.
Develop common operating picture	The joint committee assigns responsibility to develop complete map(s) of the transportation network status.
Prioritize and design interim repairs	The joint committee and/or its work groups: • Anticipate long term recovery needs. • Consider financing opportunities and considerations. • Prioritize interim needs. • Design multi-modal solutions that integrate roadway, maritime, rail and aviation resources. • Identify funding sources.
Manage transportation demand	The joint committee and/or its work groups will: • Identify the magnitude of demand. • Identify available capacity under alternative demand management scenarios. • Identify new capacity provided by emergency repairs and or expanded detour routes. • Implement demand management strategies.
Build public support	Local and state agencies will: • Ensure community involvement in prioritization and design of interim repairs. • Provide common public messages through Joint Information Centers (JIC) and/or a Joint Information System (JIS) in support of demand management strategies. (See Section V - Information Collection and Dissemination.) • Begin long term recovery processes.

1. Mid-Term Transportation Recovery Coordination Group

A. Introduction
As outlined in the Coordination Plan, County officials may recommend a Transportation Recovery Coordination Group be convened. There will likely be two different groups, one for Long-Term planning for permanent restoration, and a Mid-Term Recovery Coordination Group for temporary measures that will be regional in nature. The Mid-Term Group will consist of a Steering Committee and several Working Groups. It will focus on coordinating and resolving cross-jurisdictional issues during the temporary repairs and detours phase.

Once County officials determine the need for a Mid-Term Transportation Recovery Group, the Steering Committee lead will be contacted and requested to convene the group.

B. Mission
Assist in restoring the Puget Sound transportation system capacity and function to a normal or "new normal" state by collaboratively resolving transportation issues as quickly as possible.

C. Scope
The scope of the Mid-Term Transportation Recovery Coordination Group is to set priorities for addressing temporary strategies for cross-jurisdictional transportation disruptions from the disaster, focused on mobility needs in support of economic recovery efforts. The Group will not issue mandates. It will offer objective evaluations of current conditions and desired end-states as agreed upon by the majority of the agencies represented in Coordination Group, and will make recommendations for achieving those goals.

D. Objectives

1) Identify major, inter-jurisdictional transportation modes and pathways available.
2) Coordinate temporary solutions and repair efforts between jurisdictions to maximize recovery efforts.
3) Develop work-arounds / detours to maximize the use of undamaged infrastructure.
4) Identify other routes/modes where quick fixes are possible and categorize those by feasibility, effectiveness and cost.
5) Work with State Recovery groups in all sectors to ensure transportation issues receive sufficient consideration.
6) Set measureable goals and timelines.
7) Engage the public (e.g.; customers, vulnerable populations, shippers) in the process.

E. Structure and Organization
The Mid-Term Transportation Recovery Coordination Group will consist of a Steering Committee and multiple, subject-specific Work Groups. Each impacted entity may appoint a Subject Matter Expert to the Work Groups, and each impacted entity may have a seat on the Steering Committee.

The Steering Committee will receive status information and recommendations from the Work Groups. The Steering Committee will evaluate the recommendations as a whole. It will forward the agreed upon recommendations to the State's Recovery Committee for longer term items, and will coordinate mitigation activities within the region. Disagreements between Steering Committee members will be resolved by a majority vote of participating members.

Recommendations are non-binding and do not obligate any agency to fund the recommended projects or courses of action.

F. Steering Committee

Steering Committee membership is voluntary. Representatives should have the ability, authority, and jurisdictional knowledge such that they can evaluate needs and commit resources where needed.

The Steering Committee will suggest which Work Groups should be activated and will seek Subject Matter Experts from around the region to serve on the Work Group.

Steering Committee members should include one person from:

- Impacted counties

- Impacted major cities

- Washington State DOT

- Impacted tribes

- Transit Authorities

- Ports

- Private industry

G. Steering Committee Sustainment Plan

Maintaining an active, ongoing Steering Committee requires a lead agency and a process to support and guide a lead agency into the future. Ideally, the lead agency will convene an annual meeting of all interested parties to review the Mission, Scope, membership, and status of emergency planning for transportation recovery.

During the preparedness sustainment period prior to a catastrophic event, there should be a core membership group willing and available to meet annually. During the recovery phase following a catastrophic event, many agencies will be needed on the Steering Committee.

H. Lead Agency Sustainment

Lead Agency designation will be for a two-year term. The first lead agency serving from June 2014 to June 2016 will be King County DOT.

At the end of that term, the current agency may agree to continue in the role for an unlimited number of additional terms, or may relinquish the role as Lead Agency to another willing agency. If more than one agency wishes to serve as the lead, they may serve as co-leads or a vote of Steering Committee members in attendance may select from the list of candidate agencies.

I. Duties of Lead Agency

The Lead Agency will convene a meeting of the Steering Committee members a minimum of one time per year. A suggested agenda and suggested activities are included in this section. Notes from the meeting will be maintained by the lead agency and shared with future lead agencies to maintain continuity within the Committee.

Lead Agency will request all member agencies verify representative names and contact numbers prior to the Annual Meeting.

J. Support for Lead Agency

The Puget Sound Regional Council (PSRC) will provide support for the Lead Agency by:

- Providing pre-disaster data for the Transportation Recovery Indicators Chart in the tools by modifying the type of information currently monitored by PSRC

- Providing a meeting space for the annual Steering Committee meeting

- Providing contact names and numbers for agencies when requested

K. Work Groups

Working Group membership will be Subject Matter Experts (SME) in the specific topic. SMEs should have in-depth knowledge of their jurisdiction's status, needs, and available resources. SME's should also have an understanding of regional impacts, regional economic needs, and regional planning efforts.

Working Groups will be assigned tasks by the Steering Committee and will report back to the Steering Committee with evaluations and recommendations for resolving issues in their assigned area.

Table II-3: Possible Working Groups

Possible Working Groups:	
Bridges/Roadways	Airports
Freight Movement	Ferries
Fueling	Mass Transit (Bus, Light Rail)
Traffic management/policy	Seaports

L. First Meeting Agenda, Mid-Term Steering Committee

- Roll call of agencies present.

- Based on current information, which jurisdictions, agencies and other stakeholders should be part of the Mid-Term Transportation Recovery Coordination Group? *(Owners of key infrastructure such as Tribes that control connecting roadways, suppliers and shippers of critical goods, mass transit organizations, etc.)*

- What damages outside of your jurisdiction are having negative impacts within your jurisdiction?

- What damages within your jurisdiction are having impacts outside of your jurisdiction, if known?

- Of those, which of them has a plan and actions in progress to resolve the problem?

- What do you need from a neighboring jurisdiction or partner agency to successfully accomplish your agency's plans, avoid conflicting recovery activities, and maintain key traffic patterns?

- Which Work Groups are needed?

M. Sustainment Meeting Activities

Once per year the designated Steering Committee lead will request updates of names, email, and phone numbers for Steering Committee stakeholders and set a meeting date.

Committee Lead will convene the meeting of interested stakeholder to review the membership list and processes for Committee activation, Work Group designation, and priority-setting following a disaster.

The annual sustainment meetings will renew connections between potential Committee members and ensure all parties recognize the value and potential contribution of the Mid-Term Transportation Recovery Coordination Group.

N. Transportation Recovery Indicators

Reporting progress toward restoring transportation to the public is a key mission for the Coordination Group. The following table may prove useful in defining the areas for consideration. By comparing current status to pre-event

status, the Group will have objective data for measuring progress. This measurable data can be used to keep the public informed of progress.

Pre-Disaster status may be available through the Puget Sound Regional Council's data collection mechanisms. Updated data regarding pre-disaster status may be collected during the annual Steering Committee meeting. Post-disaster status may be available from local and State Transportation Departments, transit agencies, port authorities, public works departments, airports, and area EOCs.

Table II-4: Transportation Recovery Indicators

Transportation Recovery Indicators			
Impact	Pre-disaster number/status	Current/status	Trend + Improving - Not improving
Roadways			
Percentage of Interstate functional			
Percentage of arterials functional			
Percentage of other roads functional			
Critical bridges inspected and open			
Waterways			
Number of cranes operating			
Number of deep draft berths available			
Number of ferry routes operating			
Number of ferry terminals operating			
Volume of barge capacity			
Airways			
Number of gates functioning			
Number of terminals functioning			
Number of functional runways			
Railways			
Percentage of tracks functional			
Number of stations functional			
Regional Bus/Passenger Rail			
Number of stations functional			

O. Mid Term Transportation Priorities

After a catastrophic event, there will be many instances of damaged infrastructure and many competing interests in finding alternate solutions as quickly as possible. Setting priorities for resolving problems will be challenging. An objective appraisal of the significance of the damaged infrastructure will help determine priorities for funding temporary repairs, developing alternate routes, or instituting other mitigation activities.

The following worksheet is intended to give Steering Committee and Work Groups a tool for performing an objective analysis of competing projects to determine priorities and effectiveness of mitigation options. This tool provides a weighted numerical analysis of multiple projects for comparison.

Only executive Policy Groups will have the authority to set priorities, but the tool provided gives the Work Groups and the Steering Committee a quantifiable basis for making recommendations to Policy Groups and to the State recovery groups.

Instructions for Use:

List significant damaged infrastructure, one per line.

For columns A – E, assess the significance of each factor as it pertains to the damaged infrastructure.

Example: For A, does the infrastructure provide a vital link for emergency reconstruction supplies to reach an impacted jurisdiction? If no, then it warrants a 1 or a 0.

For B, are there other workable detours or alternates? If no, then it warrants a 3.

1 = low value for that factor, 2 = medium value, 3 = high value.

To arrive at the score, multiple the value (1, 2, or 3) by the Score Factor number to arrive at the score.

Total the scores. The scores will determine which pieces of damaged infrastructure need immediate attention.

Table II-5: Mid-Term Transportation Recovery Priorities

Mid-Term Transportation Recovery Priorities Regional Value 3 – High, 2 – Medium, 1 – Low, 0 - None							
Score Factor	x15	x10	x15	x10	x10	SCORE	Priority
Damaged Infrastructure	Emergency Response Function	Functional Alternate	Economic Impact	Intermodel Connections	Transit Route		
I-405 Interchange at 8th Ave	3 (x 15) 45	2 (x10) 20	3 (x15) 45	2 20	3 30	140	

P. Mitigation Solution Effectiveness Worksheet

Once a priority project has been identified, there will be several possible solutions for mitigating the problems impacting the damaged infrastructure. Table II-6 may help Working Group members or project managers determine which strategy provides the optimum solution.

Using the worksheet, consider each piece of prioritized damaged infrastructure individually. List all mitigation options, analyzed for cost, time to complete, and percentage of the desired end-state the solution achieves (this is subjective number based on the expertise of the working group SMEs.) An example is provided.

Mitigation strategies are suggested in:

- Appendix E, Roadway Toolkit, Table E-5

- Appendix F, Waterways Toolkit, Table F-1

Some solution may solve a problem in one location, but cause additional problems in other areas. The Transportation Recovery Coordination Group must ensure a solution to one problem does not create additional problems in other areas.

Table II-6: Mitigation Solutions Effectiveness Worksheet (Example)

Mitigation Solutions Effectiveness Worksheet			
Mitigation Solution	**Cost $ $$ $$$ $$$$**	**Time to complete 1-10 days 10-30 days 30-60 days 60+ days**	**% Solution**
1st Avenue Bridge, Hwy 99, over Duwamish River			
Construct temporary spans for both sections cars only, no trucks, unable to open for ships	*$$$$*	*6 mos*	*40%*
Construct temporary span for one section, cars only, alternating directions, no trucks, unable to open for ships	*$$*	*mo*	*5%*
Divert all car traffic over the SouthPark bridge, reroute all trucks to I-5, divert to other bridges, open for ship traffic	*$*	*10 days*	*0%*
Divert trucks to I-5, divert car traffic through West Seattle, and over Spokane Street bridge, waterway open for ship traffic	*$*	*10 - 20 days*	*70%*

Table II-7: Mitigation Solutions Effectiveness Worksheet

Mitigation Solutions Effectiveness Worksheet			
Mitigation Solution	**Cost** $ $$ $$$ $$$$	**Time to complete** 1-10 days 10-30 days 30-60 days 60+ days	**% of Solution**
Project Name			
Solution 1			
Solution 2			

D. Long-term Transportation Recovery

Long-term transportation recovery measures for the purposes of this Annex are defined as permanent measures implemented to return the regional transportation network to pre-disaster or better condition. These activities may include reconstruction and permanent repair, establishing metrics to monitor recovery progress, and long term plans to protect transportation infrastructure from future disasters.

Attachment 3 to this section details responsibilities and priorities for local, state and federal agencies and the private sector by mode for long-term recovery of the transportation system.

> *Permanent repairs are often covered under the **FEMA Public Assistance Program** as "permanent work" and as "permanent restoration work" under **USDOT Emergency Relief (ER) Program** funding.*

Multi-Agency coordination of long-term transportation recovery actions to support emergency response will require inter-agency and inter-jurisdictional coordination within and between all levels of government. Private sector and community involvement and support will also be critical. If not already formed to address mid-term

> ### *Transportation Collaboration in the Long Term*
>
> - *Form working groups in support of recovery committees.*
>
> - *Update common operating picture.*
>
> - *Prioritize and design permanent repairs.*

recovery issues, local and state government officials should form one or more transportation working groups to provide a platform for interaction among affected jurisdictions and transportation stakeholders in a specific geographic or functional area. These personnel would be fully authorized to represent their jurisdiction or organization and could have the authority to commit resources and authorize expenditure of funds.

These working groups could be part of a state or regional recovery organization and/or they could be located within an existing Metropolitan Planning Organization (MPO) or a Regional Transportation Planning Organization (RTPO) within the Puget Sound region. (See options described in Subsection F - Regional Coordination within Section IV Direction, Control and Coordination.) Key activities will require an evolved common operating picture and public support for long term plans to provide commuter, freight and personal mobility across the transportation modes.

Figure II-3 provides an overview of the decision and coordination process for long-term transportation recovery actions.

Figure II-3: Long-term Decision and Coordination Process
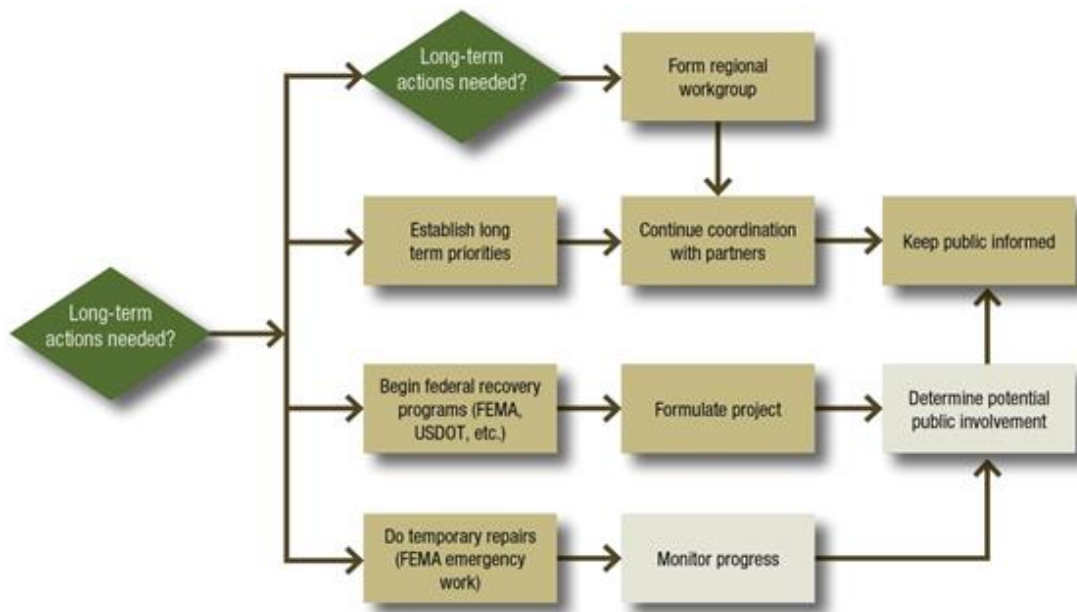
Table II-8 summarizes transportation recovery activities on which agencies will need to collaborate in the long term after a catastrophic incident.

Table II-8: Transportation Collaboration in the Long-Term

Transportation Collaboration in the Long-term Recovery Phase	
Actions	**Collaboration**
Form working groups in support of recovery committee(s)	Recovery committee members: Identify functional and/or geographic work groups. Determine extent of work group authority.
Working group(s) update common operating picture	Evaluate disaster impact on transportation services. Estimate timelines for repair and reconstruction. Develop cost estimates.
Working group(s) prioritize and design permanent repairs	Develop long term plans to restore and/or revise local and regional traffic movement. Develop long term plans to restore and/or revise transit operations. Develop long term plans to restore and/or revise inter-modal freight movement.
Recovery committee(s) and Working group(s) build public support	Involve community representatives on committees and working groups. Conduct public meetings. Seek public input. Provide timely information. Keep process transparent. Demonstrate inter-agency collaboration.

Attachment 1 – Short-term Recovery Checklists

Table II-9: Short-Term Recovery Checklist

Short-term Recovery Checklist – Roadways	
√	**WSDOT**
	Assess damage and impact to the state road network.
	Develop initial recovery priorities.
	Report information to the State EOC.
	Establish initial detours and alternative routes.
	Provide information to local jurisdictions.
	Provide information to the public.
√	**Local Transportation Agencies**
	Assess damage and impact to local road network.
	Develop initial recovery priorities.
	Establish initial detours and alternative routes.
	Report information to the local EOC.
	Provide information to other jurisdictions.
	Provide information to the public.
√	**Commercial Operators**
	Assess damage and impact.
	Provide status to the local EOC or WSDOT.
	Develop initial recovery priorities.

Short-term Recovery Checklist - Waterways	
√	**USCG**
	Relocate and reestablish the Captain of the Port, as required.
	Obtain Essential Elements of Information (EEI) from port facilities, terminals and vessels.
	Determine closing/opening of waterways.
	Coordinate with the USACE and EPA for debris removal and/or hazardous waste cleanup.
	Form the Marine Transportation System Recovery Unit (MTSRU) under authority of COTP.
	Communicate with local EOCs, State EOC, Seaports, and private sector stakeholders for prioritization of navigable waterway restoration.
√	**Seaports**
	Conduct initial assessments (stakeholders to provide information to port).
	Obtain status from intermodal transportation partners, including airports, railways and transportation departments (state and local).
	Develop initial recovery priorities.
	Provide EEI to USCG.
	Initiate Port Recovery / Resumption of Trade plans
	Coordinate with terminal operators to provide marine transportation support as requested by the local or State EOC and WSDOT EOC.
√	**WSDOT - Washington State Ferries Division**
	Conduct operational capabilities assessment identifying each terminal's or each vessel's ability to support some level of service operations.
	Develop initial recovery priorities.
	Return residents to their home side of the Puget Sound.
	Provide status to the WSDOT EOC and JHOC.
	Provide marine transportation of disaster recovery units and resources as requested by the WSDOT Representative at the State EOC, and/or WSDOT HQ EOC.
√	**County Ferries**
	Conduct operational capabilities assessment identifying each terminal's or each vessel's ability to support some level of service operations.
	Return residents to their home side of the Puget Sound.

	Short-term Recovery Checklist - Waterways
	Provide status to the County EOC or others as per local plans.
	Provide marine transportation of resources as requested by the local or State EOC.
√	Commercial Operators
	Conduct operational capabilities assessment identifying each terminal's or each vessel's ability to support some level of service operations.
	Provide status to the port authority and USCG.
	Provide marine transportation of recovery resources as requested by the local or State EOC.

	Short-term Recovery Checklist - Airways
√	FAA
	Send out Notice to Airmen (NOTAM).
	Obtain status from airports and determine if formal Emergency Security Control of Air Traffic (ESCAT) implementation is required.
√	FAA (con't)
	Obtain the status of the Air Route Traffic Control Center (ARTCC) controlling instrument flight rule (IFR) traffic over Washington State and parts of Idaho, Oregon, and California.
√	WSDOT Aviation Division
	Obtain status from airports.
	Develop initial recovery priorities.
	Send representative to State EOC.
√	Airports
	Conduct initial assessments (stakeholders provide information to port authority).
	Provide EEI to local EOC, FAA and/or State EOC.
	Provide support and coordinate with local and State EOCs.

Short-term Recovery Checklist - Railways
√	Railways
	Collect situational awareness and damage assessments on the condition of the railway system.
	Provide situation reports to the State EOC and the WSDOT.
	Develop initial recovery priorities.
	Develop and implement alternatives to restore railway transportation.
√	WSDOT – Rail and Marine Division
	Collect information on the status of the railway network.

Attachment 2 - Mid-term Recovery Checklist

Table II-10: Mid-Term Recovery Checklist

Mid-term Recovery Checklist – Roadways
√   **WSDOT**
Continue assessing damage and impact to the state road network.
Update roadway transportation recovery priorities.
Identify additional alternative routes.
Implement prioritization systems for freight movement, as necessary.
Provide status to the State EOC or JFO.
Continue coordination with local transportation agencies and jurisdictions.
Provide information to the public and the transportation industry.
Begin process of federal disaster recovery programs (FEMA, USDOT, etc.).
√   Local Transportation Agencies
Identify additional routes.
Implement traffic mitigation strategies.
Develop alternate transit and ferry routes and parking.
Implement regional coordination strategies when necessary.
Begin process of federal disaster recovery programs (FEMA, USDOT, etc.).
Report status to local EOCs.
Continue to provide information to the public.
√   Commercial Operators
Monitor information from WSDOT and local transportation agencies.
Adjust routes and schedules as appropriate.
Report status to the local EOC or WSDOT.
Revise initial recovery priorities as necessary.

Mid-term Recovery Checklist - Waterways	
√	USCG
	Obtain Essential Elements of Information (EEI) from port facilities, terminals, and vessels.
	Provide assessments to open waterways and prioritize opening of waterways based on EEIs.
	Coordinate with the USACE and EPA for debris removal and/or hazardous waste cleanup.
	Coordinate MTSRU recommendations concerning the opening of waterways and establishing recovery priorities with local EOCs and State EOC.
√	Seaports
	Conduct secondary assessments (stakeholders provide information to port).
	Obtain updated status from intermodal transportation partners, including airports, railways and transportation departments (state and local).
	Provide EEI to USCG.
	Develop mid-term recovery priorities and adjust Port Recovery / Resumption of Trade plans as necessary
	Coordinate with terminal operators to provide marine transportation support as requested by the local or State EOC and WSDOT EOC.
√	WSDOT - Washington State Ferries Division
	Update ferry system recovery priorities.
	Conduct a complete engineering assessment of damage.
	Restore service at some level of service.
	Provide status to the WSDOT EOC and JHOC.
	Provide marine transportation of disaster recovery units and resources as requested by the WSDOT Representative at the State EOC and/or WSDOT HQ EOC.
√	County Ferries
	Conduct a complete engineering assessment of damage.
	Restore service at some level of service.
	Provide status to the County EOC or others as per local plans.
	Provide marine transportation of disaster recovery units and resources as requested by the local or State EOC.
√	Commercial Operators
	Conduct a complete engineering assessment of damage.
	Provide status to the port authority.
	Provide marine transportation of recovery resources as requested by the local or State EOC.

Mid-term Recovery Checklist - Airways
√ **FAA**
Implement Emergency Security Control of Air Traffic (ESCAT), as required.
Coordinate with USDOT and DHS regarding changes to air traffic management, airspace and/or security measures.
Determine airport capacity and restoration of the movement of airfreight and passengers.
Obtain EEI from airports.
√ **WSDOT Aviation Division**
Obtain status from airports and coordinate with the State and local EOCs.
Update airways priorities.
√ **Airports**
Conduct in-depth assessments. (Stakeholders provide information to port authority.)
Continue to provide EEI to local EOC, FAA and/or State EOC.
Continue to provide support and coordinate with local and State EOCs.

Mid-term Recovery Checklist - Railways
√ **Railways**
Update railway recovery priorities.
Restore railway infrastructure to functional levels.
Restore movement of freight and passengers.
Provide situation reports to the State.
√ **WSDOT – Rail and Marine Division**
Continue to collect information on the status of the railway network.

Attachment 3 - Long-term Recovery Checklist

Table II-11: Long-Term Recovery Checklist

	Long-term Recovery Checklist – Roadways
√	**WSDOT**
	Develop long-term transportation recovery priorities.
	Continue coordination with local transportation agencies and jurisdictions.
	Provide information to the public and the transportation industry.
	Continue the process of federal disaster recovery programs (FEMA, USDOT, etc.).
√	**Local Transportation Agencies**
	Develop long-term transportation recovery priorities.
	Continue traffic mitigation strategies.
	Continue alternate transit and ferry routes and parking.
	Implement regional coordination strategies when necessary.
	Involve the public in long-term transportation recovery planning.
	Continue process of federal disaster recovery programs (FEMA, USDOT, etc.).
√	**Commercial Operators**
	Continue to monitor information from WSDOT and local transportation agencies.
	Adjust routes and schedules as appropriate.

	Long-term Recovery Checklist - Waterways
√	**USCG**
	Obtain Essential Elements of Information (EEI) from port facilities, terminals and vessels.
	Prioritize the recovery of the Waterways Transportation System.
	Provide assessments to open waterways.
	Coordinate MTSRU recommendations with local EOCs and State EOC for opening of waterways.
√	Seaports
	Conduct ongoing assessments. (Stakeholders provide information to port authority.)
	Obtain updated status from intermodal transportation partners, including airports, railways, and other transportation departments (state and local).
	Develop long-term recovery priorities and adjust Port Recovery / Resumption of Trade plans as necessary.
	Provide EEI to USCG.
	Coordinate with terminal operators to provide marine transportation support as requested by the local or State EOC and WSDOT EOC.
√	WSDOT - Washington State Ferries Division
	Develop long-term recovery priorities.
	Restore damaged facilities.
	Restore service to normal operations.
	Provide status to the WSDOT EOC and JHOC.
	Provide marine transportation of disaster recovery units and resources as requested by the WSDOT Representative at the State EOC and/or WSDOT HQ EOC.
√	County Ferries
	Restore damaged facilities.
	Restore service to normal operations.
	Provide status to the County EOC or others as per local plans.
	Provide marine transportation of recovery resources as requested by the local or State EOC.
√	Commercial Operators
	Restore damaged facilities.
	Provide status to the port authority.
	Provide marine transportation of resources as requested by the local or State EOC.

Long-term Recovery Checklist - Airways	
√	FAA
	Implement Emergency Security Control of Air Traffic (ESCAT) as required.
	Coordinate with USDOT and DHS regarding changes to air traffic management, air space and/or security measures.
	Determine airport capacity and restoration of the movement of airfreight and passengers.
	Obtain EEI information from airports.
√	WSDOT Aviation Division
	Provide representative at State EOC.
	Obtain status from airports.
√	Airports
	Conduct in-depth assessments. (Stakeholders provide information to port authority.)
	Develop long-term recovery priorities.
	Provide EEI to local EOC, FAA and/or State EOC.
	Return service back to normal operating service levels.

Long-term Recovery Checklist - Railways	
√	Railways
	Continue assessments and develop long-term recovery priorities.
	Restore railway infrastructure to pre disaster condition and function.
	Restore movement of freight and passengers to pre-disaster levels.
	Upgrade railway infrastructure to increase resiliency against future disasters.
√	WSDOT – Rail and Marine Division
	Continue to collect information on the status of the railway network.

III.   Organization and Responsibilities

A. General Information

This section describes the organizational framework of local, state and federal recovery efforts. It also defines local, state, federal, private sector and non-governmental organization (NGO) responsibilities relative to transportation recovery.

B. Organization for Transportation Recovery

1. Local Transportation Recovery

Local command, control and coordination for disaster response and short term roadway recovery measures are usually accomplished through local Emergency Operations or Coordination Centers (EOCs/ECCs), most of which have a Transportation (ESF-1) component.

> *Each **local jurisdiction** is authorized to define the structure of its emergency management organization.*

The structure of the organization chart for the local EOC/ECC varies from jurisdiction to jurisdiction. Refer to specific jurisdiction Comprehensive Emergency Management Plans (CEMP) and local EOC/ECC procedures for specific jurisdiction models.

After a catastrophic incident, agencies may choose to establish temporary local or regional organizations to deal with mid-term and long-range transportation recovery issues that cover multiple jurisdictions. Recovery measures and strategies may continue for months or even years. Mid-term and long-term transportation recovery operations may transition to other facilities and locations as established to meet the needs of the catastrophe.

2. State Transportation Recovery

Following a catastrophe, the State EOC supports state agency, local jurisdiction and tribal nation operations in the response and intial recovery to emergency incidents. State agency representatives respond to the EOC to coordinate their respective agency's initial recovery operations. The ESF-1 Transportation Group in the State EOC coordinates and manages state transportation response and recovery. ESF-1 includes representatives from the Washington State Department of Transportation (WSDOT) and the Washington State Patrol (WSP).

> ***WSDOT and WSP** provide direction, control and coordination of initial recovery operations from their respective regional Traffic Management Centers and District Offices. They transmit situational awareness information about the transportation system to their headquarters and the State EOC.*

WSDOT and WSP are the two state agencies with primary transportation responsibilities. WSDOT Traffic Management Centers and WSP District Communications Centers coordinate initial recovery efforts with local transportation authorites. In some cases, WSP and WSDOT provide liaison officers to local EOC/ECCs and coordination facilities. WSDOT also maintains an EOC at their headquarters in Olympia.

Figure III-1, provided by WSDOT, illustrates WSDOT's Emergency Organization for Level 3 (larger event) Response.

Figure III-1: WSDOT Emergency Organization Chart – Level III Activation
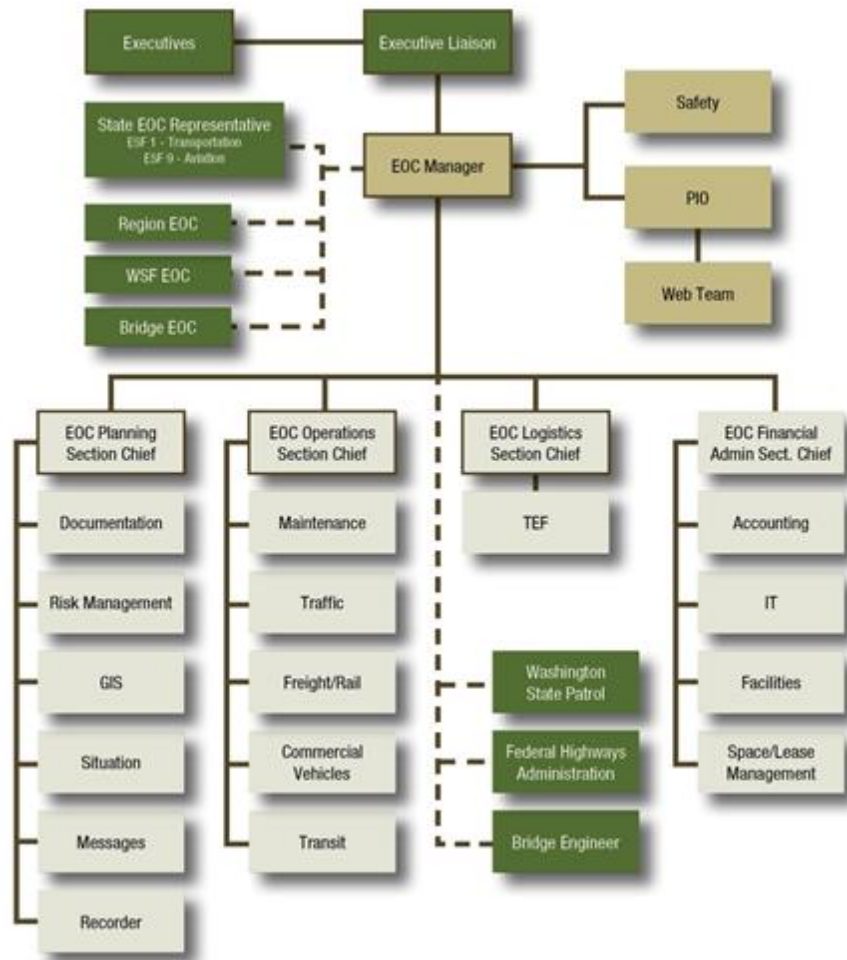
Mid-term and long-term transportation recovery operations may transition to the Joint Field Office (JFO) established by the state and FEMA after a Presidential Declaration of Emergency or Disaster or to other facilities and locations as established to meet the needs of the catastrophe. (See sub-section 3 below)

> *As the state moves into mid- and long-term recovery planning and operations, **the governor** will likely appoint a task force, commission or individual to manage the process.*

For long-term recovery at the state level, one working concept under consideration is a Washington Restoration Organization (WRO) based on the State of Mississippi's recovery efforts following Hurricane Katrina. The WRO would work directly for the Office of the Governor to coordinate and manage statewide and regional recovery and restoration activities after a catastrophic incident. It is likely that the WRO or any similar governor-created organization would create a work group or subcommittee to address transportation recovery issues. In the

event that local agencies have formed a regional recovery entity, the governor could choose to integrate the work groups. (See Section IV - Direction, Control and Coordination) Figure III-2 illustrates one potential Organization Chart for a WRO.

Figure III-2: Potential Organization Chart for a Washington Restoration Organization (WRO)
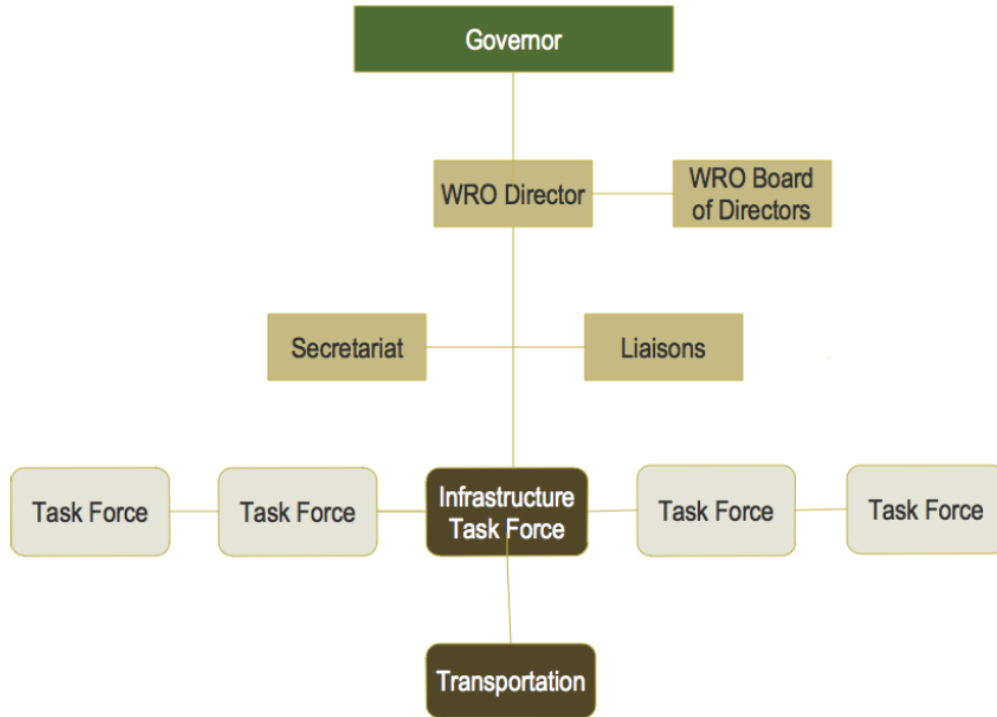
3. Federal Transportation Recovery

When a catastrophe occurs and the President issues (or may issue) Declaration of Emergency or Disaster, the federal government activates the National Response Coordination Center (NRCC) and respective Regional Response Coordination Centers (RRCC). The NRCC and appropriate RRCC coordinate to quickly dispatch Emergency Response Teams (ERT) and an Incident Management Assistance Team (IMAT) to the affected state. These teams follow the structures outlined in the National Incident Management System (NIMS) and set up coordinated operations with the state. Federal Emergency Support Function (ESF-1) transportation agencies, including the US Department of Transportation, Federal Aviation Administration and Federal Highway Administration, respond and coordinate with state transportation agencies.

> **JFO Operations** typically manage and coordinate ESF 1 –Transportation until USDOT establishes management linkages with state and local transportation agencies, allowing USDOT to work directly with them at their respective locations.

The federal government establishes a Joint Field Office to coordinate federal/state recovery operations. The JFO remains open as long as it is needed to support recovery operations. Over time, the JFO may transition to a processing center or long-term recovery office that continues work on specific public assistance to state and local applicants. USDOT works directly with state and local jurisdictions under its own authorities.

Figure III-3 outlines the general organization of the JFO and ESF-1.

Figure III-3: Joint Field Office Organization Chart (from the NRF)
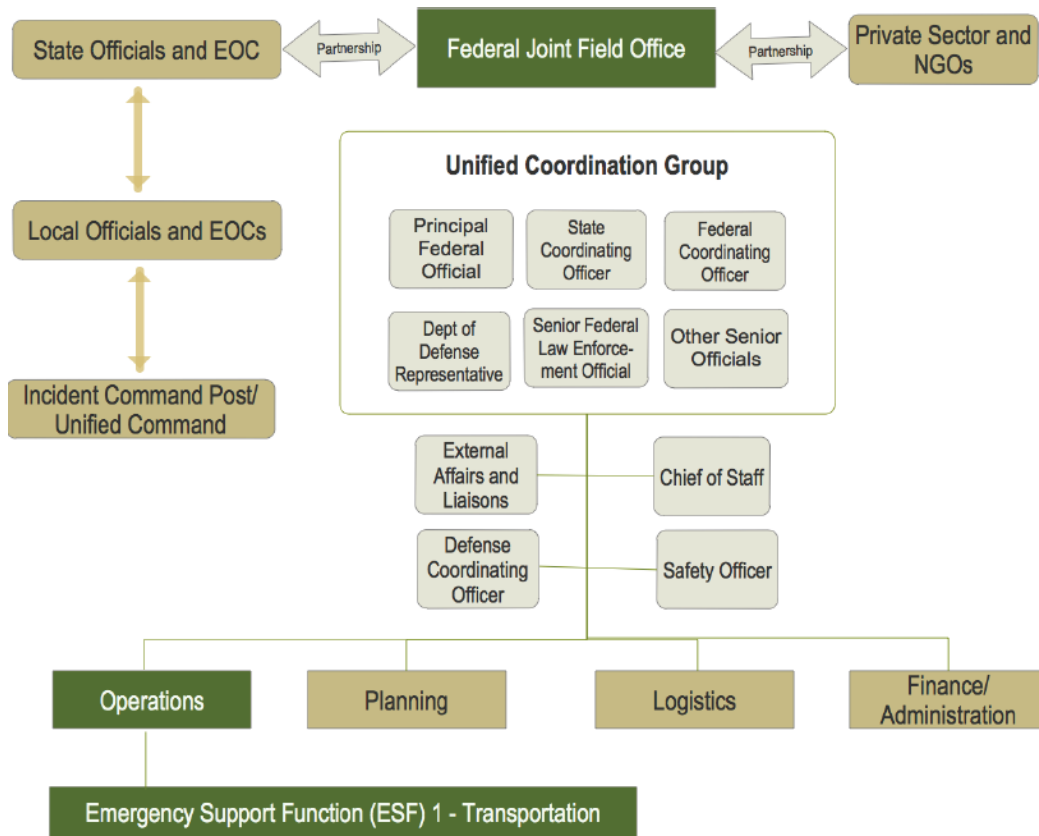
C. Responsibilities for Transportation Recovery

1. Local Transportation Recovery Responsibilities

Local ESFs usually share the following common transportation-related responsibilities:

- Provide a liaison to the EOC in accordance with local directives. Provide the EOC with situational awareness and assessments for route restoration and planning.

- Disseminate information concerning transportation impacts and alternatives to affected personnel.

- Coordinate public information and provide Public Information Officer(s) to the Joint Information Center (JIC).

Table III-1 provides a summary of additional local transportation related emergency management responsibilities for local government executives and agencies.

Table III-1: Local Transportation Recovery Responsibilities

Local Responsibilities
Local Executive Heads
- Provide direction, control and support during disaster recovery operations as detailed in jurisdiction's Comprehensive Emergency Management Plan (CEMP).   - Ensure that local emergency plans take into account transportation recovery issues.   - Support mitigation efforts to protect transportation infrastructure.   - Establish strong working relationships with other jurisdictional leaders and with core private sector and non-governmental organization (NGO) leaders.   - Provide leadership to the community and private sector stakeholders throughout the transportation sector recovery planning process.
Emergency Management
- Support transportation recovery and mitigation planning activities.   - Support assessment and protection of key transportation assets and critical infrastructure.   - Support recovery activities.   - Share information among public and private sector entities concerning recovery efforts for transportation infrastructure, networks and capabilities.
Law Enforcement
Provide traffic and crowd control in setting up initial detours and diversions.
Fire Services
Review recovery and infrastructure rebuilding plans to ensure compliance with existing rules and regulations.
Public Works and Transportation
- Develop transportation recovery, rebuilding and restoration plans.   - Provide temporary construction and repair of access routes, technical advice, engineering, construction management, inspection and emergency contracting.   - Implement emergency clearing of debris to re-open roads and other transportation corridors.   - Implement emergency stabilization or demolition of damaged transportation infrastructure.   - Maintain lists of and contracts with qualified private contractors.   - Provide structural inspection of transportation infrastructure.
Public Works and Transportation
- Compile and evaluate damage assessments from state and local agencies.   - Provide physical assets for detours and other changes in traffic patterns such as barricades, road signs, variable message signs, and pavement markings.   - Coordinate with other jurisdictions' transportation agencies.   - Implement traffic mitigation measures such as parking restrictions, variable message signing, traffic signal operations and traffic monitoring and surveillance

Local Responsibilities

School Districts

- Provide transportation resources for the movement of people in accordance with their policies, plans and procedures.
- Develop and maintain transportation resource lists.
- Disseminate information concerning transportation alternatives.

Port Authorities (Airports and Seaports)

- Work with Terminal Operators to provide loading and unloading capabilities for disaster relief supplies.
- Work with terminal operators to serve as staging areas and distribution areas for fuel and transportation essentials.
- Work with terminal operators and cross-modal partners to identify and provide additional capacity to deliver freight and people if other modes of transportation experience reduced capacity.
- Work with terminal operators and cross-modal partners to augment transportation elements in providing egress/ access to disaster area.
- Work with terminal operators and cross-modal partners to enable a mass influx of food, water, medical supplies, shelters, building materials and equipment to support response and recovery operations.
- Support transportation recovery reconstruction and planning efforts.
- Work with terminal operators to provide support for additional personnel and equipment involved in ongoing recovery operations.

Transit Authorities and Agencies

- Provide transportation services for the movement of people, equipment and supplies.
- Provide public mass transportation for workers and consumers.
- Provide resources for the temporary and permanent repair/restoration of facilities.
- Provide personnel, communication assistance, buses, non-revenue vehicles, heavy equipment and supplies to assist with emergency operations.
- Return transit services to normal levels as soon as possible.
- Provide maintenance support for jurisdiction-owned vehicles and equipment.

2. State Transportation Recovery Responsibilities

Table III-2 provides a summary of general state transportation recovery responsibilities.

Table III-2: State Transportation Recovery Responsibilities

State Responsibilities
Department of Transportation (WSDOT)
• Coordinate transportation-related missions in support of recovery efforts.   • Prioritize and/or allocate transportation resources and recovery efforts.   • Conduct damage assessment to the state transportation facilities.   • Determine the usable portions of the state transportation system and coordinate emergency highway traffic regulations with other appropriate agencies.   • Reconstruct, repair and maintain the state transportation system.   • Coordinate with WSP for traffic control.   • Coordinate maritime, aviation and rail recovery with respective lead federal agency (USCG, FAA, and USDOT)   • Inspect infrastructure and prioritize repairs on the state transportation network.   • Provide highway rerouting information to redirect traffic or keep traffic moving.   • Provide assets such as barricades, road signs, variable message signs, and pavement markings for implementing detours and other changes in traffic patterns.   • Institute traffic changes such as High Occupancy Vehicle (HOV), High Occupancy Toll (HOT), congestion pricing or reversible lanes.   • Restore state transportation system connectivity and re-establish ferry system operations.
Washington State Patrol
• Provide traffic control and law enforcement on the state transportation system.   • Conduct aerial reconnaissance and photographic missions. Coordinated by ESF-1 (WSDOT Aviation) at the State EOC.
Utilities and Transportation Commission
• Provide assistance in processing applications for permits from transportation companies to engage in common or contract carrier operations.
Military Department
• Provide limited air and land transportation of personnel and equipment and limited air traffic control functions. Coordinated by ESF-1 (WSDOT Aviation) at the State EOC.   • Assist in establishing roadblocks and directing traffic.   • Provide assistance for emergency traffic regulation and movement control.
State EOC
• Coordinate response and recovery activities including the collection of situational awareness information on the transportation network and development of a Common Operating Picture.   • Disseminate information about the status of the transportation network to local governments, other state agencies, federal partners and the private sector.

3. Federal Transportation Recovery Responsibilities

Table III-3 provides a summary of general federal agency transportation recovery responsibilities as outlined in the National Transportation Recovery Strategy (October 2009).

Table III-3: Federal Transportation Recovery Responsibilities

Federal Responsibilities
U.S. Department of Transportation
• Coordinate recovery and mitigation activities in a declared disaster among transportation stakeholders within the authorities of ESF-1 agencies. • Identify temporary alternative transportation solutions. • Support and enable damage assessments for multi-modal transportation network infrastructure. • Participate in the economic impact assessment of transportation network disruptions. • Provide technical and financial assistance for repair and restoration of transportation infrastructure and network. • Help prioritize restoration efforts based on needs identified by local and state government.
Federal Aviation Administration (FAA)
• Coordinate recovery of the Aviation Transportation System to acquire resources for system continuity and infrastructure recovery. • Implement contingency measures to ensure public safety and continuity of commerce. • Provide funding to restore the air traffic control system, air navigation facilities, airspace management capabilities, key equipment, airports and communications. • Enforce additional airspace restrictions as necessary.
Federal Highway Administration (FHWA)
• Provide Emergency Relief Funding for *Federal-Aid Highways* and *Federally Owned Roads*. • Support states in project development, planning, and approval process for federally owned assets. • Evaluate requests to deviate from environmental procedures during recovery. • Provide technical assistance.
Federal Motor Carrier Safety Administration (FMCSA)
• Provide support to federal, state and local agencies in recovery operations pertaining to emergency declarations on the shipment and transport of emergency services, e.g., waiver of hours of service for drivers involved in time-sensitive recovery operations.
Federal Railroad Administration (FRA)
• Provide direct loans and guarantees to rehabilitate intermodal rail equipment or facilities (both freight and passenger rail). • Provide quantitative analysis, environmental research, project reviews, research and development, and technical assistance for railroad infrastructure recovery.

Federal Responsibilities

- Provide an expedited process to handle requests to waive compliance with rules, regulations or standards during emergency incidents.

Federal Transit Administration (FTA)

- Provide financial, planning and technical assistance for recovery of transit systems.
- Evaluate requests to deviate from environmental procedures during recovery.

Maritime Administration (MARAD)

- Advise the Secretary of DHS in a national defense emergency whether there is sufficient U.S.-flag vessel capacity available to meet requirements; if not, the secretary of DHS may waive compliance with coastwise law to allow for extra shipping capacity.
- Make vessels from the Ready Reserve Force (RRF) [government-owned vessels intended principally to deploy Department of Defense (DoD) forces] available to transport critical supplies and equipment, provide messing and berthing, and provide command and control facilities.
- Assist in damage assessment through its National Shipping Authority (NSA), provide technical expertise and coordinate shore-side recovery of the Marine Transportation System (MTS).

Pipeline and Hazardous Materials Safety Administration (PHMSA)

- Authorize a variance from hazardous materials safety regulations to facilitate emergency transportation of materials or to transport hazardous wastes.
- Authorize a special permit to meet emergency requirements for pipeline operations.

Research and Innovative Technology Administration (RITA)

- Provide technical assistance in recovery and reconstitution of the transportation network and promote transportation technology that will improve newly rebuilt infrastructure or policies through the Volpe National Transportation Systems Center.

U.S. Department of Homeland Security (DHS)

- Coordinate federal resources and private/public-sector partners with recovery operations.
- Coordinate overall staffing of federal emergency management recovery activities at multiagency coordination centers, including which ESFs are activated, the size and composition of the organizational structure, the level of staffing at the above facilities, and the key personnel required.

U.S. Coast Guard (USCG)

- Coordinate with support agencies and other maritime stakeholders through ESF - 1, ESF -10, and ESF - 13 to prioritize, evaluate, and support restoration of domestic ports, shipping, waterways, and related systems and infrastructure.
- Execute authorities under ESFs - 1 and -10 to monitor and ensure vessel salvage for vessels containing oil and/or hazardous materials (includes coordinating and/or providing resources, assessments, expertise and monitoring).
- Open waterways and provide on-scene resources to help assess transportation infrastructure.

Federal Responsibilities

- Prioritize operations of waterway facilities and ship movements.
- Set Marine Security (MARSEC) Level as required, after hazards have been identified, for reopening of waterways.
- Engage the Marine Transportation System Recovery Unit (MTSRU), under the authority of the Captain of the Port (COTP) that functions within the Planning Section of the Unified Command structure to plan and support coordinated recovery activities and operations.
- Oversee marking of wrecks, hazards, and debris that obstruct navigation and informing the public of such markings, and cooperate with USACE for removal if necessary.
- Coordinate with the Environmental Protection Agency (EPA) and related state agencies to respond to pollution threats.
- Execute authorities for enhancement of security measures as appropriate during and after the recovery of the Marine Transportation System (MTS), including protection of Critical Infrastructure and Key Resources (CIKR), security of the supply chain, and establishment and enforcement of safety and security zones.

U.S. Customs and Border Protection (CBP)

- Provide transportation-related CBP assets and resources for recovery operations, including personnel, equipment, and air, surface and marine assets.
- Authorize redirection of conveyances to other border entry-points where border entry point infrastructure (if applicable) is being recovered post-incident.
- Consider temporary easement of enforcement of border trade regulations to facilitate commerce.
- Approach foreign governments to make arrangements for diversion of U.S.-bound cargo and passengers as needed in coordination with the U.S. Department of State.
- Increase security measures as appropriate following a transportation incident.
- Coordinate assets to complement temporarily degraded or disrupted USDOT/FAA air navigation services capabilities.

Federal Emergency Management Agency (FEMA)

- Coordinate long-term recovery resources and support to local, tribal and state governments for transportation network recovery.
- Manage long-term recovery federal assistance processes in coordination with ESF agencies and the state(s).
- Provide emergency funding disaster assistance and financial aid. Validates state requests for assistance with funding related to transportation network recovery and accomplishing ESF-1 missions.
- Coordinate recovery actions, program waivers and funding with other federal programs related to transportation network recovery.
- Advise on decision-making processes involving transportation network recovery.
- Identify alternate transportation strategies while undergoing recovery operations.
- Identify and prioritize projects for transportation recovery with local, tribal and state local entities for quick implementation.

Federal Responsibilities

- Disseminate information on transportation network recovery strategies and status to the public in coordination with USDOT and other agencies.
- Provide technical assistance for recovery planning and coordinates with stakeholders on updating infrastructure mitigation and recovery plans.
- Provide ESF-3 recovery resources and support, to include assistance under the FEMA PA Program as authorized by the Stafford Act.

Office of Infrastructure Protection (IP)

- Provide information, assistance and prioritized recommendations concerning the recovery and restoration of transportation critical infrastructure, as well as all other critical infrastructure and key resources impacted by transportation.
- Provide Infrastructure Liaisons from the Protective Security Coordination Division to coordinate infrastructure recovery among the Federal Coordinating Office (FCO), State Coordinating Officer (SCO) and CIKR owners/operators by leveraging existing local relationships against the impacted infrastructure and resources.

Transportation Security Administration (TSA)

- Enhance security measures as appropriate during and after the recovery of a transportation network.
- Coordinate collaborative effort with sector stakeholders and prepare for resiliency and recovery of transportation infrastructure from all hazards.
- Recover and maintain intermodal capacity, and takes steps to ensure the continuity of cargo and passenger flow in coordination with other appropriate stakeholders and government agencies.

U.S. DEPARTMENT OF AGRICULTURE (USDA)

- Provide engineering and contracting/procurement personnel and equipment to help remove debris and/or repair roads and bridges.

U.S. SMALL BUSINESS ADMINISTRATION (SBA)

- Provide disaster assistance loans to repair/replace disaster-related physical losses to businesses and private nonprofit organizations of any size.
- Provide economic injury disaster loans to small businesses and private nonprofits of any size to assist in economic recovery of the disaster-impacted area.
- Provide physical and economic injury loans to entities that provide transportation-related goods and services and meet SBA's eligibility criteria.

Federal Responsibilities

U.S. DEPARTMENT OF COMMERCE (DOC)

Economic Development Administration (EDA)

- Offer economic recovery planning and implementation assistance to qualified non-profits, and state, county, city or town governments.

Economics and Statistics Administration (ESA)

- Provide, through its Bureau of the Census and Bureau of Economic Analysis, demographic and economic data on areas affected by transportation emergencies.
- Issue periodic economic impact reports of various disasters on an ad hoc basis.

National Institute of Standards and Technology (NIST)

- Offer technical support and advice on procuring outside consulting services for evaluating and assessing structural and fire safety aspects of transportation-related buildings and infrastructure (e.g., train stations, ferry terminals, etc.).

National Oceanic and Atmospheric Administration (NOAA)

- Provide weather forecasts to support emergency preparation as well as response and recovery efforts prior to and in the aftermath of weather-related emergencies.
- Provide hydrographic survey assets and expertise to help respond to and restore important waterways, channels and ports.
- Provide technical assistance on rebuilding coastal communities, including transportation infrastructure, with resiliency and sustainability in mind.

U.S. Department of Defense (DOD)

- Provide Defense Support of Civil Authorities (DSCA) in accordance with the NRF.
- Support recovery activities with federal, state, local and tribal elements as requested and approved by the Secretary of Defense.
- Provide assets to complement temporarily degraded or disrupted USDOT/FAA air navigation services capabilities as requested by USDOT/FAA and ESF-1.

Office of the Special Assistant for Transportation Engineering (SATE)

- Execute the Highways for National Defense (HND) program to protect the Strategic Highway Network (STRAHNET) and ensure the defense readiness capability of public highway infrastructure in technical support of and coordination with military, state and federal agencies.
- Execute the Railroads for National Defense (RND) program to support and protect the Strategic Rail Corridor Network (STRACNET) and ensure the readiness and full capability of rail infrastructure in technical support of and coordination with military, industry, local, state and federal organizations during the recovery process.
- Execute the Ports for National Defense (PND) program to provide technical support and ensure the identification, adequacy and responsiveness of port infrastructure during maritime domain recovery (www2.tea.army.mil/DODProg/default.htm).

Federal Responsibilities

U.S. Army Corps of Engineers (USACE)

- Serve as the primary agency for providing ESF-3 technical assistance, engineering and construction management resources and support during response and recovery activities of any National Transportation System disruption.
- Assist transportation recovery by providing equipment, supplies and technical assistance.
- Provide rapid dredging capability through contracting or from the Federal Dredging Fleet.
- Provide coordination and technical assistance (to include transportation network infrastructure assessments, engineering, construction management, debris removal and environmental assessment) to aid in the rapid recovery and reconstitution of critical transportation systems.
- Provide coordination, technical assistance and emergency repair of damaged public critical transportation infrastructure and facilities.
- Support development of national strategies and plans for the restoration of transportation infrastructure.
- Oversee removal of wrecks, hazards and debris that obstruct navigation, and cooperate with USCG for marking the obstructions and notifying the public.

Department of Energy (DOE)

- Address the impact that damage to an energy system in one geographic region may have on energy systems and components in other regions relying on the same system—consequently, energy supply and transportation problems can be intrastate, interstate and international.
- Assist federal departments and agencies by locating fuel for transportation, communications, emergency operations and national defense.

Department of Interior (DOI) - Office of Wildland Fire Coordination

- Provide (if available) engineering and contracting/procurement personnel and equipment to help with debris removal, demolition, road and bridge repair, and temporary repair of critical transportation-related facilities.

Department of State (DOS)

- Coordinate offers of transportation recovery assistance from foreign governments should the disaster warrant such offers.
- Coordinate national efforts in international trade and commerce.

General Services Administration (GSA)

- Identify sources for contracting transportation services needed to expedite recovery of transportation systems.
- Provide resources for inspecting and restoring transportation infrastructure.

U.S. Postal Service (USPS)

- Collect and report on additional surface transportation infrastructure disruption and damages as information becomes available.

4. Private Sector Transportation Recovery Responsibilities

The private sector may have direct involvement in transportation related recovery efforts providing support to local, state and federal agencies. Private sector transportation resources include, but are not limited to, private bus carriers, taxies, private ferries, trucking companies, airfreight companies and shipping lines. These resources are often represented by associations. Agreements can be developed between public and private sector entities to provide services or information in a catastrophic incident. (See Section X – Recommendations and Best Practices, Recommendation 6)

Table III-4 provides a summary of general private sector transportation recovery responsibilities.

Table III-4: Private Sector Transportation Recovery Responsibilities

Private Sector
Railroads
- Provide additional capacity to transport freight and people if other modes of transportation experience reduced capacity.   - Deliver aviation and automotive fuels and heating oil to augment pipelines.
Other Supporting Agencies
Supporting Agencies include various departments and agencies; the private sector, including but not limited to corporate fleets, private transportation companies, etc.; volunteer organizations; and non-governmental organizations (NGOs). Some key transportation organizations include the Washington Trucking Association, the National Defense Transportation Association, the Marine Exchange of Puget Sound and providers of transportation to the disabled.
- Provide additional resources, information and situational awareness, communications, damage assessments and other resources and information.   - Support emergency response and the restoration of transportation infrastructure and facilities with services including, but not limited to, planning, financial management, international coordination, private-sector coordination, public affairs and tribal relations.

IV. Direction, Control and Coordination

A. General Information

This Section describes current practice and protocols by transportation modes for recovery of the regional transportation system. Management of transportation recovery efforts during the initial response to a catastrophic incident takes place primarily through incident command structures with support from local Emergency Operations and Coordination Centers (EOCs/ECCs).

Multi-agency collaboration required to support transportation recovery is summarized in Section II – Concept of Coordination, Tables II - 1, 2 and 3. Appendix C describes coordination options through which the region can organize to manage mid- and long-term transportation recovery activities.

> *During transportation recovery activities, affected jurisdictions may utilize **regional coordination entities** to share transportation information and to coordinate transportation strategies.*

B. Local Transportation Recovery Operations

Local government on-scene law enforcement and transportation agencies affect direction and control of initial transportation response and recovery activities, usually operating under the Incident Command System (ICS). Short-term recovery operations involve initial situation assessments and implementation of initial available detours and alternative routes.

Local EOC/ECC plans and protocols identify how local jurisdictions coordinate transportation issues and recovery efforts. If local resources needed for short-term transportation recovery efforts are exceeded, local government may request assistance through mutual aid with neighboring jurisdictions or through the State EOC. The State encourages cities to work through their respective county EOC/ECC, but recognizes cities as separate emergency management jurisdictions. Thus, if cities exhaust local, private mutual aid and inter-local agreement resources, they may apply directly to the State.

Mid-term and long-term transportation recovery operations usually transition from the local EOC/ECC to other locations as designated by the respective local jurisdictions. This also involves coordination directly or through the state with federal transportation recovery programs such as the USDOT Emergency Relief (ER) or FEMA Public Assistance (PA) programs. (See Section VII for a summary of administrative requirements for these two programs.)

C. State Transportation Recovery Operations

> *The State EOC coordinates response and recovery operations of state agencies in support of state and local government, including transportation response and initial recovery operations.*

The WSDOT Headquarters Emergency Operation Center (EOC) is activated to coordinate WSDOT operations. Recovery responsibility related to the Washington State Ferry (WSF) system rests with the WSF Chief Executive Officer.   For a catastrophic incident, the WSF EOC activates to coordinate efforts and resource utilization between WSF, the USCG and other local and state agencies. The WSDOT Aviation Division coordinates response and recovery efforts for the aviation network.

WSDOT and WSP on-scene incident commanders, utilizing the principles of the Incident Command System (ICS), exercise operational direction and control of initial transportation response and recovery activities within state agencies. Situational awareness and requests for assistance from state agencies are made through the state agency on-scene command structure to the State EOC through WSDOT regional EOCs and traffic management centers and WSP district communications centers. Figure IV-1 outlines these reporting and coordination relationships.

Figure IV-1: State Transportation Recovery Direction and Control
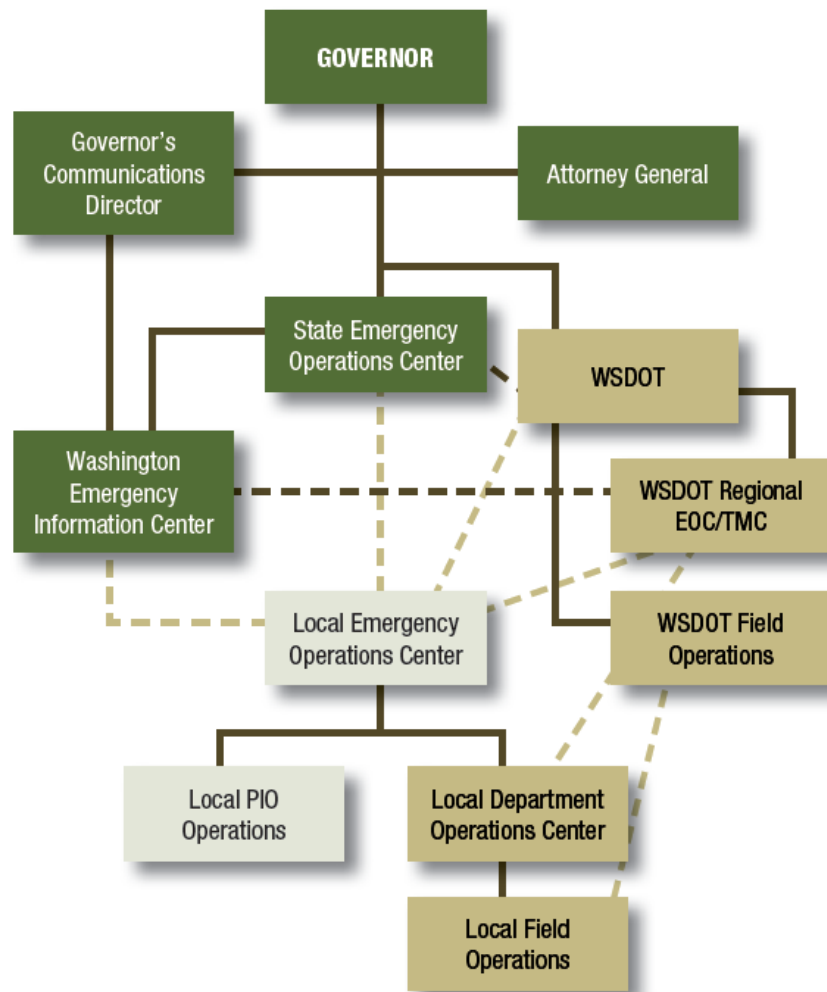
D. Intermodal Transportation Coordination

Inter- and multi-modal transportation coordination is critical to the Puget Sound region due to the complexity of the network which includes roadway, waterway, airway and railway modes. The severity of roadway disruptions may require the use of alternative transportation modes (i.e. maritime, aviation or rail) to supplement the capacity of the roadway network. In this case, success requires coordination among operators of the different modes of transportation and associated local, state and federal jurisdictions. Direction, control and coordination for each mode of transportation and how information is conveyed within and between transportation systems are outlined below.

1. Roadways

Local public works or transportation departments make initial roadway command and control decisions on mitigation and response actions for local routes. WSDOT coordinates mitigation measures with affected local governments through contacts in the field and through communications with local government operations centers. The WSDOT EOC in Olympia receives information from the WSDOT Regions and relays it to the State EOC for dissemination to local government and others. WSDOT may assign liaisons to local EOC/ECCs if resources permit.

> *Initial **decisions for mitigation measures** on state routes are made at the WSP District and WSDOT Regional level.*

As previously shown in Figure IV – 1, the WSDOT Regional EOCs or the WSDOT HQ EOC or the State EOC will relay information on roadway conditions and short-term recovery actions directly to local government EOC/ECCs and in some cases to local Transportation Management Centers (TMCs) and Transportation Department Operations Centers. (DOCs) The State EOC disseminates information concerning the status of the transportation network and mitigation, traffic management and response actions taken by state and local agencies to local government by three primary methods—the state warning system, scheduled conference calls and periodically released situation reports (SitReps), depending upon the content and urgency of the information. Initial information concerning the impact to transit operations may be coordinated from local EOC/ECCs or between local EOC/ECCs and respective Transit Operations Centers. (See Section VI – Communications)

Mid- and long-term roadway recovery involves coordination among local transportation agencies and WSDOT to establish additional alternative routes and implement traffic management strategies for increasing capacity on functional routes or reducing the demand. Mid-term transportation recovery may also include adjusting or establishing new transit routes to meet new demands and alternative route needs. (See Appendix E – Roadways Toolbox for transportation recovery mitigation strategies)

2. Waterways

Following a major incident with the potential to disrupt waterways, the USCG notifies facilities and vessels (both at the terminal and incoming). The Captain of the Port (COTP) then implements a Unified Command structure that incorporates a Marine Transportation System Recovery Unit

> *Following a major incident, the **Captain of the Port (COTP)** implements a Unified Command structure through the Marine Transportation System Recovery Unit (MTSRU).*

(MTSRU). The MTSRU is comprised of experts in maritime mobility, incident response and port operations who work with stakeholders to restore the commercial capacity of a waterway following a natural or manmade disruption.

The MTSRU functions within the Planning Section of the Unified Command to plan and support coordinated recovery activities and operations, and has the job of informing decision makers and other stakeholders at all levels regarding maritime transportation following disruption. MTSRU members also identify communication mechanisms and informational requirements to facilitate the recovery of waterway traffic flow.

Port tenants conduct the initial assessments of port facilities and convey them to port authorities and the USCG Captain of the Port, generally through the USCG Joint Harbor Operations Center (JHOC). The JHOC serves as the nexus for marine operations, monitoring, overseeing and coordinating daily activities that ensure the maritime safety and security of the Puget Sound area. It also facilitates planning, monitoring and response to natural disasters, accidents or deliberate attacks that affect ships, craft or waterfront infrastructure within Puget Sound.

The primary command and coordination centers for maritime operations are the WSDOT Ferry System EOC and the USCG Joint Harbor Operations Center. Maritime and roadway authorities coordinate their short term transportation recovery efforts as outlined in Table IV-1.

Table IV-1: Roadways and Waterways Coordination

Short-term Roadway and Waterways Coordination	
WSDOT - USCG	WSDOT provides a representative in the JHOC for an active Unified Command, and Sector Puget Sound sends a liaison to the State EOC. This provides a coordination interface among the state maritime and roadway transportation networks.
Ports – Local EOCs	Ports send a liaison to a local EOC to provide coordination between port operations and the local and state transportation network.
	Ports relay damage assessment and port capabilities information to local EOCs and then to the State EOC. This information is used to set priorities for recovery of port operations or for use of ports as logistics centers for the arrival of emergency equipment, supplies and personnel by water routes.
Ports - USCG	Ports relay damage assessment and port capabilities information to USCG (MTSRU)
WSF - WSDOT	WSF and other ferries operating in the Puget Sound region conduct assessments of terminals and/or piers prior to resuming service. WSDOT terminals convey their status to WSDOT Olympic Region EOC and the Northwest Region EOC.
WSF - USCG	WSF is likely to have a liaison officer at the USCG Joint Harbor Operations Center (JHOC). WSF short term priorities for operations include assessment of the terminals and vessels, and resumption of service to existing schedules. WSF relays damage assessment and WSF

	capabilities information to USCG (MTSRU)
Local EMA – Local EMA	Information sharing via the King County Office of Emergency Management SharePoint site facilitates coordination and operational decisions. (See Section VI – Communications.)

Mid- and long-term waterways recovery involves coordination among ports, WSDOT, the USCG and other stakeholders to establish alternative routes if needed and adjusting or establishing new water transit routes to meet new demands. (See Appendix F – Waterways Toolbox for maritime transportation mitigation strategies).

Figure IV-2 shows direction, control and coordination relationships for maritime operations.

Figure IV-2: Direction, Control and Coordination Relationships for Maritime Operations
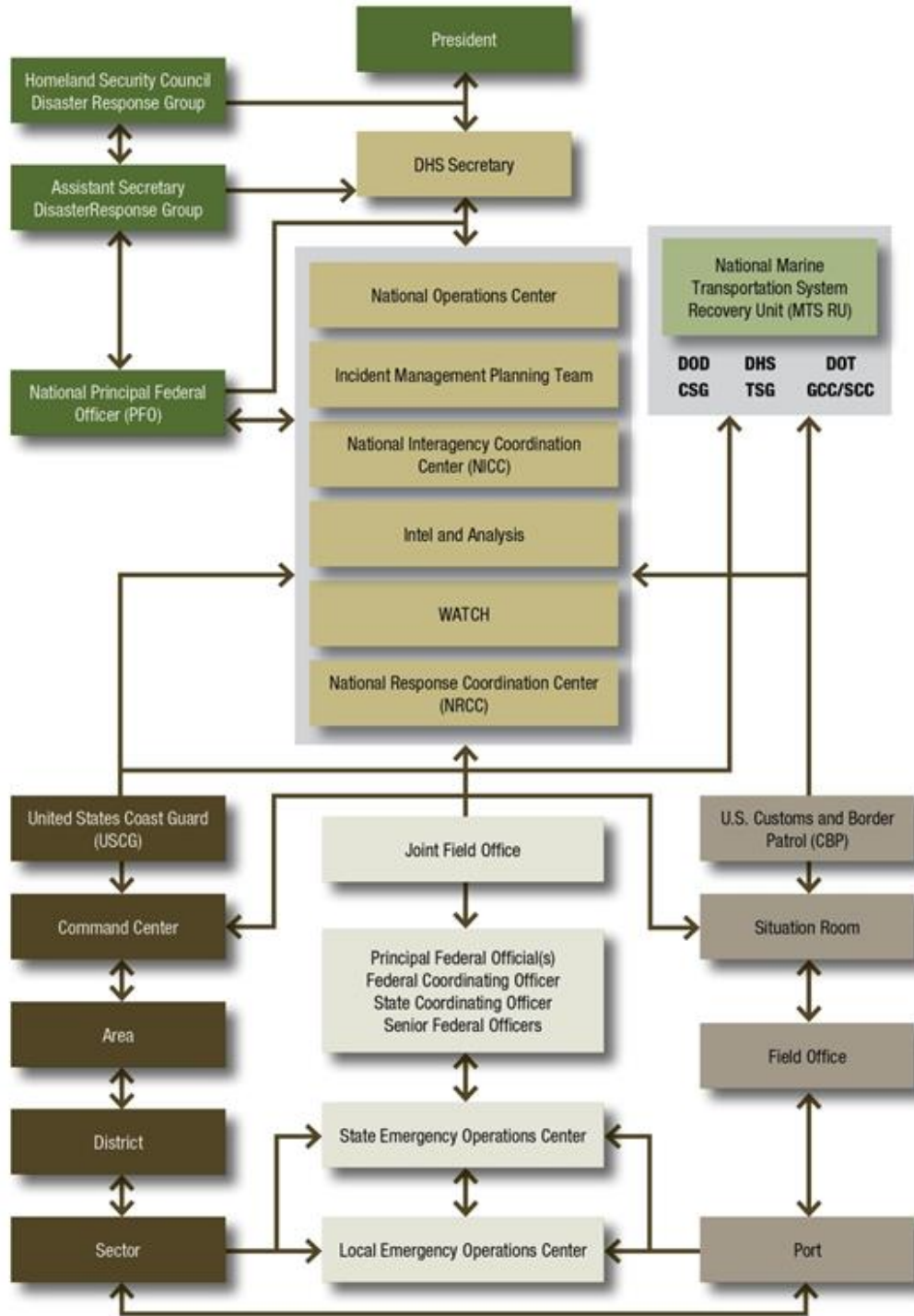
Source: USCG Puget Sound Maritime Security Plan 2009

3. Airways

Direction, control and coordination of air transportation in the Puget Sound area are shared responsibilities of local, state and federal entities. Coordination information is referenced within their respective emergency management plans.

Whenever the Federal Aviation Administration (FAA) administrator determines that an emergency exists, or will exist, relating to the FAA's ability to operate the air traffic control system, and during which normal flight operations cannot be conducted consistent with the required levels of safety, the administrator issues an immediately effective air traffic rule or regulation in response to that emergency. The FAA informs the public of such rule or regulation via a Notice to Airmen (NOTAM).

FAA interprets this provision to provide authority for FAA to close airspace or redirect flights; if it is determined that safety and the public interest require such action. While not authorized to close airports, the FAA does have the authority to restrict the movement of air traffic.

A NOTAM communicates information about:

- Specific regulations that govern flight operations.
- Use of navigation facilities.
- Designation of airspace in which the rules apply.

In addition, the Department of Defense (DOD) has the authority to implement Emergency Security Control of Air Traffic (ESCAT). Prior to the implementation of any formal ESCAT, appropriate military authorities consult with USDOT through the FAA Administrator and with DHS through the Transportation Security Administration (TSA) to discuss the air traffic management, airspace and/or security measures required.

Figure IV-3 outlines the reporting relationships among airports, local and state EOCs and federal agencies.

Figure IV-3: Reporting relationships among airports and EOC/ECCs
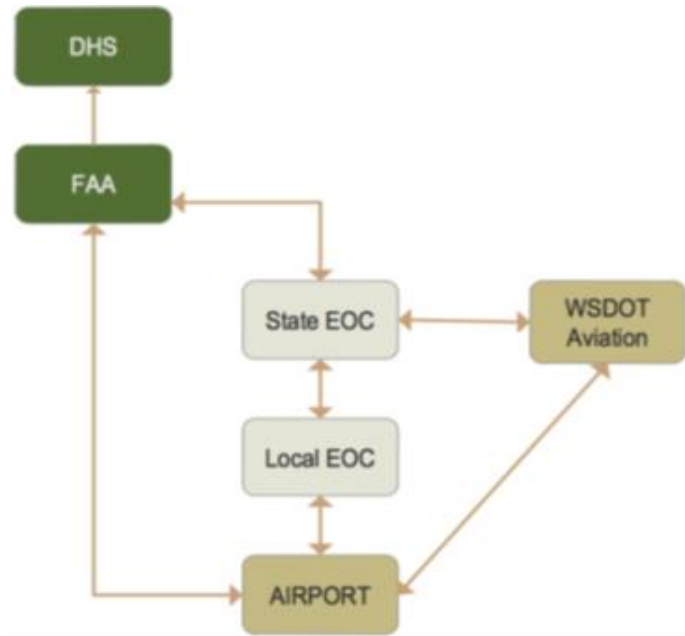
For state level coordination, WSDOT Aviation Division will send a representative to the State EOC. WSDOT Aviation Division also has a mobile command post that can be used to coordinate initial recovery of the airways network.

Airports are considered critical infrastructure and are to remain open to the extent possible. Air traffic will pause long enough to conduct initial assessments of airport facilities. The airport and/or stakeholders conduct the assessments and report the status to the local EOC. Local EOCs inform the State EOC of the status of airports and the State EOC disseminates the information to appropriate agencies and stakeholders. WSDOT Aviation Division coordinates this information with the State EOC which in turn informs local EOCs/ECCs.

If DOD implements ESCAT, the appropriate military authority consults regularly with DOT (through the FAA Administrator) and DHS (through the TSA Administrator) as appropriate, regarding any changes in required air traffic management, airspace and/or security measures. For long term recovery measures, airports may be part of the temporary task forces or work groups established by local governments or the State.

> *The airports work through existing established relationships with the state under the state **Critical Infrastructure Protection Plan** and with WSDOT Aviation Division for setting priorities, determining airport capacity and restoring the movement of airfreight and passengers.*

Mid- and long-term airways recovery involves coordination among airports, WSDOT, the FAA and other aviation stakeholders to establish alternative routes if needed and adjusting or establishing new airways

transit routes to meet new demands. (See Appendix G – Airways Toolbox for aviation transportation mitigation strategies)

4. Railways

The private sector owns the interstate rail transportation network in the region. Railroad companies, such as the BNSF Railway Company and the Union Pacific Railroad, have their own 24/7 dispatch centers that are in touch with each train. Amtrak maintains the Consolidated National Operations Center (CNOC) that provides overall coordination of Amtrak rail traffic. Mechanisms are in place for the railroads to share information. The Association of American Railroads (AAR) manages an operations center which is the hub of the Railway Alert Network (RAN) and links Federal national security, the military and major customer associations with the freight railroads on a 24x7 basis. The system as a whole is used to research, receive, analyze, and transmit security and threat information including damages caused by a catastrophe. Due to Homeland Security requirements, railroad emergency plans are not available to the public.

> *Coordination with the railroads* *takes place through existing relationships, through the WSDOT Freight Divisions and through the State EOC.*

Following a major incident with the potential to disrupt railway traffic, trains are normally stopped in place pending an assessment. AMTRAK and Sound Transit Trains operating primarily on BNSF Railway tracks in the Puget Sound region would also stop in place pending an assessment of the status of the route. Initial assessments are coordinated with WSDOT.

Mid- and long-term recovery coordination with the railroads is done through pre-existing local contacts, through the state (via WSDOT) and through existing coordination linkages with the state. The priority is returning the railway system to pre-disaster and more resilient condition. For long-term recovery measures, the railroads could be part of temporary task forces or work groups established under state long-term recovery plans.

E. Federal Transportation Recovery Operations

A Federal-State Joint Field Office (JFO) is organized to administer Public Assistance (PA), and Hazard Mitigation Grant Programs (HMGP), both of which relate to transportation recovery. If needed due to the breadth and extent of damages across the state, FEMA may also establish Area Field Offices. (See Section III – Organization and Responsibilities.)

F. Regional Coordination

Transportation recovery requires inter-agency and inter-jurisdictional coordination within and between all levels of government. Appendix C identifies several options for local jurisdictions to be part of a regional coordination process for making decisions and recommendations concerning regional transportation recovery issues.

G. Criteria for Prioritization of Transportation Recovery for Roadways

> *Pre-planning of criteria and processes* for setting priorities and making decisions facilitates the recovery process.

After a catastrophic incident, resource shortages may require prioritization of repair and restoration of the regional roadway transportation network. Some priority decisions are completely in the domain of an agency having jurisdiction, but the regional nature of the transportation network and the potential regional aspects of a catastrophe may necessitate local, state, federal and private sector transportation stakeholders working together to set priorities.

A description of a recommended best practice prioritization process with a sample template is included in Appendix D.

V. Information Collection and Dissemination

A. General Information

This section describes how transportation organizations collect, manage, and disseminate information concerning transportation disruptions to transportation organizations and the general public. These processes are used after a catastrophic incident. It also provides information on various communication networks available to regional stakeholders and citizens, including, but not limited to, Internet portals, radio, television and social networking.

For the purposes of this Annex, situational awareness is the gathering and sharing of information among transportation agencies concerning the status of the regional transportation network to develop response and recovery strategies and tactics. Emergency public information is coordinating the information about the transportation network to provide information and directions to the public.

Emergency information about the status of the regional transportation network and instructions to the public are coordinated through Joint Information Centers (JICs) to ensure a consistent message is provided to the public. The State EOC coordinates regional transportation information to help ensure that information and messaging distinguishes between information directed at specific geographic areas. (For example – distinguishing between information for the Seattle area as opposed to information for the Olympia area)

In the hours and first days after a catastrophe, emergency transportation information is locally focused to provide specific emergency response information on the status of local routes, damages, closures and detours. As recovery moves to the mid- and long-term, information becomes more regionally focused with information on alternative routes, transit alternatives and traffic management strategies that are being implemented.

B. Situational Awareness

There are a number of communications networks used by individual agencies, jurisdictions or their respective EOCs/ECCs and JICs to collect and disseminate emergency transportation information both to the public and to develop situational awareness information for decision makers.

> *Situational awareness Information gathered from the field helps develop **a common operating picture** to guide operational decisions in transportation recovery.*

Washington State Department of Transportation WSDOT is the ESF-1 Transportation Lead at the state level with representation at the State EOC. The State EOC shares transportation information with local governments primarily via WebEOC, regularly scheduled conference calls and published situation reports (SitReps). Regional sharing of transportation related information among local EOCs/ECCs may use the King County Office of Emergency Management SharePoint site. This tool can assist in sharing operational and recovery information among EOCs/ECCs, Transportation Management Centers (TMCs), and local and state transportation agencies to develop situational awareness and develop longer term strategies and plans. (See Section VI- Communications and the Regional Coordination Plan).

1. Roadways

Roadway Conditions – Local governments collect roadway and bridge assessment information at local EOCs/ECCs. This information is shared with local departments and the public as well as with other jurisdictions through established communications protocols. WSDOT collects roadway and bridge assessment information from WSDOT personnel, WSP field personnel and through communications with local transportation and emergency management agencies. WSDOT and WSP field personnel communicate with their respective regional traffic management center or district dispatch center. Information is used to manage response and recovery operations and provide a basis for information on traffic disruptions and lists alternate emergency routes for the traveling public. Traffic maps and camera views on the WSDOT website provide real time information to travelers. (See Table V – 3)

Freight Networks - The Washington Transportation Association, in coordination with WSDOT, transmits and receives information on traffic/shipping disruptions and alternate routing through email updates, radio broadcasts, and roadway/waterway signage and the Internet. WSDOT sends information about primary freight corridors to an existing list, with specific targeted information for truck freight, to determine detours and to set freight transportation priorities.

Transit Networks - Transit agencies collect information from their personnel in the field and from other local and state agencies. They then transmit information to EOC/ECCs where it is collected and analyzed as part of situational assessment. It is then disseminated to other operational agencies through road alerts, broadcast fax and emails, and direct notification.

2. Waterways

WSDOT - Washington State Ferries (WSF) Emergency Operations Center - Designated managers report to or dispatch a representative to the WSF Emergency Operations Center upon notification of a Level II or higher emergency. The WSF EOC coordinates with WSDOT as well as the JIC. Refer to WSF Safety Maintenance System guidance for information collection and management for operations related to marine transportation.

Sector Puget Sound United States Coast Guard (USCG) – Puget Sound Joint Harbor Operations Center (JHOC) and Vessel Tracking Services (VTS) Puget Sound - The JHOC and vessel tracking services (VTS) are located at Pier 36 in Seattle. The VTS monitor the Strait of Juan de Fuca, Rosario Strait, Admiralty Inlet, and Puget Sound south as far as Olympia. Since 1979, the USCG has worked cooperatively with the Canadian Coast Guard to manage vessel traffic in adjacent waters.

*The **Joint Harbor Operations Center (JHOC)** facilitates planning, monitoring and response to natural disasters, accidents or deliberate attacks that affect Puget Sound ships, craft or waterfront infrastructure.*

Through the Cooperative Vessel Traffic Service (CVTS), two Canadian Vessel Traffic Centers work hand in hand with Puget Sound Vessel Traffic Service. Tofino Vessel Traffic Service manages the area west of the Strait of Juan de Fuca. North of the Strait of Juan de Fuca, through Haro Strait, to Vancouver, B.C. falls to the Vancouver Vessel Traffic Service. The three Vessel Traffic Centers communicate via a computer link and dedicated telephone lines to advise each other of vessels passing between their respective zones.

The JHOC is operated by the USCG and coordinates with

the State EOC through the exchange of liaisons.

Marine Exchange of Puget Sound - The Marine Exchange is a member-based, non-profit organization that provides comprehensive communications and information services to its membership 24 hours a day, seven days a week. The membership is a mix of Puget Sound based steamship agents and operators, tug boat operators, ship chandlers, port authorities and state and federal agencies, along with a wide range of maritime industry support businesses. Communication and information services include a region-wide radio capability, telephone answering services, and various real-time and historical vessel activity reports.   The marine exchange is capable of assisting the Coast Guard as well as providing back-up service for communications in the event that a disaster may disrupt VTS service.

The Marine Exchange shares information and coordinates with USCG for emergency response and recovery. The information can be used to manage vessel traffic, develop alternative waterway routes and to set priorities for maritime freight.

United States Navy (USN) - The United States Navy installations' EOCs exchange disaster response and recovery information with Navy Regional Operations Centers and local EOCs/ECCs before it goes to the State EOC. The Navy Regional Operation Center also exchanges information with JHOC and US Fleet forces, which make mission assignments. The Navy Regional Operations Centers share information with US Fleet forces. The Regional Operations Center is central for the States of Washington, Oregon and Alaska.

3. Airways

Airport Damage Assessments - The Aviation Program Manager (APM) coordinates the initial airport damage assessment reports from airport officials or volunteer pilots in the disaster-affected areas. Upon completion of their mission, pilots report results through their aviation director to the WSDOT EOC. The WSDOT EOC then reports the information to the State EOC for analysis and dissemination to local emergency management agencies and the public.

Aerial Reconnaissance - Requests from local governments and state agencies for aerial reconnaissance, photographic and radiological monitoring missions go through the State EOC. The APM coordinates the state's air resources, including military, volunteer and Civil Air Patrol (CAP), to support the mission.   The APM briefs pilots on the mission.   Upon completion of the mission, the pilots report through the APM to the WSDOT EOC. The WSDOT EOC reports this information to the State EOC for analysis and dissemination to the public.

4 Railways

Mechanisms are in place for the railroads to share information and they have their own public information officers. The BNSF Railway Company and the Union Pacific Railroad have their own 24/7 dispatch centers.   Amtrak maintains the Consolidated National Operations Center (CNOC) that provides overall coordination of Amtrak rail traffic.   The Association of American Railroads (AAR) manages the Railway Alert Network (RAN) and links Federal

> *Railroad companies, such as BNSF Railway Company and the Union Pacific Railroad,* and local dispatch centers coordinate with local media to provide emergency information to the public about the status of railroad operations after a catastrophe.

national security, the military and major customer associations with the freight railroads on a 24x7 basis. The system as a whole is used to research, receive, analyze, and transmit security and threat information including damages caused by a catastrophe. Due to Homeland Security requirements, railroad emergency plans are not available to the public.

C. Public Information

Transportation agencies issue emergency jurisdictional or regional information for the general public through local Emergency Operations and Coordination Centers (EOCs/ECCs), Joint Information Centers (JIC) or within a Joint Information System (JIS) as described in the Puget Sound Catastrophic Disaster Regional Coordination Plan and existing Comprehensive Emergency Management Plans. In a catastrophe, the State activates its JIC and coordinates with the local JIS to facilitate the accuracy and consistency of information provided to the public.

Table V-1 outlines Essential Elements of Information (EEI) for transportation disruptions, recovery planning and developing a coordinated message to provide transportation information to the public. Under the principals of the National Incident Management System (NIMS), this information is collected, validated, analyzed, and disseminated through the Plans Section of the respective local or state emergency organization. The Joint Information Center (JIC) uses this same information to develop public information releases.

Table V-1: Essential Elements of Information (EEI)

	Essential Elements of Information (EEI) for Transportation Disruptions and Recovery	
	Issue	**Coordination Point**
1	Location of disruption or disruptions	From the field, collected at the local EOC/ECC or State EOC
2	Expected duration	From the field, or the specific agency having jurisdiction
3	Jurisdictions involved	Local EOCs/ECCs and State EOC
4	Potential regional impacts	Local EOCs/ECCs and State EOC
5	Status of resources, personnel and equipment impacted	Specific agencies having jurisdiction
6	Actual or potential social, political or economic impacts	Local EOCs/ECCs and State EOC
7	Other agencies or ESFs impacted	Local EOCs/ECCs and State EOC
8	Recovery needs and priorities	Local EOCs/ECCs and State EOC; Regional Coordinating Entities
9	Short-term recovery plans	Local EOCs/ECCs and State EOC
10	Mid-term and long-term recovery plans	Regional Coordinating Entities

1. Transportation Recovery Indicators

There are many potential ways that progress in recovery can be measured and the different user groups and stakeholders will most likely have different metrics and objectives. These different user groups and stakeholders will need to work together to identify indicators of recovery for their specific area that identify some percentage of the pre-disaster level of service within a certain amount of time as a recovery goal. Some potential metrics and indicators are included in Table V-2.

Table V-2: Transportation Recovery Indicators

Transportation Recovery Indicators			
Trend is favorable	Trend is holding	Trend is unfavorable	
Roadways			**Trend**
Percent of system congested	Pre-disaster number	Current number	
Vehicle miles traveled (VMT)	Pre-disaster number	Current number	
Total statewide delay	Pre-disaster number	Current number	
Bridge repair projects	Number Advertised	Number Obligated	
Road repair projects	Number Advertised	Number Obligated	
Waterways			**Trend**
Number of cranes operating	Pre-disaster number	Current number	
Linear feet of deep draft berths	Pre-disaster number	Current number	
Rail hubs available	Pre-disaster number	Current number	
Arterial connections to highways	Pre-disaster number	Current number	
Average daily cargo volume	Pre-disaster TEU's	Post-disaster TEU's	
Number of ferry routes operating	Pre-disaster number	Current number	
Average daily ferry volume vehicles	Pre-disaster number	Current number	
Average daily volume passengers	Pre-disaster number	Current number	
Airways			**Trend**
Average daily enplanement	Pre-disaster number	Current number	
Average daily aircraft movements	Pre-disaster number	Current number	
Average daily air cargo volume	Pre-disaster number	Current number	
Railways			**Trend**
Outbound rail freight flow (Million tons)	Pre-disaster number	Current number	
Inbound rail freight flow (Million tons)	Pre-disaster number	Current number	
Through state rail freight flow (Million tons)	Pre-disaster number	Current number	

Since one of the primary goals in restoring the transportation network is economic recovery, it will be important for policymakers to understand specifically that this will mean different things to the different user groups. As there are so many variables as to what major disruptions to the transportation system would be after a catastrophe, it will be critical that transportation recovery efforts involve key stakeholders and decision-makers at all levels of government and the private sector working together in the many different planning efforts in the recovery process. The WSDOT document *Development of a Statewide Freight System Resiliency Plan* (See Section IX, G.7) provides some guidance for decision makers.

How recovery objectives are defined will assist in setting priorities for the state. As an example, metrics could focus upon certain counties which have the largest freight operations or on all of the counties impacted by the catastrophe. The difference between the two metrics is a decision whether to focus on the state as a single entity (which concentrates efforts at high impact junctures for maximum improvement) or apply efforts evenly across all of the regions. The challenge is a political discussion which is an "effectiveness versus fairness" argument that is best handled by the elected officials.

Other metrics may be used as appropriate. Indicators of recovery progress may also be done for a specific jurisdiction or area. These recommendations are derived from existing metrics used by the state and jurisdictions and the various modes of transportation to measure current levels of service and economic vitality. Utilizing existing measurement methods as recovery indicators can avoid confusion in providing public information concerning the progress of recovery and facilitate the monitoring, assessing and revising of transportation recovery plan.

Policies and procedures for providing emergency information to the public should be continued consistently throughout the recovery process, although the nature of the information may be different. Emergency public information is the response phase of a catastrophe is usually focused on providing the public with information to guide their actions to protect themselves and their property. Information is needed during recovery to provide citizens with guidance to help their recovery.

Once transportation recovery priorities and goals are established, it is also important to keep the public informed of the progress of recovery strategies and actions. This may require the same level of regional coordination that was needed among public sector agencies and jurisdictions, the private sector and other transportation stakeholders to set regional transportation recovery priorities and goals in the first place.

2. Transportation Communication Networks

Intelligent Transportation Systems (ITS) throughout the region are used to provide information among transportation agencies and transportation stakeholders and for dissemination to the general public. These systems include a broad range of wireless and wire line communications and information systems used to communicate transportation response and recovery efforts. Key elements include, but are not limited to, the following:

1.

Variable Message Signs - A variable message sign is an electronic traffic sign used on roadways to provide motorists with important information about traffic congestion, incidents, roadwork zones, travel times, special events, or speed limits on a specific highway segment.

> **Variable Message Signs** also recommend alternative routes, limit travel speed, warn of duration and location of problem, or simply provide alerts or warnings.

Highway Advisory Radios (HAR) - Highway Advisory Radios are licensed low-power AM radio stations installed along the roadway to provide alerts and general information regarding traffic and travel. The presence of a HAR transmitter is marked by a roadway sign instructing motorist to "Tune to 1610 AM." The 1610 frequency is one of several used by HAR radios and identified on the signs.

Traffic Data Collectors - Traffic Data Collectors are one of the key set of tools used to keep track of what is happening on the roadways. The data is sent from the roadside to WSDOT Traffic Management Centers to monitor operations and provide traffic conditions to the web and the WSDOT 511 traffic information hotline. Each jurisdiction has a variety of ways to communicate emergency information to its citizenry and the general public; however most transportation providers use the Internet as their primary means of providing emergency information to the public.

Table V-3 lists Local Jurisdiction Roadway and/or Transit Conditions Websites and Public Information Networks. Table V-4 lists additional transit and road condition website addresses.

Table V-3: Local Jurisdiction Websites and Public Information Networks

jurisdiction	Website Address	WebEOC	Social Media	Broadcast Media	Print Media	RPIN	MyStateUSA	Other
Island	http://www.islandcounty.net/commissioners/dem/	✓		✓	✓	✓	✓	
King	http://www.kingcounty.gov/safety/prepare.aspx		✓	✓	✓	✓		Code RED Alert System
City of Seattle	http://www.seattle.gov/emergency/	✓	✓	✓	✓	✓		
Kitsap	http://www.kitsapdem.org/	✓	✓	✓	✓			Pier Alert System
Mason	http://www.co.mason.wa.us/dem/index.php	✓		✓	✓			
Pierce	http://www.co.pierce.wa.us/pc/abtus/ourorg/dem/abtusdem.htm	✓	✓			✓	✓	Reverse 911 System; PCWarn.com
Skagit	http://www.skagitcounty.net/Common/asp/default.asp?d=EmergencyManagement&c=General&p=main.htm	✓	✓	✓				Emergency Alert System (EAS)
Snohomish	http://www1.co.snohomish.wa.us/Departments/Emergency_Management/	✓	✓	✓		✓	✓	
ESCA	http://www.esca1.com					✓		
Thurston	http://www.co.thurston.wa.us/em/index.htm	✓	✓	✓	✓		✓	Message Boards; Freight Alert

2.

Table V-4: Additional Road Condition and Transit Websites

Jurisdiction	Website Address	Provides real time:
WSDOT	http://wsdot.wa.gov/traffic/	Traffic information to travelers
WSDOT	http://www.wsdot.wa.gov/traffic/trafficalerts/	Traffic Alerts for travelers
King Co Road Info	http://gismaps.kingcounty.gov/roadalert/	Traffic Alerts and Road information in King County
City of Seattle	http://www.cityofseattle.net/html/citizen/traffic.htm	Traffic Alerts and Road information in the City of Seattle
City of Bellevue	http://trafficmap.cityofbellevue.net/	Traffic Alerts and Road information in the City of Bellevue
Metro	http://metro.kingcounty.gov/	Route information, safety information and rider alerts for any schedule and Metro route changes
Sound Transit	http://www.soundtransit.org/	Route information, safety information and rider alerts for any schedule and Sound Transit route changes
Pierce County	https://ww2.everbridge.net/citizen/EverbridgeGateway.action?body=home&gis_alias_id=310761	Emergency and Traffic Notification Sign-Up for Traffic Alerts and Road Information in Pierce County
City of Tacoma	http://www.cityoftacoma.org/Page.aspx?hid=13707	Traffic Alerts and Road information in the City of Tacoma
Pierce Transit	http://www.piercetransit.org/	Route information, safety information and rider alerts for any schedule and Pierce Transit route changes
Intercity Transit	http://www.intercitytransit.com/Pages/default.aspx	Route information, safety information and rider alerts for any schedule and Intercity transit route changes
Mason County	http://www.co.mason.wa.us/public_works/road_closures.php	Traffic Alerts and Road information in Mason County
Mason Co Transit	http://www.masontransit.org/	Route information, safety information and rider alerts for any schedule and Mason County Transit route changes

Jurisdiction	Website Address	Provides real time:
Kitsap County	http://www.kitsapgov.com/pw/roadwork.htm	Traffic Alerts and Road information in Kitsap County
Kitsap Co Transit	http://www.kitsaptransit.org/	Route information, safety information and rider alerts for any schedule and Kitsap County Transit route changes
Island County	http://www.islandcounty.net/publicworks/	Traffic and road condition information
Island Co. Transit	http://www.islandtransit.org/	Route information, safety information and rider alerts for any schedule and Kitsap County Transit route changes
Skagit County	http://www.skagitcounty.net/apps/publicworks/roadclose/default.aspx?d=EmergencyInformation&c=General	Current Road Closures in Skagit County
Skagit Co Transit	http://www.skagittransit.org/	Route information, safety information and rider alerts for any schedule and Kitsap County Transit route changes
Snohomish County	http://www1.co.snohomish.wa.us/Departments/Public_Works/Services/Roads/	Road Maintenance and Restrictions in Snohomish County
City of Everett	http://www.ci.everett.wa.us/default.aspx?ID=65	Traffic Alerts and Road information in the City of Everett
Community Transit	http://www.commtrans.org/	Route information, safety information and rider alerts for any schedule and Snohomish County Transit route changes
Thurston County	http://www.co.thurston.wa.us/roads/traffic/alerts.htm	Traffic Alerts and Road Closures in Thurston County
Intercity Transit	http://www.intercitytransit.com/Pages/default.aspx	Route information, safety information and rider alerts for any schedule and Intercity Transit route changes

3.

VI.   Communications

A. General Information

This section addresses communications issues among transportation agencies and stakeholders during the short-term, mid-term and long-term recovery efforts after major disruption of the regional transportation network, including communications tools for coordination with local, regional and state transportation agencies and coordinating entities.

The section includes information on communications and alternate methods of communications among emergency operations centers, traffic management centers, dispatch centers and other command, control and coordination facilities. Information on communication with the public and disseminating information to the public about transportation disruptions, detours, alternatives and recovery strategies is covered in Section V – Information Collection and Dissemination.

B. Short-Term Recovery Communications

For the purposes of this Annex, short-term recovery of the transportation network involves gaining situational awareness and implementing initial detours and alternate routes to restore whatever transportation flow is possible after a major incident. Subsequent, short-term recovery efforts occur during the initial response phase.

First responders and transportation agencies communicate with each other through existing communications capabilities and frequency designations as outlined in local and state Emergency Management Plans and Communications Plans. The agency having jurisdiction at any particular transportation disruption develops the initial incident communication plan and sets the stage for determining the short-term recovery actions of developing situational awareness and establishing any initial detours or alternative routes. If a State agency assumes incident command, standard local operational frequencies may not be utilized.

Many jurisdictions throughout the Puget Sound region have established communications capabilities among emergency operations centers, traffic management centers, dispatch centers, other transportation command, control and coordination facilities and responders in the field. Agencies in these jurisdictions use these existing communications plans, protocols and procedures as much as possible in the initial hours of a major incident, acknowledging there may be reduced capacity due to damage or a surge in use.

*Agencies also use **Web based tools** such as state and local transportation websites and the King County SharePoint site to share information and develop a common operating picture.*

Local transportation agencies within the Puget Sound region are unlikely to have capacity to communicate over all radio frequencies in use by public safety and transportation agency responders. For example, local incident command may be unable to communicate with responding mutual aid providers over its normal radio frequencies.

Within the Puget Sound Region, police, EMS, fire, public works and transportation agencies use a variety of public safety radio systems that are not fully interoperable across the region. Specialized mutual aid channels are also not consistently available or reliable. For short term recovery, and if an

incident is of a magnitude requiring mutual aid response, one of the state or national emergency non-trunked channels/frequencies may be used for incident command, so multiple responding agencies will be able to communicate on scene. These frequencies and capabilities are outlined in the Regional Catastrophic Disaster Coordination Plan, the 2008 Washington Statewide Communications Interoperability Plan and other State Plans.

1. Roadways

For short term recovery decisions, transportation responders in the field report essential information to their respective EOC/ECC through established communications channels. This may be directly or through a dispatch center or traffic management center in accordance with local plans.

> *Regional Traffic Management Centers or District Dispatch Centers report information to their respective headquarters, which, in turn, pass it to the State EOC.*

WSDOT and WSP field personnel communicate with their respective regional traffic management center or district dispatch center. The State EOC provides information concerning the status of the transportation network and system to local government through the State Warning System, periodic conference calls or scheduled situation reports.

2. Waterways

The maritime industry in the Puget Sound region follows communication protocols in the Puget Sound Harbor Safety Plan, which specifically outlines primary communication channels between vessels and seaports. Primary communication is as follows:

- VHF Channel 16 – International Distress and Calling

- VHF Channel 20 – Marine Exchange channel

- VHF Channels 5A, 11, 14, and 74 – Vessel Tracking Service (VTS). See Puget Sound – VTS User's Manual for designated areas – http://www.uscg.mil/d13/psvts/

Washington State Ferries communicate via VHF Channels (Channel 79 is the WSF working channel) as well as the following:

- 800 MHz Radio System – Used for internal communications as well as for correspondence with WSDOT Dayton and Olympic Area EOCs

- Telephone system – Used for communications between terminals, support complexes, and management staff

- WSDOT Intercom – Used as a large party telephone line that works as a simplex mode radio net

3. Airways

The aviation industry in the Puget Sound region follows communication protocols in the Washington State Airport Reference Guide and other communications and emergency plans. Per the WSDOT Disaster Plan, the principal means of communication among airports, aircraft and response agencies are the following:

- FAA communications system (Flight Plans Only)

- Low band, VHF, HF, UHF or 800 MHz radios supplied by amateur operators and volunteers

- Commercial Telephone, including cellular phones

- Courier aircraft, UNICOM, etc.

4. Railways

The railroads in the Puget Sound region own and maintain their own internal communications systems. In the event of a catastrophic incident, the railroads will use existing communications capabilities. Mechanisms are in place for the railroads to communicate with each other and they have experience in communications with local and state response agencies from past emergencies. The BNSF Railway Company and the Union Pacific Railroad have their own 24/7 dispatch centers. Amtrak maintains the Consolidated National Operations Center (CNOC) that provides overall coordination of Amtrak rail traffic. The Association of American Railroads (AAR) manages the Railway Alert Network (RAN) and links Federal national security, the military and major customer associations with the freight railroads on a 24x7 basis. Due to Homeland Security requirements, railroad emergency plans are not available to the public.

5. Interagency Communications and Requests for Mutual Aid

Interagency communications and requests for mutual aid during short-term recovery operations follow established protocols, policies and procedures to identify the frequency/channel (but not just the channel name, since these may not be uniform across the region) to be used for on-scene incident command.

Agencies requesting assistance of outside resources need to be prepared to:

- *Identify the incident command frequency being used (not simply the channel name).*

- *Provide mobile communications radios for assisting agency command personnel in the event these personnel are not equipped with radios using the same frequency (e.g., if responders are regularly on VHF but the incident command agency uses 800 MHz).*

- *Provide replacement batteries daily for issued mobile radios.*

- *Transportation agencies maintain equipment caches with mobile radio equipment to be utilized for multiple agency response if mutual aid responders cannot communicate with incident command and a patch between frequencies is not/cannot be installed.*

6. Regional Interoperability Frequencies

Communications at a major transportation incident with multiple responders is a recurring challenge. For this reason, there are national, statewide and some regional channels for common use at an incident, which allow any responder with a given system radio (800 Hz, 700 MHz, VHF or UHF) to talk to others—even if that responder is not part of the agency in command of the incident.

Ad hoc communications networks and backup systems may be developed with assistance from the state or federal government. "National interoperability channels" exist for each type of radio frequency –e.g., a set of frequencies for both calling and operating on 800 MHZ, 700 MHZ, VHF, and UHF. As "national"

channels, these are the same across the county. A set of statewide channels (LERN, OSCCAR, MEDNET, etc.) have similar capacities, and a few regional interoperability channels exist within the Puget Sound region as well. Refer to the 2008 Washington Statewide Communications Interoperability Plan for a list of these national, state and regional channels.

These plans and systems replace failed/ disrupted day-to-day communications. As preparation, dispatch operations and public safety agencies need to program the respective channels for their radio system into all their radios. These channels are not trunked or digital, so anyone with a radio operating on the general frequency (e.g., 800 MHz) can access them, regardless of their location. Use of these frequencies may require authorization.

> *As a first order of business in **developing a communications plan for the disruption**, incident command needs to identify and secure necessary use authorizations for using a specified interoperable channel.*

These channels are frequency specific, that is, the 800 MHz channel cannot be heard or talked on by those using VHF systems, and vice versa. Within individual jurisdictions and throughout the region, multiple systems are in use. Where adjacent jurisdictions utilize different systems, without compatible equipment they cannot communicate in an emergency. Cross-system patches are not typically in place, but can be hardwired in during emergency incidents. Special equipment is available that allows for communication across all radio frequencies but it is unclear who, if anyone, in the Puget Sound Region has acquired this equipment.

Amateur (ham) radio operators can also communicate across frequencies and pass messages between systems, but they are not used for incident communications between responders.

C. Mid-term and Long-term Regional Communications Needs

After the life-saving phase of a catastrophe or major incident ends, the need for emergency radio communications diminishes as normal forms of communications recover. Transportation agencies and stakeholders focus on restoration and recovery priorities. The emphasis, particularly for transportation entities with intermodal connections that cross jurisdictional boundaries is on sharing information with all agencies and stakeholders. Phone calls, e-mails, text messages and voice messages are the standard methods of communications.

Table VI-1 lists communications tools to facilitate communications and coordination after a catastrophic incident and their capabilities as they come back into service.

Table VI-1: Communications Tools

Communications Tools	
System	**Capability**
Hardwire "plain old telephone service" (POTS)	Service for the normal user – users compete with the regional population for dial tone
Voice/text messaging cellular service provided by wireless carriers	Service for wireless subscribers – users compete with other subscribers for dial tone
Two-way, combination cellular and digital two-way radio service	Private network cellular and point-to-point two-way radio service
Two-way pager service	Pager service combined with wireless e-mail
Switch Redirect (SR)	Relocation of government telephone numbers and subscribed services to local government incident command centers and other emergency locations – SR telephone numbers are predestinated, and "unused" phones must be available to use at the incident command centers or emergency locations
GETS (Government Emergency Telecommunications Service)	Priority land line services by the NCS (National Communications System) using commercial circuits and lines – local and long distance calls compete on the national security emergency preparedness federal government long-distance network, and call completion depends on first obtaining local dial tone, which GETS does not provide.
FTS (Federal Telecommunications System)	High-priority, long-distance circuits to complete local calls – land line services are provided by commercial venders through the General Services Administration, which also provides long-distance calling and allows audio teleconferencing bridge services
Essential Service Protection (ESP)	Service by commercial providers that allows for priority local dial tone – can be set up for business, government or residential phones of critical users
Regional/jurisdictional government dedicated lines.	Non-competing local service for a discrete set of super users throughout the government telephone network
Satellite voice and data communications	Point-to-point communications or connection to networks to and from remote locations – can be for voice communications or data connection for shared information over commercial service providers
High Frequency (HF) and/or Single-Side Band (SSB) radio communications	Service through equipment maintained within the jurisdictions, or through volunteer organizations such as REACT, that coordinates communications for all member jurisdictions

Communications Tools	
System	**Capability**
NSEP priority cellular service	Priority, non-encrypted service for emergency use over commercial cell networks
1-800 numbers	Access to long-distance circuits through 1-800 numbers
King County SharePoint site	This site provides the capability to share information and collaborate among transportation agencies, Emergency Operations Centers (EOC), Emergency Coordination Centers (ECC), Traffic Management Centers (TMC) and other transportation coordination points. Access is granted through King County Office of Emergency Management, which upon approval, issues a username and password.

VII. Administration, Finance and Logistics

A. General Information

This section provides a general overview of FHWA and FEMA funding sources for repair and restoration of damaged transportation infrastructure after a disaster, and information about regional mutual aid agreements. Many federal agencies have the authority to assist local and state transportation agencies and jurisdictions involving direct and immediate threat to life or major property damage (see Section III – Organization and Responsibilities).

The primary established recovery programs are the USDOT FHWA Emergency Relief (ER) program and the FEMA Public Assistance program. Table VII-1 summarizes these programs.

Table VII-1: Primary Federal Transportation Recovery Programs

Primary Federal Transportation Recovery Programs	
Agency	**Information**
FHWA	Under Title 23, USC, Section 125, for the restoration of damaged roads and bridges *on functional classified systems (National Highway System).* Funds are available after the governor has issued a Proclamation of Emergency (Note: a presidential declaration of major disaster is not necessary.)
FEMA	Under Public Law 93-228, as amended by PL 100-707, the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, for the restoration of damaged roads and bridges *off functional classified systems (I.e. off the federal aid system).* Funds are available after a presidential declaration of major disaster.

B. USDOT FHWA Emergency Relief (ER) Program

The *Washington State Department of Transportation Emergency Relief Plan* and the *Federal Highway Administration – Emergency Relief Manual* state that roadways and bridges on a federal-aid highway and that are damaged as a direct result of an approved natural disaster or catastrophic failure from an external cause are eligible for Emergency Relief (ER) funds.

The ER program provides for repair and restoration of highway facilities to pre-disaster conditions. Restoration in-kind is therefore the predominate type of repair expected to be accomplished with ER funds. ER funds are not intended to replace other federal-aid, state, or local funds for new construction to increase capacity, correct non-disaster related deficiencies, or otherwise improve highway facilities.

Added protective features, such as the relocation or rebuilding of roadways at higher elevation or lengthening or raising bridges, and added facilities not existing prior to the natural disaster or

> *All FHWA ER repair work falls under two major categories:*
>
> *1) Emergency work and*
>
> *2) Permanent work.*

catastrophic failure, such as additional lanes, upgraded surfacing or structures are commonly referred to as betterment. Betterment is not generally eligible for ER funding unless justified.

1. Emergency work

Emergency work includes those repairs during and immediately following a disaster to restore essential traffic, to minimize the extent of damage, or to protect the remaining facilities. These repairs can begin immediately following a disaster, and prior FHWA approval is not required. Properly documented costs will later be reimbursed once the FHWA Division Administrator makes a finding that the disaster is eligible for ER funding.

2. Permanent work

Permanent work includes those repairs and work that are undertaken (usually after emergency repairs have been completed) to restore the highway to its pre-disaster condition. Permanent repairs must have prior FHWA approval and authorization unless done as part of the emergency repairs. It should be noted that the majority of federal funding of these repairs can only be used to restore transportation networks to pre-disaster conditions. However, other funds from federal resources and/or public-private partnerships can be utilized to supplement funding in order to improve impacted transportation systems and networks while mitigating damages from future disasters.

3. Eligible Items

Generally, all elements of the highway within its cross section damaged as a direct result of a disaster are eligible for repair under the ER program. This includes, but is not limited to, elements such as pavement, shoulders, slopes and embankments, guardrails, signs and traffic control devices, bridges, culverts, cribbing or other bank control features, bike and pedestrian paths, fencing and retaining walls. When a pedestrian or bicycle trail within the right-of-way of a federal–aid highway suffers damage, that damage is eligible for ER funding whether or not the roadway itself is damaged.

The intent of the ER program is to fund repairs to damaged roadways caused by a natural disaster or catastrophic failure, not repairs to roadways damaged as a result of preexisting and non-disaster related, i.e., inherent deficient conditions.

By law, FHWA can provide up to $100 million in ER funding to a state for each natural disaster or catastrophic failure incident that is found eligible for funding under the ER program. This is commonly referred to the $100 million per state disaster cap. For a large disaster that exceeds $100 million, Congress can pass legislation lifting the cap for that disaster.

The types of incidents that qualify for ER funding are:

- *Widespread natural disasters, including floods, hurricanes, severe storms, earthquakes, volcanic eruptions, landslides and tidal waves.*

- *Catastrophic failure, defined as the sudden and complete failure of a major element or segment of roadway system that causes a disastrous impact to transportation services. The cause must be external to the facility, such as a barge hitting a bridge and causing it to collapse.*

Aside from the ER Program, FHWA administers the Emergency Relief for Federally-owned Roads (ERFO) Program. Federal roads provide access to and within federal and tribal lands and include forest highways, forest development roads, park roads, parkways, Indian reservation roads, public lands highways and public lands development roads. Additionally, while the Federal Transit Administration (FTA) does not dedicate funding or manage a special program to assist transit agencies to recover from a major disaster, the FTA has the authority to allow transit agencies to defer their matching local share contributions normally required to receive FTA grants. However, this requires Congressional action and is done only on a case-by-case basis.

For additional information on the transportation Emergency Relief Program, refer to Chapter 33 of the Local Agency Guideline at the Washington State Department of Transportation Website

(http://www.wsdot.wa.gov/LocalPrograms/LAG/Manual.htm).

4. FHWA ER Program Reimbursement Process

Table VII-2 outlines the step by step process for reimbursement under the FHWA ER Program.

Table VII-2: FHWA ER Reimbursement Process

FHWA ER Program Reimbursement Process
1	**Initial Contact –** WSDOT Regional Highways and Local Programs Engineer contacts local agencies to coordinate, advises and assists local agencies in all aspects of ER program.
2	**Emergency Work** – Local agency proceeds with emergency operation, including emergency repairs.
3	**Maintenance of Cost Records** – Local agency keeps cost records for labor, material, and equipment for each site on a given route. Failure to keep proper records may delay or reduce ER funds.
4	**Notification of Disaster** – Local EMD offices notify state EMD via fastest means possible. Local agency notifies Highways and Local Programs Service Center.
5	**Declaration of Emergency** – Local government official signs Declaration of Emergency and submits it to the State Emergency Management Department (EMD).
6	**Request for State Assistance** – Local officials request assistance on the basis of damage assessments.
7	**Request to the Governor** – State EMD integrates all requests and makes a recommendation to the governor.
8	**Governor's Signature** – The governor signs the proclamation on the basis of information from the State EMD and/or WSDOT.
9	**Letter of Intent for ER Funds** – WSDOT prepares letter of intent to request ER funds and

FHWA ER Program Reimbursement Process
submits the request to the FHWA Division Office for action.
10   **Preliminary Damage Assessments** – Highways and Local Programs Service Center, in cooperation with FHWA, prepares a preliminary damage assessment to determine the severity and magnitude of disaster.
11   **Request for ER Funds** – WSDOT prepares a request for ER funds based on preliminary assessment, including additional backup data.
12   **Preparation of Field Report** – The FHWA Division Office prepares a field report and sends it to Washington, D.C. for action by the FHWA Administrator.
13   **Concurrence from FHWA Administrator** – The administrator concurs that damages are eligible.
14   **Notification to Locals** – The Highways and Local Programs Service Center notifies all concerned local agencies of FHWA funding.
15   **Preparation of Damage Assessment Forms** – The Highways and Local Programs Service Center with FHWA, and the local agencies prepare detailed damage assessments forms for each site.
16   **Program of Projects** – The Highways and Local Programs Service Center prepares the documents necessary to receive program and project approval.
17   **Project Approval and Funding Setup** – Local agencies will receive approval notice from the Highways and Local Programs Service Center. The Regional Highways and Local Programs Engineer will assist the local agencies in the preparation of the necessary documents to set up funding and reimbursement mechanism. (Outlined in the Local Agency Guidelines)
18   **Project Administration** – Highways and Local Programs Service Center is administrating agency for ER funds. All coordination is done through the Regional Highways and Local Programs Engineer.
19   **Closure of Projects** – When work is completed, the local agency prepares the same notification used on regular federal aid projects to start the closure procedure.

Note: All eligible emergency work accomplished in the first 180 days after the disaster will be 100 percent federally funded. Repairs performed beyond 180 days after the occurrence of the disaster will be funded at the standard prorate program rate.

C. FEMA Public Assistance (PA) Program

The impact of major or catastrophic incidents can exceed local financial resources. Financial aid and assistance may be requested from FEMA through a request from the governor to the president for a disaster or emergency declaration. This is coordinated after an incident by the Washington EMD. The FEMA Disaster Assistance Manual provides specifics that address the assistance provided by the Robert T. Stafford Disaster Relief and Emergency Act, Public Law 93-228, as amended (Public Assistance).

FEMA Process:

- When damages are so extensive that the combined local and state resources are not sufficient, the governor submits a request for an emergency or major disaster declaration to the president through FEMA.
- A joint FEMA, state and local team conducts a preliminary damage assessment to determine if there is a need for federal assistance.
- If federal assistance is justified, the president issues an emergency or major disaster declaration and various emergency or disaster programs are made available to designated counties.
- Federal assistance is on a shared cost basis with 75% federal and 25% non-federal funds.

1. Categories of Work

To facilitate the processing of the PA grants, FEMA distinguishes between emergency work and permanent work, and it divides disaster-related work into seven categories.

Emergency work is performed immediately to save lives, to protect property, for public health and safety, and/or to avert or lessen the threat of a major disaster. It includes the first two categories listed below:

- **Category A – Debris Removal:** Clearance, removal and/or disposal of items such as trees, woody debris, sand, mud, silt, gravel, building components, wreckage, vehicles and personal property.
- **Category B – Emergency Protective Measures:** Actions taken by applicants before, during and after a disaster to save lives, protect public health and safety, and prevent damage to improved public and private property. Emergency communications, emergency access and emergency public transportation costs may also be eligible.

Permanent Work is performed to rebuild public infrastructure to pre-disaster form and function with the goal of building it back more resilient to future disasters. It includes the next five categories listed below:

- **Category C – Roads and Bridges:** Repair of roads, bridges, shoulders, ditches, lighting and signs.
- **Category D – Water Control Facilities:** Repair of irrigation systems, drainage channels and pumping facilities; repair of levees, dams and flood control channels is eligible but limited.

- **Category E – Buildings and Equipment:** Repair or replacement of public buildings, including contents and systems; heavy equipment; and vehicles.

- **Category F – Utilities:** Repair of water treatment and delivery systems; power generation facilities and distribution lines; and sewage collection and treatment facilities.

- **Category G – Parks, Recreational Facilities, Other:** Repair and restoration of parks, playgrounds, pools, cemeteries and beaches; as well as work otherwise not covered in categories A-F.

2. Reimbursement after a Major Disaster Declaration by the President

Before a disaster occurs, public agencies and private nonprofit agencies that provide a public service should contact their respective local department of emergency management to determine their potential eligibility and what documentation is required for making application for reimbursement under the FEMA Public Assistance Program.

After a declaration of an emergency or major disaster by the president, eligible agencies that are in the area declared a disaster should submit records of any damages to their facilities or any extraordinary costs incurred in the response through the local Department of Emergency Management for potential reimbursement under FEMA's Public Assistance Program.

D. Mutual Aid Agreements

1. Public Works Emergency Response Mutual Aid Agreement

In 2004, WSDOT's Highways and Local Programs distributed the Public Works Emergency Response Mutual Aid Agreement to public works directors and engineers in all Washington cities and counties. The purpose of the agreement is to allow signatory agencies to make the most efficient use of their assets by enabling them to coordinate resources and to maximize funding reimbursement during disasters and/or emergencies.

> *The Public Works Emergency Response Mutual Aid Agreement is a best practice that enables agencies to assist other agencies on an as-needed basis when they are faced with a disaster or emergency.*

Under the Public Works Emergency Response Mutual Aid Agreement, agencies are charged with coordinating their efforts with other agencies, compiling damage and recovery information and reporting to the appropriate authority. Then the State requests aid and assistance from the federal government. The agreement provides a mechanism for immediate response, provided the responding agency has the necessary resources and expertise.

All of the eight (8) counties within the Puget Sound Region are signatory to this agreement. The full *Public Works Emergency Response Mutual Aid Agreement Signatory Agencies* can be found at the following site:

(http://www.wsdot.wa.gov/NR/rdonlyres/DB3B3A92-5BB6-4C65-8570-F7C61547724C/0/SignatoryAgencyList010710.pdf).

Refer to Chapter 33 *of the Local Agency Guideline at the Washington State Department of Transportation Website)* for reimbursement forms*:*

(http://www.wsdot.wa.gov/LocalPrograms/LAG/Manual.htm)

2. Waterways Mutual Aid Agreements

Many maritime stakeholders have developed agreements to facilitate disaster response and recovery operations. These agreements include, but are not limited to, operations for salvage, debris clearance, environmental cleanup and radio frequency use. They include interagency agreements (IAA), memoranda of agreement (MOA), memoranda of understanding (MOU), and their corresponding agencies. (See Table VII-3)

Table VII-3: Summary of Waterways Mutual Aid Agreements

Summary of Waterways Mutual Aid Agreements	
Agency	**Agreements**
USCG	• IAA between the US Navy and USCG for Cooperation in Oil Spill Clean-Up Operations and Salvage Operations, 1980. • MOA between the Department of the Army and USCG for removal of sunken vessels and obstructions to navigation. • MOU between American Salvage Association and USCG executing Marine Salvage and Firefighting Partnership, June, 2007.
Naval Submarine Base Bangor (SUBASE Bangor)	• MOU between Kitsap County Fire Protection Agencies and Naval Submarine Base Bangor. • Agreement that the Kitsap County Fire Agencies are tasked by the USCG as the primary rescue organizations for the navigable waters of Puget Sound. • Agreement that SUBASE Bangor will support the Kitsap County Fire Agencies with personnel and resources on a case-by-case basis.
Naval Base Kitsap	• Radio Frequency Use Agreement between Naval Base Kitsap and Kitsap County Central Communications CENCOM for a Government radio station to use any frequency authorized to a non-Government radio station
WSF	• MOU with Bainbridge Island Police Department Marine Vessel to respond to security incidents related to WSF vessel operation.
WPPA	• The RCPT Supply Chain Working Group has developed a draft Port Mutual Aid Agreement that is currently being reviewed by the ports. The WPPA has agreed to serve as the regional MOU coordinator.

3. Aviation Mutual Aid Agreements

SeaTac Airport has entered into an agreement with other major airports in the western US to share resources and assist each other in case of disaster. (See Table VII-4)

Table VII-4: Summary of Airways Mutual Aid Agreements

Summary of Airways Mutual Aid Agreements	
Agency	**Agreements**

SeaTac Airport	• Western Airports Disaster Operation Group (WESTDOG) Mutual Aid Plan with consortium of airports in the western region of the United States. WESTDOG is a volunteer program and affiliation based on the assumption that a significant disaster will overwhelm the capability of an individual airport or local government to carry out the extensive emergency response necessary to save lives, protect property and restore operations.

4. Railroad Mutual Aid Agreements

Due to Homeland Security requirements, agreements made among the railroads and with railroads are not available to the public.

VIII. Annex Development and Maintenance

A. General Information

The Puget Sound Regional Catastrophic Planning Grant Program developed this Transportation Recovery Annex (Annex) for the Puget Sound Region, which includes Island, King, Kitsap, Mason, Pierce, Skagit, Snohomish and Thurston Counties. Local emergency management agencies, transportation agencies, transit authorities and other public and private sector transportation stakeholders took part in the process. Several State agencies were active participants, including the Washington State Department of Transportation, the Washington State Patrol and the Emergency Management Division of the Washington Military Department.

A continued effort should be made to solicit input from the same parties who contributed during the planning process to ensure this annex remains current as it relates to transportation response and recovery planning.

B. Plan Maintenance Responsibility

The Transportation Recovery Annex should be updated at the same time as and in accordance with the procedures described within the Puget Sound Regional Catastrophic Disaster Coordination Plan (Coordination Plan). Local emergency management agencies may incorporate elements of the Transportation Recovery Annex that apply to their jurisdiction into their respective Comprehensive Emergency Management Plans (CEMPs) and update the information on their regular CEMP maintenance schedule.

C. Plan Maintenance

Maintenance of the Transportation Recovery Annex will require a periodic review and update of transportation resource lists, maps, contact lists and website addresses included in the Annex as outlined in the Coordination Plan. Ongoing review and testing of emergency operations should occur throughout the year. Notice of the review should be sent to all RCPGP member counties, local government transportation partners and public and private sector stakeholders as per procedures outlined in the Coordination Plan. Any updates and input received should be incorporated into the Annex and included in the next change to the overall Regional Coordination Plan.

D. Training

Each jurisdiction's emergency management agency in the Puget Sound Region delivers a range of training classes to enhance the emergency planning and response capabilities of their jurisdiction's elected officials, department directors, managers, and employees, special purpose districts, businesses, schools, emergency workers, and the public. Information in the Annex may be integrated into the ongoing training programs of the respective local emergency management agencies and local jurisdictions.

From a regional standpoint, local emergency management agencies are encouraged to develop and include training for transportation recovery coordination and other relevant topics on an annual basis. Training schedules may include applicable courses of instruction and education that cover transportation

management subjects. Local emergency management agencies are also encouraged to notify holders of this plan of training opportunities associated with transportation recovery operations. Individual jurisdictions and agencies are responsible for maintaining training records. Jurisdictions and agencies having assigned functions under this plan are encouraged to ensure that assigned personnel are properly informed of the information in this plan and training opportunities are made available.

E. Exercise and Evaluation

To ensure continuous improvement in this Annex and in transportation recovery capabilities, information and recommended guidance and procedures in this Annex should continue to be evaluated through real-world incidents and exercises. Each jurisdiction's emergency management agency in the Puget Sound Region manages an ongoing exercise program. Information and guidance from the Annex is integrated into those programs to develop, maintain and sustain transportation recovery capabilities using lessons learned from real-world incidents and exercises. (See Table VIII-1)

Table VIII-1: Preparedness Cycle
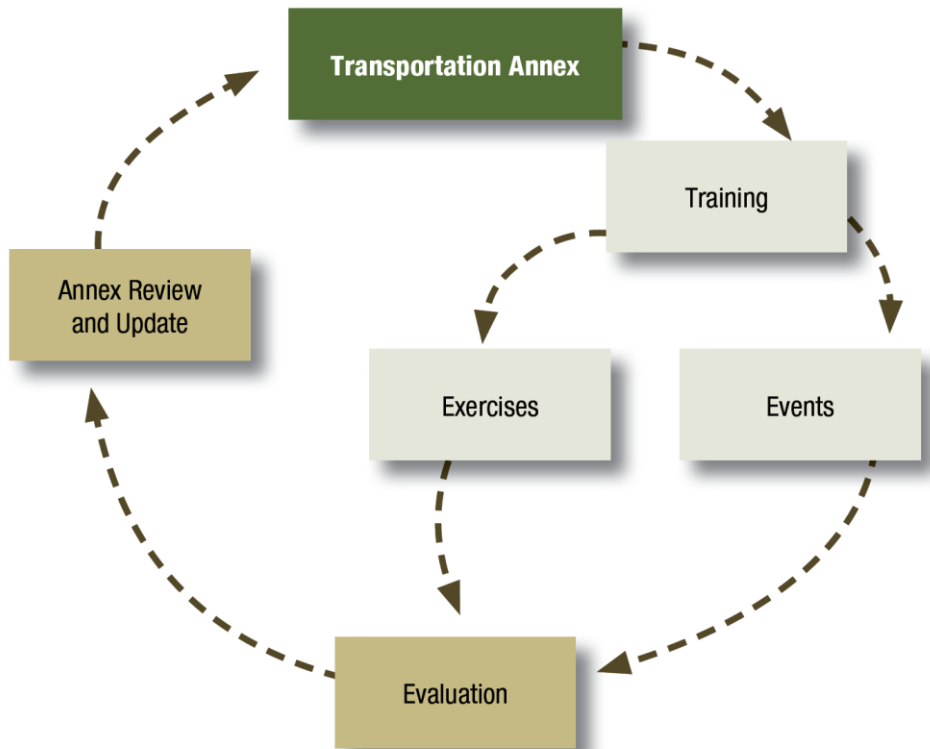
Regional elements of this plan should be exercised regularly. Local emergency management agencies are encouraged to conduct transportation recovery coordination exercises, in accordance with their annual exercise schedule, following appropriate state and federal guidance. Deficiencies identified during scheduled exercise activities should result in the development of a corrective action plan to initiate appropriate corrections.

The planning for, development and execution of all exercises should involve close coordination between participating jurisdictions, allied agencies, special districts, and supporting community and public service organizations. Local emergency management agencies are encouraged to facilitate participation in scheduled and ongoing region-wide exercises when the opportunity is available. The primary focus should be to establish a framework for inter-jurisdictional exercise collaboration in coordination with catastrophic transportation recovery training activities conducted within each jurisdiction.

Emergency exercise activity should be scheduled to follow state and federal guidance and program requirements.

Exercise activity should follow the Homeland Security Exercise and Evaluation Program (HSEEP) guidance, and may be designed as one or more of the following exercise types:

- Drills
- Seminars (Workshops)
- Table Top Exercises (TTE)
- Functional Exercises (FE)
- Full Scale Exercises (FSE)

IX. Authorities and References

A. General Information

There are numerous local, state and federal statutes, regulations and standards that provide the legal basis for preparedness, response and recovery concerning the regional transportation network. The following information is a general list of federal and state documents that may also be used for developing additional transportation recovery policy, plans and procedures.

B. Federal Statutes

1. Public Law 93-288 The Disaster Relief Act of 1974, as amended by Public Law 100-707, the Robert T. Stafford Disaster Relief and Emergency Assistance Act: Provides the authority for Federal government to respond to disasters and emergencies to save lives and protect public health, safety, and property.   PL 93-288 authorizes the Federal government to assist States and other lawful applicants in repairing certain roads, bridges, public sector structures and key infrastructure, provided the President has first declared that an emergency or a major disaster exists, and names the authorized forms of assistance for specific counties/ jurisdictions.   PL 93-288 does not apply to roads and/ or bridges falling under Federal Highway Administration jurisdiction.

(http://www.fema.gov/about/stafact.shtm)

2. Title 23 USC Section 125 Emergency Relief: Provides the authority for Federal Highway programs including the Emergency Relief Program for repair and reconstruction of Federal highways after a disaster. Congress authorized in Title 23, United States Code, Section 125, a special program from the Highway Trust Fund for the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of (1) natural disasters or (2) catastrophic failures from an external cause. This program, commonly referred to as the emergency relief or ER program, supplements the commitment of resources by States, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.

(http://vlex.com/vid/sec-emergency-relief-19205117)

C. Federal Regulations

1. 44 CFR Part 205 [Title 44, Vol.1 of the Code of Federal Regulations] Revised as of Oct. 1, 2004]: Outlines the roles and responsibilities of FEMA and the DHS.   Part 206 prescribes policies and procedures to be followed in implementing those sections of Public Law 93-288, as amended, delegated to the Director, Federal Emergency Management Agency (FEMA). Part 206 apply to major disasters and emergencies declared by the President on or after 11/23/1988 (date of enactment of the Stafford Act).

(http://www.access.gpo.gov/nara/cfr/waisidx_00/44cfrv1_00.html)

D. Federal Plans, Procedures and Reference Documents

1. National Transportation Recovery Strategy: Designed to help transportation industry stakeholders and local, tribal, and State government officials prepare for and manage the transportation recovery process following a disaster. The overall goal of this Strategy is to promote a recovery process for

transportation networks – and subsequently for communities in general – that results in a greater level of resilience.

(http://www.dot.gov/disaster_recovery/)

2. **USDOT Emergency Relief (ER) Manual:** Provides updated guidance and instructions on the Federal Highway Administration's (FHWA) emergency relief (ER) program. This manual provides information for FHWA, State, and local transportation agency personnel on policies and procedures for requesting, obtaining and administering ER funds.

(http://www.fhwa.dot.gov/programadmin/erelief.cfm)

3. **Effects of Catastrophic Events on Transportation System Management and Operations:** This report documents the actions taken by transportation agencies in response to catastrophic incidents as an effort to examine the impacts of different types of incidents on transportation system facilities and services. The findings and conclusions documented in this report are a result of the creation of a detailed chronology of incidents, a literature search, and interviews of key personnel involved in transportation operations decision making for the New York City, September 11, 2001 terrorist attack; the Washington, D.C., September 11, 2001 terrorist attack; the Baltimore, Maryland, July 18, 2001 rail tunnel fire and the Northridge, California, January 17, 1994 earthquake.

(http://ntl.bts.gov/lib/jpodocs/repts_te/14129.htm)

4. **Simplified Guide to the Incident Command System for Transportation Professionals:** Introduces the ICS to transportation stakeholders who may be called upon to provide specific expertise, assistance, or material during highway incidents but who may be largely unfamiliar with ICS organization and operations. These stakeholders include transportation agencies and companies involved in towing and recovery, as well as elected officials and government agency managers at all levels. This document may also be beneficial to public safety professionals, who are familiar with ICS but may not fully understand how ICS concepts are applicable to transportation agencies.

(http://ops.fhwa.dot.gov/publications/ics_guide/)

5. **Area Maritime Security Plan:** Outlines the coordination of the maritime recovery operations within the Puget Sound Region, as developed and maintained by the Area Maritime Security Committee (AMSC). Members of the AMSC include other federal and state agencies, maritime stakeholders and partners. Elements of the plan include but are not limited to details of the security command-and-response structure, measures to prevent the introduction of dangerous substance and devices into restricted areas, evacuation of the port in case of security threats, procedures for reporting transportation security incidents (TSI), and procedures to facilitate the recovery of the Marine Transportation System after a TSI. This document contains sensitive security information and must be requested from the USCG.

(http://edocket.access.gpo.gov/cfr_2003/julqtr/pdf/33cfr103.505.pdf)

6. **Emergency Security Control of Air Traffic (ESCAT):** Describes the joint action to be taken by elements of the Department of Defense (DOD), the Department of Transportation (DOT) and the

Department of Homeland Security (DHS) in the interests of national security to control air traffic under emergency conditions.

(http://cfr.vlex.com/vid/245-4-application-security-traffic-escat-19744783)

6. FHWA - Information Sharing Guidebook for Transportation Management Centers, Emergency Operations Centers, and Fusion Centers: This Guidebook provides an overview of the mission and functions of Transportation Management Centers, Emergency Operations Centers, and Fusion Centers. The Guidebook is focused on the types of information these centers produce and manage and how the sharing of such information among the centers can be beneficial to both the day-to-day and emergency operations of all the centers. There are some challenges to the ability to share information and these challenges and some options for addressing them are addressed in the Guidebook. The Guidebook also provides some lessons learned and best practices identified from a literature search and interviews/site visits with center operators.

(http://www.ops.fhwa.dot.gov/publications/fhwahop09003/index.htm)

E. State Statutes

1. Chapter 18.43 RCW - Engineers & Land Surveyors: Applies to transportation projects only in soliciting proposals for construction/ repair of roads, bridges, and other transportation infrastructure. Chapter 18.43 requires anyone practicing or offering to practice engineering or land surveying services to be properly registered and licensed. The statute sets out registration requirements.

(http://apps.leg.wa.gov/rcw/default.aspx?cite=18.43)

2. RCW 38.52.070 (2) - Emergency Contracting powers: This paragraph of 38.52.070 gives political subdivisions (cities, counties, etc.) authority to enter into contracts and incur obligations necessary to combat disasters "without regard to time-consuming procedures and formalities" normally prescribed by law, such as competitive bidding, publication of notices, employment of temporary workers, etc.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=38.52)

3. Chapter 46.44 RCW - Size, Weight, and Load Restrictions - State and Local Roadways: Establishes detailed maximums and minimums for vehicle traffic (length, width, and weight) on State and local roadways. The statute gives State and local authorities the ability to impose weight limits "or any other restrictions as may be deemed necessary" on public highways under their jurisdiction.   However, the rule also demands that local authorities "shall by general rule … authorize the operation thereon of school buses, emergency vehicles, and motor trucks transporting perishable commodities or commodities necessary for the health and welfare of local residents...."

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=46.44)

4. RCW 46.44.091: Provides further exceptions (and conditions) for permitting any shipment duly certified as necessary by military officials, or by officials of public or private power facilities, or when in the opinion of the department of transportation the movement or action is a necessary movement or action.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=46.44)

5. Chapter 46.48 RCW - Transportation of Hazardous Materials: Gives the Washington State Patrol (WSP) the authority to adopt and enforce U.S.D.O.T. regulations regarding transportation of hazardous materials, as these regulations apply to motor carriers "operating interstate and intrastate upon the public highways of this state, except farmers." The statute also gives the WSP authority to inspect the cargo (i.e. conduct safety inspections) of motor carriers hauling hazardous materials.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=46.48)

6. Title 47 RCW - Public Highways & Transportation: Establishes the role and responsibility of the Washington State Department of Transportation and recognizing the continuing need to expand and maintain the state transportation network, establishes a "Priority Programming" and statewide transportation planning process, including "Highways of Statewide Significance" and "Highways of Regional Significance." The Chapter addresses freight mobility, special needs transportation, city streets as part of state highways, construction and maintenance of highways, closing highways and restricting traffic. Sub-parts of this chapter cover toll bridges, tunnels, and ferries; marine employees and the Puget Sound ferry system, aeronautics, multi-modal transportation programs, and "high capacity transportation development."

(http://apps.leg.wa.gov/rcw/default.aspx?Cite=47)

7. Chapter 47.29 RCW and Chapter 47.46 RCW: Discusses "Transportation innovative partnerships", and "Public-private transportation initiatives," respectively, and addresses "Rail Freight Service" (47.76 RCW) and "Regional Transportation Planning Organizations" (47.80 RCW).

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=47.29)
(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=47.46)

8. Chapter 47.68 RCW: Establishes the responsibilities of the Washington State Department of Transportation in providing for the protection and promotion of safety in aeronautics. The department is expected to cooperate with and assist the federal government, the municipalities of the state, and other persons in the development of aeronautics, and seeks to coordinate the aeronautical activities of these bodies and persons. Under this chapter, municipalities are authorized (not required) to cooperate with the department in the development of aeronautics and aeronautical facilities in this state. The department may have a role in supporting air transport efforts in a catastrophic incident.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=47.68)

9. Chapter 70.136 RCW - Hazardous Materials Incidents: This statute establishes limits on liability for HAZMAT responders, and encourages advanced planning, cooperation, and mutual assistance between applicable political subdivisions of the state and persons (companies) with the equipment, personnel, and expertise in handling hazardous materials incidents.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=70.136)

10. Chapter 80.01 RCW - Utilities & Transportation Commission: Creates the Utilities & Transportation Commission and details its various authorities and responsibilities. It appears to have limited application to our transportation project, except that the commission is empowered to "Regulate

in the public interest... all persons engaging in the transportation of persons or property within this state for compensation"... *viz*. trucking companies, bus companies, cab companies, etc.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=80.36)

11. RCW 80.36.040: Applies to the use of road, street, and railroad right-of-way when consent of a city is necessary. Gives telecommunications companies doing business in the state, the conditional right to construct and maintain all necessary telecommunications lines along and upon any public road, street or highway, along or across the right-of-way of any railroad, and may erect poles, posts, piers or abutments for supporting the insulators, wires, etc.

(http://apps.leg.wa.gov/rcw/dispo.aspx?cite=80.36)

F. State Regulations (Washington Administrative Code – WAC)

1. Chapter 468-38 WAC - Movement of Over-Legal Vehicles/ Loads in Emergency Conditions: This Chapter of the WAC covers the special permitting required to move over-legal loads on Washington state roadways. The section covers "Superloads" (WAC 468-38-405), bridge restrictions (WAC 468-38-420), and responses to emergencies (WAC 468-38-425). In brief, the permit process determines if the proposed route infrastructure can support/ accommodate the load. Loads that exceed posted weight limits or axel weight restrictions on bridges shall not be permitted to cross said bridge under any circumstances. Other WAC and RCW chapters address the process of getting over-legal load permits in responding to emergencies/ disasters. However, Chapter 468.38 WAC seems to imply that if the load is in excess of infrastructure design limits... the load will be prohibited, regardless of disaster response or emergency declaration.

(http://apps.leg.wa.gov/wac/default.aspx?cite=468)

2. Chapter 173-14 WAC - Permitting Developments on Shorelines: The Shoreline Management Act contains numerous, strict requirements for repairing, constructing, or replacing any structure on most saltwater and freshwater shores in Washington. Rare and narrowly construed exemptions (WAC173-27-040) may be issued for certain developments/ projects. To the extent that catastrophic incident planning involves emergency repairs to, or installation of, temporary bridges, temporary ferry landings, modified boat landings, or any other structure on a shoreline, affected jurisdictions will utilize with this set of codes and statutes.

(http://apps.leg.wa.gov/wac/default.aspx?cite=173)

G. State Plans, Procedures and Reference Documents

1. Alaskan Way Viaduct Closure Plan: Outlines actions for closure of the Alaska Way Viaduct.

(http://www.wsdot.wa.gov/Projects/Viaduct/ECP.htm).

2. Hood Canal Closure Plan: Outlines actions to be taken if the Hood Canal Bridge is closed.

(http://www.wsdot.wa.gov/Projects/SR104HoodCanalBridgeEast/Closures/options.htm)

3. State and Regional Disaster Airlift Plan (SARDA): The purpose of a State and Regional Disaster Airlift Plan (SARDA) is to provide the Governor, the Washington Department of Transportation - Aviation

Division, and the State Emergency Management Division with a means to access and utilize a broad range of aviation resources within the State when needed to support civil emergency operations.

(http://www.evac.org/Files/ac00-7d.pdf)

4. Washington State Airport Reference Guide: The primary purpose of the guide is to promote the use of the state's aviation system by providing basic and user friendly information regarding airport facilities.

(http://www.wsdot.wa.gov/aviation/PilotsGuide/default.htm)

5. WSDOT Northwest Region Emergency Response Plan: This plan describes the basic mechanisms by which the Northwest Region will respond to and manage major natural and man-made emergencies that impact the state transportation system. Although this plan does not establish absolute standards, it does establish uniform operating procedures and performance guidelines. In some instances, Northwest Region may be required to operate differently than stated in this plan in order to respond properly to an emergency. The judgment of trained personnel should be used in conjunction with this plan for emergency response operations.

(No web link)

6. SR 520 Information: Provides information on possible failure of SR 520 Bridge including the actions to be taken, and references three alternative Lake Washington routes. See also the King County Ferry District study for a discussion of landing site considerations (in Kenmore, Kirkland, Renton and Seattle) linked to the alternate routes. It includes information on regional emergency management planning.

(http://www.wsdot.wa.gov/Projects/SR520Bridge/Library/technical.htm)

7. WSDOT Development of a Statewide Freight System Resiliency Plan: Designed to complement existing emergency response plans by anticipating and planning how WSDOT should monitor, manage, and control its transportation network assets and work with private sector partners to improve the resiliency of the network. Resiliency for this project is focused on the restoration or recovery of the state's economy as it is affected, enabled, or disabled by the performance of the freight system.

(http://www.wsdot.wa.gov/NR/rdonlyres/023FC2C7-DD28-4EB6-8203-98560DA76CB7/0/WSDOT_FSR_Report_v25.pdf)

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X.   Recommendations and Best Practices

A. General Information

Transportation stakeholders played a crucial role in developing the Regional Transportation Recovery Annex. The process involved workshops, discussion seminars and interviews as well as reviews of existing plans and recovery guidance literature.

The project team applied gap analyses to existing local transportation recovery planning documents to provide a snapshot of the status of such planning. Gap analyses also provided a guide to expanding the content for the reviewed document. The planning team reviewed the documents using the Department of Homeland Security's *Target Capabilities List (TCL), a Companion to the National Preparedness Guidelines, Recovery Mission-Area* as a guide. The TCL was modified to address transportation-related issues exclusively. The team also sought guidance from the State of Washington's Disaster Assistance Guide for Local Government (April 2008) and incorporated lessons learned from the Puget Sound Regional Maritime Transportation Recovery Exercise (2014).

A large amount of information was developed to help guide recovery of the regional transportation network after a catastrophic incident. This Section outlines the above information and the recommendations developed to improve regional preparedness.   There is no provision of funding or requirement for any jurisdiction to implement these recommendations or best practices.

> *With the infrequent nature of major disruptions to the regional transportation network,* **the Annex should be used at every opportunity in disaster planning, training, drills and exercises**, *to ensure that emergency management and transportation agencies and other stakeholders are familiar with its contents.*

B. Recommendations

The following recommendations, outlined in Table X-1, are offered to continue the momentum toward improved capability to manage recovery efforts for the regional transportation network.

Table X-1: Recommendations

	Recommendations
1	Improve coordination among emergency management and transportation agencies.
2	Develop business recovery plans for each port, including mutual aid agreements among the ports.
3	Establish a regional transportation recovery policy.
4	Develop local jurisdiction transportation recovery plans.
5	Integrate transportation recovery into existing training and exercise schedules.
6	Improve private sector coordination.
7	Develop incentives to expedite transportation recovery.
8	Provide emergency replacement plans/procedures for marginal or inadequate structures.

| 9 | Provide uniform bridge damage assessment reporting. |
| 10 | Provide uniform airport damage assessment reporting. |

1. Improve Coordination among Emergency Management and Transportation Agencies

Gap – *Transportation planners and engineers are often not involved in emergency management planning, training and exercises.*

The majority of current regional transportation planning is focused primarily on emergency response. While emergency management agencies have developed relationships with transportation agencies, they are primarily with transportation operations staff rather than with those responsible for the types of capital design and construction projects required to recover from a catastrophic incident. When the emergency period is over, and the focus of effort moves to recovery, transportation expertise is more often provided by planners and engineers who, in larger departments, are not involved in day-to-day transportation operations or in initial disaster operations.

Recommendation 1	
Emergency management and transportation agencies should develop and implement strategies to involve transportation planners and engineers in the emergency management planning cycle, especially for recovery planning.	
Year 1	Emergency managers and transportation contacts identify planners and capital projects managers / staff that need to be more involved in recovery planning. Add transportation recovery issues to training and exercise opportunities. Involve capital project transportation staff in ongoing emergency management planning and training cycle.
Year 2	Continue to involve capital project staff in planning training and exercises.
Year 3 +	Continue to involve capital project staff in planning training and exercises.

2. Develop Business Recovery Plans for each port, including mutual aid agreements among the ports.

Gap – *Individual ports do not have comprehensive business recovery plans in place and there is no region-wide mutual aid agreement among ports to provide for the sharing of resources after a disruptive event or catastrophe.*

Most Puget Sound ports do not have business recovery plans in place, or if they do, they may be fragmented, untested or out of date. Moreover, ports often see recovery planning as primarily an emergency management responsibility, and not a responsibility of finance and the business lines. Business disruption caused by a disaster will have significant financial impacts on affected ports, which will negatively impact the regional economy.

Recovery planning should clarify the roles and responsibilities of staff across the port, establish clear decision making authority, and pre-identify recovery priorities, including the role the port will play in supporting local and regional recovery efforts, as well as which business lines are most critical to restore and which customers are most critical to serve. The plan should also pre-identify potential capital projects that may be eligible to receive funding to support recovery of port operations, as well as potential sources for funding, equipment, and personnel or specialized expertise. If appropriate, the recovery plan should also consider lines of business and associated assets that may operate at a different level from pre-disaster levels.

While individual ports may lack the necessary resources to independently recover from a significant disaster, there are few, if any, mutual aid agreements in place to cover operational needs between ports, agencies, and the private sector.

In 2004, WSDOT's Highways and Local Programs distributed the Public Works Emergency Response Mutual Aid Agreement to public works directors and engineers in all Washington cities and counties. The purpose of the agreement is to allow signatory agencies to make the most efficient use of their assets by enabling them to coordinate transportation resources and to maximize funding reimbursement after disasters and/or emergencies. (See Section VII)

*The **Public Works Emergency Response Mutual Aid Agreement** is a best practice that enables agencies to assist peers in other departments or jurisdictions on an as-needed basis in a disaster/emergency.*

The Public Works Emergency Response Mutual Aid Agreement provides an administrative mechanism for immediate response contingent on other agencies having the necessary resources and expertise. All eight counties within the Puget Sound Region are signatory to this agreement.

Some Puget Sound region ports have agreements for sharing maintenance personnel during an emergency. A catastrophic incident may cause damage at one or more ports within the Puget Sound region, requiring aid from other Washington-area ports. Requests for aid may include personnel (e.g., maintenance, operations, longshoremen, trades, emergency management, etc.) or equipment.

The RCPT Supply Chain Resilience Working Group is working with the ports to develop a draft Mutual Aid Agreement. The WPPA has agreed to serve as the MOU coordinator and will work with ports to sign

on to the agreement. Once established, ports should train and exercise to these mutual aid agreements, involving key partners including local governments, terminal operators, labor, and the state and federal government. These exercises can be used to test and strengthen mechanisms for post-disaster communication and coordination among these parties.

Recommendation 2
Ports in the Puget Sound Regions should develop and implement comprehensive business recovery plans and a mutual aid agreement among Washington-area ports for sharing personnel and equipment.   A draft framework has been developed through the RCPT and is being reviewed and considered by WPPA members.

Year 1	Educate all port departments and stakeholders on recovery planning; identify gaps and begin development of comprehensive business recovery plans. Sign on to the Port Mutual Agreement that is being coordinated by WPPA.
Year 2	Complete business recovery plans and begin training staff and stakeholders on emergency plans and disaster policies. Ports prepare procedures, forms, agreements and lists of available resources that may be made available following a disaster. Develop and execute agreements.
Year 3 +	Exercise recovery plans and mutual aid agreements, involving port staff and key stakeholders. Regularly update info on resources, contacts and other information referenced in mutual aid agreements.

3. Establish Regional Transportation Recovery Operations Policy

Gap – *There is no regional structure or process in place to accommodate regional coordination of transportation recovery.*

After a catastrophe, some transportation recovery issues, such as traffic management strategies and situational awareness may, from a span-of-control standpoint, be better coordinated on a regional level. In a catastrophe, the volume of information and coordination needs may be best managed by establishing regional coordination structures (See Section IV).

Recommendation 3	
State and local emergency management agencies should develop a forum among transportation stakeholders, including Metropolitan Planning Organizations (MPOs), Regional Transportation Planning Organizations (RTPOs), local and state transportation agencies, the ports, and the private sector for the purpose of developing regional transportation recovery policies.	
Year 1	Identify a champion to take the lead on this initiative. This could be through emergency management agencies or the Metropolitan Transportation Organizations (MPO) and Regional Transportation Planning Organizations. (RTPO) Develop a process for sharing the planning expertise of transportation stakeholders and share strategies for convening public and private sector stakeholders.
Year 2	Develop a schedule for short term, long term and emergency implementation.
Year 3 +	Develop data and implement regional Traffic Demand Management (TDM) strategies.

4. Develop Local Transportation Recovery Plans

Gap – *Few local implementation plans exist for specific potential disruptions to the regional transportation network.*

The Regional Transportation Recovery Annex addresses transportation disruptions and short, mid and long term solutions and options from a regional perspective. Stakeholders and the project team identified fifty major disruption situations, and developed regional alternative routes and solutions (See Appendix B). Most of the regional roadway transportation network is under the direction and control of state government. Waterways, airways and railways are under the direction and control of a mix of local, state, federal and private sector stakeholders.

Detailed recovery plans exist for major transportation system disruptions, such as those involving the Alaskan Way Viaduct, the SR 520 Bridge and for potential closures of Interstate 5 in the Olympia/Thurston County area. However, such planning is absent at local levels.

Recommendation 4
Local transportation agencies should develop local implementation and transportation recovery plans for potential disruptions to key areas of the local and regional transportation network.

Year 1	Implementation plans should look at the step- by- step specifics of what needs to be done and who is going to do it each affected jurisdiction, including resources and other requirements, such as permits, emergency declarations, etc.
	Identify impediments to implementing the recovery plans, and develop solutions to overcome the impediments.
	Identify key facilities for which specific local plans should be developed. Assign lead for each of the individual plans. Identify stakeholders and develop planning teams.
Year 2	Develop detailed local transportation recovery implementation plans.
	Integrate local transportation recovery implementation plans into the ongoing planning, training, and exercising cycle of local jurisdictions.
Year 3 +	Regularly update plans to reflect infrastructure and resource changes.

5. Integrate Transportation Recovery into Existing Training and Exercise Schedules

Gap – *Major disaster exercises traditionally focus on emergency response, as opposed to the longer-term issues of recovery. In fact, recovery issues are generally not included in local and state training and exercise programs.*

Once the Transportation Recovery Annex revisions have been approved by the RCPT, it will be important to integrate transportation recovery issues into existing training and exercise schedules at local and state levels. Emergency management agencies should utilize experts from ESF-1 in their respective jurisdictions to work with exercise development teams to include specific transportation specific recovery information in exercises. Low cost examples would be adding questions about specific transportation recovery issues to a scheduled table top exercise, including issues about long term regional recovery coordination to a functional or full scale exercise and inviting transportation planners and engineers to emergency management training sessions. This recommendation also supports Recommendation 1.

Recommendation 5	
Emergency management agencies should integrate transportation expertise (ESF-1) and transportation recovery issues into existing local emergency management and transportation agencies' training and exercise programs.	
Year 1	Integrate transportation recovery issues and expertise into local and regional training and exercise development and execution.
Year 2	Conduct training programs and begin exercise implementation including incorporating transportation related scenarios into regional exercise programs.
Year 3 +	Continue training and exercise program updating by sharing new information received from the Corrective Action Plans and After Action Reports among transportation stakeholders.

6. Improve Private Sector Coordination

Gap – *Formal agreements between public transportation agencies and private sector stakeholders could be improved to better integrate the private sector into ongoing emergency management planning, training and exercise programs.*

Private businesses play a significant role in protecting the community during disasters. Businesses also play a vital role in working with government to facilitate and provide emergency recovery from all types of disasters -- from small-scale to catastrophic. Each mode of transportation (roadway, waterways, airways and railways) has many private sector transportation stakeholders.

Like the public sector, the private sector can support emergency recovery efforts consistent with the National Incident Management System. Private sector facilities, primarily intended to provide a locally-based function, could integrate with transportation recovery efforts at local government levels as appropriate. Private sector facilities intended to provide a regional or multi-county function could integrate with transportation recovery efforts at the state level. Formalizing *public-private partnerships* would also enhance coordination amongst participants.

In addition, some private sector organizations may be able to bring in resources (volunteers, equipment, supplies) from other locations.

Recommendation 6	
Emergency management and transportation agencies should expand coordination with private sector providers to involve them more in ongoing regional transportation planning and coordination.	
Year 1	Expand communication and coordination channels with private sector transportation providers across all modes of transportation. In 2013 the RCPT developed a Supply Chain Resilience working group to coordinate public/private supply chain stakeholders across the region.
	Utilize the RCPT Supply Chain Resilience working group and explore developing model Memoranda of Understanding (MOUs) addressing roles and responsibilities, coordination, protections/indemnification and administration, especially with "marquee" local organizations, such as major business and manufacturing organizations, including the maritime transportation sector.
Year 2	Customize MOUs and obtain signatures among targeted private and public sector participants.
Year 3 +	Continually ensure that roles and responsibilities, coordination, protection and administration clauses are still valid and update if necessary.

7. Develop Incentives to Expedite Transportation Recovery

Gap – There are no pre-planned incentives to expedite recovery operations after a catastrophe.

Rebuilding a transportation network as a result of a catastrophic incident requires unprecedented cooperation between local, regional, state and federal agencies as well as with the private sector. Demolition and reconstruction allows all agencies involved to develop and implement innovative solutions to existing "red tape" problems in order to restore the transportation network quickly. The incentives developed and implemented in rebuilding Interstate 10 in Los Angeles County after the 1994 Northridge Earthquake is one example of expediting the reconstruction of a major transportation network.

County officials instituted a remarkable series of incentives: an accelerated bid, design and award process; 24-hour work days, seven days a week (12-hour shifts); 24-hour /day decision making and inspection; an early bonus equaling $200,000 per day (along with a disincentive of $200,000 per day late penalty). By finishing 74 days early, the contractor received a $14.8 million bonus.

Recommendation 7
Transportation agencies should use past lessons learned and case studies to develop information and guidance related to methods that could be employed under Washington State regulations to expedite transportation construction projects.

Year 1	Work with local, State and federal transportation agencies to plan on utilizing Federal Highway Administration (FHWA) emergency relief (ER) funds and develop incentive-disincentive mechanisms such as bonus and penalty targets. *Note: ER projects are exempt from regional planning and transportation improvement plans (TIP) and air-quality conformity requirements, as long as the replacement projects are in-kind and in-place.*
Year 2	Provide training and workshops to integrate information into local plans and procedures.
Year 3 +	Sustain capability through ongoing workshops, training and exercises.

8. Provide Emergency Replacement Plans/Procedures for Marginal or Inadequate Structures.

Gap – *Local pre-planning for disaster recovery of marginal or inadequate structures by local planning and public works departments has not yet been established.*

Local comprehensive transportation plans identify roadway improvements based on population demands and maintenance required for local area roads. Many jurisdictions have identified marginal or inadequate structures (e.g., bridges that create traffic bottlenecks, bridges that will need to be replaced, addition of bike lanes or high occupancy vehicle lanes on bridges, etc.) that may need future improvements or additional capacity. In an effort to expedite recovery, local jurisdictions should prepare design/build requests for proposals (RFPs) that can be issued quickly after a major disaster for structures that may need replacement. FEMA will only provide funding for replacement of a structure in its current location. Jurisdictions must find additional funding sources for improvements or expansion.

Recommendation 8
Transportation agencies should develop schematic design plans of bridges or transportation structures that coincide with comprehensive transportation and land use planning documents. Prepare design/build RFPs for replacement of structures to be issued quickly after a disaster.

Year 1	Identify marginal and inadequate structures in local areas.
Year 2	Discuss replacement options and develop schematic level plans for marginal and inadequate structures. Prepare RFPs that correspond with schematic level design plans for issuance after a major disaster.
Year 3 +	Regularly update information and coordinate with emergency planners for reference of prepared RFPs in emergency plans.

9. Provide Uniform Bridge Damage Assessment Reporting

Gap – *There is no uniform damage assessment form for use by first response bridge inspectors.*

State and local agencies within the Puget Sound region have bridges that they own, maintain, and/or inspect. Local agencies either inspect their own bridges or have contracts with other agencies for required bridge inspections. After a catastrophic incident, such as an earthquake, resources may be overwhelmed, and inspection of bridges may need to be completed by trained first response teams (e.g., those comprising transportation maintenance personnel) as opposed to bridge engineers. A uniform damage assessment form would help provide consistent information for managing transportation system recovery. This assessment information would be transmitted to local Emergency Operations Centers/Emergency Coordination Centers in accordance with existing local communications protocols and used for operational planning and priority setting as well as for emergency public information purposes.

Recommendation 9	
Bridge inspection departments in transportation agencies should develop and implement use of a uniform damage assessment form for first response bridge inspections. (See Appendix E for a recommended template.)	
Year 1	Provide or update bridge inspection forms to coincide with the Level 1 First Response Inspection Documentation form provided in Appendix E.
Year 2	Provide training by bridge inspectors and program managers for road maintenance personnel and emergency operation centers on use of the form. Bridge departments should also identify individuals who reside nearest given structures for inspection.
Year 3 +	Regularly update information on forms and contact information for maintenance personnel.

10. Provide Uniform Airport Damage Assessment Reporting

Gap – No uniform status/damage assessment reporting format for Puget Sound region airports has yet been developed.

Some Puget Sound region airports have damage assessment reporting procedures. After a catastrophic incident, the status of airports will be critical in providing emergency supplies for both short term and long term recovery. The State (WSDOT Aviation Division) is currently developing a status/damage report for airport sponsors (i.e., person or entity primarily responsible for airport operations), developing a query and report format, and creating access for outside agencies to view reports in the WSDOT Aviation – Airport Information Database (such as FAA and State EOC).

Recommendation 10	
Airports should develop and implement uniform damage assessment and reporting procedures for region's airports. Provide training or bulletins for recommended use of the Airport Information Database to both airport sponsors and emergency management. The WSDOT Aviation Division is currently developing this application and will lead this effort.	
Year 1	Develop damage assessments and reporting procedures for use by airport sponsors. Provide training for emergency management personnel and airports for how to view reports and exchange information.
Year 2	Provide training and exercises for use of reporting mechanisms.
Year 3 +	Regularly update info on resources, contacts, and other information contained in the Airport Information Database.

C. Best Practices

The following Best Practices in Table X-2 are offered to provide ideas and information to improve transportation resiliency and sustainability.

Table X-2: Best Practices

	Best Practices
1	Include Three Elements in Local Transportation Recovery Planning: Leadership, Capabilities and Accountability
2	Develop Regional Transportation Policies
3	Allow Flexibility in Applying Transportation Resources across Jurisdictions
4	Develop a Collaborative Environment for Recovery Efforts
5	Utilize Innovative Contracting Techniques to Expedite Recovery
6	Designate Special Teams for Deployment to Support Regional Recovery Efforts
7	Create Maritime Coordination Committees
8	Provide Travel Advisory Systems used in Day-to-Day Planning

1. Include Three Elements in Local Transportation Recovery Planning: Leadership, Capabilities and Accountability

The Government Accountability Office states in their report *Catastrophic Disasters-Enhanced Leadership, Capabilities, and Accountability Controls Will Improve the Effectiveness of the Nation's Preparedness, Response, and Recovery System*, that preparing for, responding to and recovering from any catastrophic incident involves three basic elements: leadership, capabilities and accountability. It is a best practice for local governments to address the following three elements in local planning, especially in transportation recovery plans:

- **Leadership.** Clearly defined, effectively communicated and well-understood legal authorities, roles and responsibilities, potential overlap, and lines of authority at all levels of government facilitate rapid and effective decision making.

- **Capabilities.** Capabilities needed for catastrophic incidents should be part of an overall national effort to integrate and define what needs to be done, where, by whom, and how well. At the local level this means:

  o Planning to ensure that needed capabilities are ready.

  o Realistically testing capabilities through training and exercises.

  o Identifying and subsequently addressing problems.

  o Working in partnership with federal, state, and nongovernmental stakeholders to integrate an all-hazards risk management framework into decision making. This is central to assessing

catastrophic incident risks and guiding the development of national capabilities to prevent or mitigate, where possible, and respond to such risks.

- **Accountability.** Controls and mechanisms should be in place to ensure that resources are used appropriately, and that contracts have sufficient provisions for fair and reasonable prices to help with expected reimbursements through disaster relief programs. Following a catastrophic incident, decision-makers face a tension between the demand for rapid response and recovery assistance— including assistance to victims—and implementing appropriate controls and accountability mechanisms.

2. Develop Regional Transportation Policies

The Puget Sound Regional Council (PSRC) continues to spearhead an effort to coordinate traffic operations in the Central Puget Sound Region. Summarized in the document, *Regional Concept of Transportation Operations: Best Practices* (July 2009), this effort is based on similar work in California, Arizona, Oregon, and elsewhere.

> *The **Puget Sound Regional Council's** effort to develop a Regional Concept of Operations is providing a mechanism to overcome the jurisdictional and policy issues of coordinated operations.*

The report identified key issues to be resolved for day-to-day operations as follows:

- Define roles and responsibilities of participating agencies.

- Establish a plan for developing, implementing and maintaining signal plans.

- Identify a technical strategy for implementing cross-jurisdictional coordination.

- Establish the physical infrastructure required to support the program.

- Integrate with regional long-range planning efforts and continually "keep an eye on the ball" towards implementing regional operational concept over the long term.

Implementing coordinated transportation policy is essential for transportation recovery. The issues involved with normal day-to-day operations are similar to those in an emergency, and the work done by the PSRC provides an excellent starting point to extend this concept to the entire eight County Puget Sound Region and to expand this concept to include emergency operations and emergency transportation policy.

3. Allow Flexibility in Applying Transportation Resources across Jurisdictions

In the document *Recovering from Disasters: The National Transportation Recovery Strategy* (2009), the USDOT cites the LA Swift project in Louisiana as a best practice in short-term solutions. Following Hurricane Katrina, a multi-jurisdictional effort resulted in a free bus service for persons displaced to Baton Rouge to their jobs in New Orleans. This was accomplished through:

- Collaboration of operating and funding agencies

- Recognition of the importance of transportation to economic recovery

- Flexibility to provide a non-traditional service to address a specific need

This transportation incentive helped expedite economic recovery by not only getting people back to their jobs, but also providing access to companies with job openings.

4. Develop a Collaborative Environment for Recovery Efforts

In the document *Recovering from Disasters: The National Transportation Recovery Strategy* (2009), the USDOT cites the I-35W Bridge project as a best practice in recovery. A broad collaboration, deliberately carried out to enlist maximum participation, was key to rebuilding the collapsed bridge ahead of schedule and under budget. The I-35W Bridge project team extensively involved the community in the design and construction of a replacement bridge.

The effort included community residents, local businesses, civic groups, government at all levels, cultural and educational institutions and the media. This collaborative approach rallied a positive response for the bridge rebuild.

5. Utilize Innovative Contracting Techniques to Expedite Recovery

Recovery from a 1994 earthquake in the Los Angeles area required a departure from the traditional methods used and/or permitted for publicly funded projects. The effort is cited as a best practice in USDOT's *Recovering from Disasters: The National Transportation Recovery Strategy* (2009).

Several new methods expedited completion of multiple projects: A+B bidding (a combination of cost and time), invitational bidding and design-build bidding. The use of monetary incentives, both positive and negative, helped shorten schedules and minimize delays.

*The **Marine Transportation System Recovery Unit (MTSRU)** comprises a group of maritime stakeholders selected by the USCG who coordinate both through pre-incident Marine Transportation System recovery preparedness (such as exercises) as well as through committee meetings.*

6. Designate Special Teams for Deployment to Support Regional Recovery Efforts

Best Practices in Emergency Transportation Operations Preparedness and Response: Results of the FHWA Workshop Series, (December 2006), cites a number of best practices for special resources. Among them is the designation of "Tiger Teams". Teams of people with special capabilities such as bridge inspection, seaport expertise, airport expertise are assembled and can be deployed anywhere in the region on very short notice to support recovery operations. These teams can be especially effective in early recovery strategy development and planning.

7. Create Maritime Coordination Committees

Maritime stakeholders in the Puget Sound region, i.e., United States Coast Guard (USCG), Ports, Washington State Ferries, Department of Ecology, labor, private companies (tugs, barges, salvage and ferries), etc. meet regularly in committees to discuss maritime safety and security issues for both routine operations and for disaster response and recovery. The frequent meetings and coordination among stakeholders creates relationships that will be utilized for response and recovery after a catastrophic incident.

The USCG coordinates operations with other government agencies including, but not limited to: Customs and Border Protection, the Transportation Security Administration, the Federal Bureau of Investigation, the Department of Defense, the U. S. Navy, the Washington State Patrol, Washington State Ferries, the Washington State Department of Ecology, and various city, county and port police/sheriff and fire departments. The USCG Marine Transportation System Recovery Unit (MTSRU) is responsible to unified command via the planning section for the planning and implementation of recovery of the maritime system including the intermodal awareness.

The Coast Guard participates in the following committees or groups, which includes many of the maritime stakeholders:

- Area Maritime Security Committee (AMSC)

- Washington State Ferry (WSF) Security Committee

- Puget Sound Operations Planning Cell

- Port Readiness Committee (PRC)

- Operations Integration Working Group

- Consolidated Targeting and Enforcement Team (USCG, CBP, ICE)

- Joint Terrorism Task Force (JTTF)

- Regional Intelligence Group

- Harbor Safety Committee (HSC)

8. Provide Travel Advisory Systems used in Day-to-Day Planning

WSDOT provides daily "Freight Travel Advisory" notifications to help freight companies plan for disruptions. It also allows freight stakeholders to incorporate transportation disruptions into their day-to-day planning. By setting up communication tools that are used on a day-to-day basis, it allows for stakeholders to be better prepared for a catastrophic incident – to know what to expect and where to obtain pertinent information for transportation planning.

Maritime and aviation transportation modes also have day-to-day notification mechanisms to mariners (Local Notice to Mariners (LNM) by USCG) and airmen (Notices to Airmen (NOTAM) by the FAA), respectively.

D. Best Practices Resources

There is a great deal of material documenting lessons learned and best practices in transportation recovery. The following Best Practices Resources in Table X-3 are offered to provide sources of further information to improve transportation resiliency and sustainability.

Table X-3: Best Practices Resources

Best Practices Resources
1	USDOT – National Transportation Recovery Strategy
2	FHWA Workshop Series 2006
3	FHWA – Information Sharing Guidebook
4	Transportation Research Board Information
5	Improving Post-disaster Humanitarian Logistics: Three Key Lessons from Catastrophic Events
6	A Compendium of Best Practices and Lessons Learned for Improving Local Community Recovery from Disastrous Hazardous Materials Transportation Incidents
7	Disaster Resilience: A National Imperative
8	Expedited Procurement Procedures for Emergency Construction Services

1. USDOT – National Transportation Recovery Strategy

The purpose of the *National Transportation Recovery Strategy (NTRS)* is to help local, state and tribal transportation stakeholders prepare for or manage the transportation recovery process following a major disaster. (http://www.dot.gov/disaster_recovery/resources/DOT_NTRS.pdf)

2. FHWA Workshop Series 2006

The FHWA produced a series of publications to aid local, state and federal authorities in designing evacuation and other types of emergency transportation operations plans. One such publication is the *Best Practices in Emergency Transportation Operations Preparedness and Response: Results of the FHWA Workshop Series 2006.*

(http://ops.fhwa.dot.gov/publications/etopr/best_practices/etopr_best_practices.pdf)

3. FHWA – Information Sharing Guidebook

Information-Sharing Guidebook For Transportation Management Centers, Emergency Operations Centers, And Fusion Centers – This guidebook provides an overview of the mission and functions of transportation management centers, emergency operations centers and fusion centers. It focuses on the types of information these centers produce and manage and how the sharing of such information among the centers can benefit both day-to-day and emergency operations of all the centers. Challenges exist to the ability to share information, and the guidebook addresses these challenges and options for handling them. It also provides some lessons learned and best practices identified from a literature search and interviews/site visits with center operators.

(http://www.ops.fhwa.dot.gov/publications/fhwahop09003/index.htm)

4. Transportation Research Board Information

State Public Transportation Division Involvement in State Emergency Planning, Response, and Recovery – This research documents existing and best policies and practices of state transit divisions pertaining to weather-related emergencies. This research includes state involvement in emergency planning, response and recovery. It identifies lessons learned from recent emergencies, key issues associated with the involvement of state public transportation divisions, and best practices. The report includes results of a national survey of state transit divisions, in-depth interviews with selected states and copies of, or links to, various resources related to emergency management. (http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_326.pdf)

5. Improving Post-disaster Humanitarian Logistics: Three Key Lessons from Catastrophic Events

A featured article in the May-June 2013 TR News presents three practical lessons gleaned from fieldwork after the Port-au-Prince, Haiti earthquake and the Tohoku, Japan tsunami, the strategic differences between disasters and catastrophes, the need to control the spontaneous flow of supplies, and the benefits of integrating the civic society into the response and recovery. (http://www.trb.org/SecurityEmergencies/Blurbs/169548.aspx)

6. A Compendium of Best Practices and Lessons Learned for Improving Local Community Recovery from Disastrous Hazardous Materials Transportation Incidents

TRB's Hazardous Materials Cooperative Research Program (HMCRP) Report 9: A Compendium of Best Practices and Lessons Learned for Improving Local Community Recovery from Disastrous Hazardous Materials Transportation Incidents explores how local communities can develop or improve recovery planning and operations in response to hazardous materials transportation incidents. (http://www.trb.org/SecurityEmergencies/Blurbs/168372.aspx)

7. Disaster Resilience: A National Imperative

The Committee on Science, Engineering, and Public Policy, part of the National Academies' Division on Policy and Global Affairs (PGA), has released a report that defines "national resilience," describes the state of knowledge about resilience to hazards and disasters, and frames the main issues related to increasing resilience in the United States.

The report also provide goals, baseline conditions, or performance metrics for national resilience and outlines additional information, data, gaps, and/or obstacles that need to be addressed to increase the nation's resilience to disasters. Additionally, the report's authoring committee makes recommendations about the necessary approaches to elevate national resilience to disasters in the United States. (http://www.trb.org/SecurityEmergencies/Blurbs/168047.aspx)

8. Expedited Procurement Procedures for Emergency Construction Services

TRB's National Cooperative Highway Research Program (NCHRP) Synthesis 438: Expedited Procurement Procedures for Emergency Construction Services explores procurement procedures being utilized by state departments of transportation in coordination with federal agencies to repair and reopen roadways in emergency situations. (http://www.trb.org/SecurityEmergencies/Blurbs/168132.aspx)

Appendix A. Alternative Routing and Level of Service (LOS) Map Development

A. General Information

This Appendix provides a summary of the development of the 50 Potential Detour Scenarios and Routes, the planning process with local stakeholders and the calculations used to produce the Level of Service (LOS) map for each scenario.

B. Development of Alternative Routing Maps

The process of developing alternative routing plans for the 50 Potential Detour Scenarios and Routes was carried out in four parts. The first efforts were aimed at assembling a Transportation Planning team of stakeholders to serve as the body to discuss and make decisions on the plan. The second stage of the project involved taking inventory of the transportation infrastructure in the study area, and gathering existing data from the stakeholders. The next effort was the collaborative selection and prioritization of scenarios for inclusion in the plan. The final stage was the development and adoption of Alternative Routing Plans for each of the scenarios. The work plan is described below.

C. The Transportation Working Group and Planning Teams

Collaboration and participation from the groups most affected by any disaster is perhaps the most important element for creating an effective planning document.

To provide input and oversight to the planning process, a Transportation Working Group (TWG) was formed with representatives from local emergency management agencies, transportation agencies, transit authorities and other public and private sector transportation stakeholders. State and federal agencies such as the Washington State Department of Transportation, the Emergency Management Division of the Washington Military Department, the Washington State Patrol, FEMA, FAA, the US Coast Guard and the military all participated.

Transportation planning teams consisting of stakeholder representatives were also organized in each of the eight counties. The respective local emergency management agency helped develop the list of invited stakeholders, to include all modes of transportation and all categories of responders. Each stakeholder was asked to assign a key person to serve as the main contact and commit to agency participation in the study activities. The stakeholders represented all modes of transportation – roads, transit and marine –as well as law enforcement, military and private freight operators.

Planning teams met, approximately monthly, throughout the study area to bolster participation and extract maximum local expertise and knowledge. In addition, the Transportation Working Group (TWG) held several sub-regional meetings with groups of counties to ensure sharing of ideas and solutions. Information from transportation planning team meetings was shared with the TWG.

D. Transportation Infrastructure

This phase of the process required collecting base information for the transportation system. Roadway information came from Washington State Department of Transportation (WSDOT) and from each of the eight counties and several cities. Rail and freight network information came from WSDOT Rail and Freight Division, and airport information from WSDOT Airport Inventory.

With the base information in hand, a preliminary regional transportation network was developed including the State and Interstate numbered routes, major airports, rail lines and all ferry routes. Transportation planning teams and the TWG helped to refine this network and reach consensus on the transportation network to be used for this project. The transportation planning teams also added local and county roadways of significant regional character.

The teams also identified key regional transportation facilities, defined as locations or physical buildings that required connection to the regional transportation network during an emergency. Examples include bus/rail terminals, hospitals, public works maintenance yards, ferry terminals, airports and bus garages. Both the regional network and the key facilities were highlighted on county maps and used at the meetings for the purpose of facilitating discussions. The purpose of this exercise was to spatially orient the facilities with the road network to foster development of the scenarios and solutions.

E. Closure Scenarios

The transportation planning teams were first called on to discuss existing conditions and apply critical thinking to the task of identifying the scenarios (closure locations) that would have the greatest impact on the region as a whole and on the individual counties. They then selected 50 scenarios, reaching consensus on which scenarios to prioritize for inclusion in the Annex.

*Each scenario described a location(s) on the transportation network that a **severe earthquake would likely close.** Multi-modal scenarios were encouraged.*

Teams were encouraged to select scenario locations offering the absolute worst locations for impact to the transportation system and locations where no previous planning had taken place. Many of the discussions centered on what exactly would be damaged in an earthquake, and the fact that multiple sections might be closed due to the same earthquake incident.

The project scope was limited to 50 closure scenarios. Because the variations from combining just five scenarios would result in 120 combinations, it was decided to avoid multiple combinations of the same closure scenarios. The selected scenarios were single locations or segments likely to fail that would cause the greatest traffic impact. The objective was to have the Transportation Planning Teams identify from an unlimited list the most disruptive scenarios for their locale. Not coincidently, the solutions for many of the scenarios are applicable for emergencies other than the catastrophic.

The next work effort was to develop a method for allocating the 50 scenarios among the eight counties and the City of Seattle. Participants agreed to use population figures as the most reasonable method for this allocation. Since some of the counties had comparatively small populations, the teams also agreed to assign a minimum of two scenarios to each.

This method was adopted as presented and is summarized in Table A-1.

Table A-1: Number of Potential Detour Scenarios and Routes per County

Scenarios					
2009 Population (WA State OFM)			(Pop % X 50)	Number from	Suggested
County	Population	%	# of Scenarios	Workshops	Number
Island	80,300	2%	1	3	2
King	1,909,300	46%	23	39	21
Kitsap	247,600	6%	3	6	3
Mason	56,800	1%	1	4	2
Pierce	813,600	19%	10	11	9
Skagit	118,900	3%	1	3	2
Snohomish	704,300	17%	8	11	8
Thurston	249,800	6%	3	4	3
Total	**4,180,600**		**50**	**81**	**50**
Notes:					
Minimum of 2 Scenarios per County					
Duplicates Eliminated					
King, ESCA, and Seattle Scenarios combined					

Initially, many more than 50 Potential Detour Scenarios and Routes were offered by the planning teams. With agreement on the number of scenarios for each county, it remained to develop a method for prioritizing the scenarios to ensure the most critical were selected for inclusion in the plan. A formula was developed that included important attributes and assigned weighting factors. The attributes and the descriptions are as follows:

Functional Use –

- How does the transportation segment fit into overall transportation system?

- Is this a Highway of Statewide Significance? If the segment is on the list, it is rated higher than a roadway not on the list.

- Rail Classification – Class 1 (large freight >$250 million/yr.[operating revenue]), Class 2 (medium freight>$20 million), Class 3 (local and short lines). Class 1 is a high value, Class 3 is low value.

Usage Level –

- Does the segment have high traffic?   Traffic is defined as Average Daily Trips. High traffic means a high value, low traffic a low value.

Emergency Need –

- Does the segment connect to a critical facility and on the critical facility list developed at previous workshops? If the segment is a key connection the value is higher.

- Will the segment be part of an evacuation route?   If the segment will probably be used for an evacuation route, the value is higher.

- Will emergency responders be greatly impacted by loss of the segment? If emergency responders will be significantly impacted, this value is higher.

Economic Impact –

- Does the segment play a vital role in moving goods or providing services for the region? If the route moves substantial goods the rating should be higher than segments with lower amounts of goods or people.

- If the segment moves a substantial number of commuters from home to work, the rating is higher.

Redundancy –

- Are there identified alternative routes in close proximity to the segment that can be used to reroute traffic around a closure? If there are no alternatives the rating value is high.

- Are there multiple alternative routes around the segment? If there are numerous alternatives the rating is lower.

- For rail lines, are there additional rail lines to reroute rail traffic? If there are no alternatives, the rating is higher.

Probability of Closure –

- Is the segment currently prone to closure?   If the segment has been routinely closed due to emergencies in the past it is rated higher.

- Has the segment been identified as having a deficiency? If the segment has been identified as having structural deficiencies, it is rated higher.

- Has the segment been modified to lessen vulnerability? If the segment has not been modified to lessen its vulnerability, it is rated higher.

Ease of Repair –

- In the event of a failure, how difficult will it be to make repairs? If it appears that a segment failure will be extremely difficult to repair or take a long time to repair, it is given a high rating.

Planners assigned each of these categories a weighting factor based on how important that particular category was to the project.

The weighting factors are summarized in Table A-2 below:

Table A-2: Weighting Factors

Issue to Consider	Weight
Functional Use	10%
Usage Level	10%
Emergency Need	25%
Economic Impact	15%
Redundancy	25%
Probability of Closure	10%
Ease of Repair	5%

The transportation planning teams for each county assembled and worked to rank each scenario according to the method described above on a scale of 1 to 3, with 1 being the lowest and 3 being the highest. The transportation planning teams reviewed the results to ensure that they were reasonable.

The effort resulted in the following list of 50 scenarios calling for detailed planning and a list of 31 scenarios placed into a holding area for future planning. The Transportation Working Group received the 50 scenarios for approval in July 2009, and later, published the approved list, arranged by county, showing the route type (i.e. State Route – SR, United States Route – US, and Interstate Route – I), the route number, the location, and any comments associated with that closure scenario.

F. Alternative Routing Plans

Alternative Routing Plans were developed for each of the 50 scenarios, using existing plans as the basis where available. Where no plans were available, the alternative routing was guided by two basic objectives:

1. Traffic diverted from state jurisdiction was directed onto other state jurisdiction roadways

2. Traffic was directed from/to similar roadways (i.e. Interstate traffic to Interstate roadways)

In rare instances, these objectives were difficult or impossible to achieve. In those instances, traffic was diverted to the highest class of roadway in reasonable proximity to the closure. In all cases, feedback from WSDOT and county/local officials influenced the selection and choice of routings.

Multiple routings were noted on the maps as alternates or secondary routes. Some routings had a regional route for diverting long distance trips, which also contained a local routing. The Transportation Planning Teams reviewed the Alternative Routing Plans to ensure that alternative routings were on approved roadways, to identify any regional roadways to be added to the network, and to verify that key regional facilities were connected by the alternative routings wherever feasible.

The routings are presented graphically on maps in Appendix B, along with written narratives and any comments or special considerations for each particular scenario and the estimated Level of Service (LOS). Each package also contains a Traffic Mitigation Strategies Checklist specifically for that scenario. Details on Traffic Mitigation Strategies can be found in Appendix G – Roadways Mitigation Strategies and Resources. The 50 Potential Detour Scenarios and Routes are listed in Table A-3.

Table A-3: Final List of 50 Scenarios for Detailed Planning

	Type	Route	Location	Comment
	Island County			
1	SR	20	Deception Pass Bridge	
2	SR	532	Davis Slough	To Camano Island
	King County			
3	SR	167	I-405 to County Line South	
4	I	405	I-90	Interchange
5	I	405	I-5 to SR 167	Segment
6	I	5	Ship Canal Bridge	
7	I	90	Snoqualmie Pass	
8	I	405	Renton, Exit 2 to Exit 4	Segment
9	I	405	Bothell, Exit 18-20	Segment
10	I	5	SR 599 to SR 900	Segment
11	I	90	Floating Bridge	To Mercer Island
12	SR	522	I-405 to I-5	Segment
13	I	405	SR 520	Interchange
14	SR	520	Floating Bridge	To Bellevue
15	SR	99	I-90 to Snohomish Co. Line	Segment

	Type	Route	Location	Comment
	King County	**(con't)**		
16	SR	181	I-405 to SR 516 (W Valley Hwy)	Segment
17	W. Seattle Hwy		High Bridge	
18	I	5	I-405/SR 518	Interchange
19	SR	99	Aurora Bridge	Ship Canal
20	US	2	Skykomish	To Stevens Pass
21	I	5	I-90	Interchange
22	SR	99/AWV	Battery Street Tunnel	To South End
23	I	5	SR 520	Interchange
	Kitsap County			
24	SR	305	Bridge to Bainbridge Island	
25	SR	3	SR 16	Interchange
26	SR	104	West of Miller Bay Road	To 307
	Mason County			
27	US	101	Hoodsport to Potlatch	Segment
28	US	101	Kennedy Creek Bridge	N of Thurston Co. Line
	Pierce County			
29	Various		Bridges over the Puyallup River	
30	SR	16	Tacoma Narrows Bridge	
31	I	5	SR 16	Interchange
32	I	5	Puyallup River Bridge	
33	I	5	SR 16 to King Co. Line	Segment
34	I	5	SR 512	Interchange
35	I	5	SR 512 to Thurston Co. Line	Segment
36	SR	410	SR 167/SR512	Interchange
37	I	5	SR 512 to SR 16	Segment

	Type	Route	Location	Comment
	Skagit County			
38	I	5	Skagit River Bridge	
39	SR	20	Swinomish Channel Bridge	
	Snohomish County			
40	I	5	Snohomish River Bridge	
41	I	5	SR 529	Interchange
42	US	2	I-5 to SR 204	Segment
43	I	5	I-405	Interchange
44	SR	9	Snohomish River Bridge	
45	I	405	SR 527	Interchange
46	SR	522	Snohomish River Bridge	
47	US	2	SR 9 to King Co. Line	Segment
	Thurston County			
48	Various	I-5/SR507	Bridges over the Nisqually River	Including Mounts Rd.
49	I	5	US 101	Interchange
50	US	101	SR 8	Interchange

4.

G. Development of Level of Service (LOS) Maps

Level of Service (LOS) for roads and highways is a qualitative ranking of the traffic operational characteristics experienced by users. The Level of Service ranking is a six-tiered system, ranging from LOS A (free flow) to LOS F (congested). According to the Highway Capacity Manual 2000, (LOS) is categorized by two parameters, uninterrupted and interrupted flow.

*The **Highway Capacity Manual,** published by the Transportation Research Board, is the basis for determining Levels of Service (LOS) for the disruption scenarios utilized in this Annex.*

Uninterrupted flow facilities (i.e. freeways) do not have fixed elements such as traffic signals that cause interruptions to traffic flow, while Interrupted flow facilities do.

H. Traffic Flow

Levels of Service for freeways are described in terms of traffic flow. The *2000 Highway Capacity Manual* describes LOS for freeways as:

- Level of Service A – Represents free flow. Individual vehicles are virtually unaffected by the presence of others in the traffic stream.

- Level of Service B – Is in the range of stable flow, but the presence of other vehicles in the traffic stream begins to be noticeable. Freedom to select desired speed is relatively unaffected, but there is a slight decline in freedom to maneuver.

- Level of Service C – Is in the range of stable flow, but marks the beginning of the range of flow which the operation of individual vehicles becomes significantly affected by interactions with other vehicles in the traffic stream.

- Level of Service D – Is a crowded segment of roadway with large numbers of vehicles restricting mobility and a stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.

- Level of Service E – Represents operating conditions at or near capacity of the roadway. All speeds are reduced to low, but to a relatively uniform value. Small increases to flow will cause breakdowns in traffic movement.

- Level of Service F – Is used to define forced or breakdown flow (stop-and-go gridlock). This condition exists when the amount of traffic exceeds the amount that can travel to a destination. Operations within queues are characterized by stop and go waves, and they are extremely unstable.

I. Levels of Service

Levels of Services for arterial roadways (i.e. roadways with signals) are defined in terms of delay. Level of Service categories and the corresponding delay ranges are:

- Level of Service A - Delay is 10 seconds or less.

- Level of Service B – Delay is 10 to 20 seconds.

- Level of Service C – Delay is 20 to 35 seconds.

- Level of Service D – Delay is 35 to 55 seconds.

- Level of Service E – Delay is 55 to 80 seconds.

- Level of Service F – Delay greater than 80 seconds.

The purpose of this Appendix is to graphically show the expected level of service and the corresponding level of congestion for each scenario. Since Level of Service and Level of Congestion are directed related, Appendix A groups Level of Service into three congestion levels:

- No Congestion, where LOS A and LOS B are grouped together ,

- Moderately Congested, where LOS C and LOS D are grouped together, and

- Congested, where LOS E and LOS F are grouped together.

The Level of Service was determined for each of the alternative routes in each scenario and graphically illustrated on a LOS map, one map for each of the 50 scenarios.   The methodology used existing data to estimate the impact to Level of Service on alternative routes that bypassed the roadway closure.

Planners derived the current Levels of Congestion from the Washington State Department of Transportation document entitled "Congested State Highways in the Central Puget Sound Region." This document shows the level of congestion based on 2006 data and contains the Level of Service data on the state and interstate numbered routes. (See Figure A- 1)

In a few cases where routings were on county or local roadways, this WSDOT document did not have information on local or county roadways. In those few instances, planners assessed county or city planning documents for the baseline Level of Service information.

Once current LOS was established, planners reviewed each scenario to determine the impact of the roadway closure(s). The roadway or roadways closed in a specific scenario were assumed to divert all of its traffic onto the designated alternate routes. This effort assumes the diverted traffic volume to be the capacity of the roadway and checked against the WSDOT document website entitled Traffic Planning Trends.

(www.wsdot.wa.gov/mapsdata/tdo/traffictrends).

J. Roadway Capacity

Capacity for these roadway sections was estimated based on the number of lanes as derived from the Washington State Department of Transportation's "Highway Performance and Monitoring System Data" and from aerial photography. Two lane roads boast a capacity of 2632 vehicles per hour and multilane roadways merit a capacity of 2000 vehicles per hour per lane. This value approximates the maximum number of vehicles per hour that a roadway carries when open. Shown in Table A- 4 as Hourly Volume, capacity also represents the approximate amount of hourly traffic diverted to alternate routes if that roadway were closed.

Changes to Level of Service were then based on the estimated increase in traffic on the alternative route due to relocation of traffic volumes from the closed roadway. The LOS maps for each scenario illustrate the resultant Levels of Service.

*The **degradation of Level of Service** due to any of these 50 scenarios illustrates the importance of instituting multiple traffic mitigation strategies when these closures occur.*

Each of these 50 scenarios results in a significant loss of roadway capacity for the region. Most of the major highways in this region are very congested on a normal day.   It was expected that capacity losses from each of the 50 scenarios would typically result in currently congested roadways becoming much worse and moderately congested roadways becoming congested due to the closures. Since nearly all of the 50 scenarios represent roadway closures at major interchanges, high volume areas or extended segments, this was indeed the result and is borne out in the Level of Service mapping.

In rare cases, due to roadway closures, Level of Service actually improved due to the segments with less traffic that were no longer through roadways. Jurisdictions are encouraged to invoke as many strategies as possible and to cooperate with neighboring jurisdictions in the planning and implementation of the traffic mitigation strategies.

Figure A- 1: Congested State Highways in the Central Puget Sound Region

Congested State Highways in the Central Puget Sound Region

Congestion is defined based on 2006 Highway System Performance Management (HPMS) database. Heavily congested is defined as having estimated speed below 75% of the posted speed and/or a LOS of E in the peak hour; the less congested categories are defined as having estimated speeds between 75% and 90% on a sliding scale.
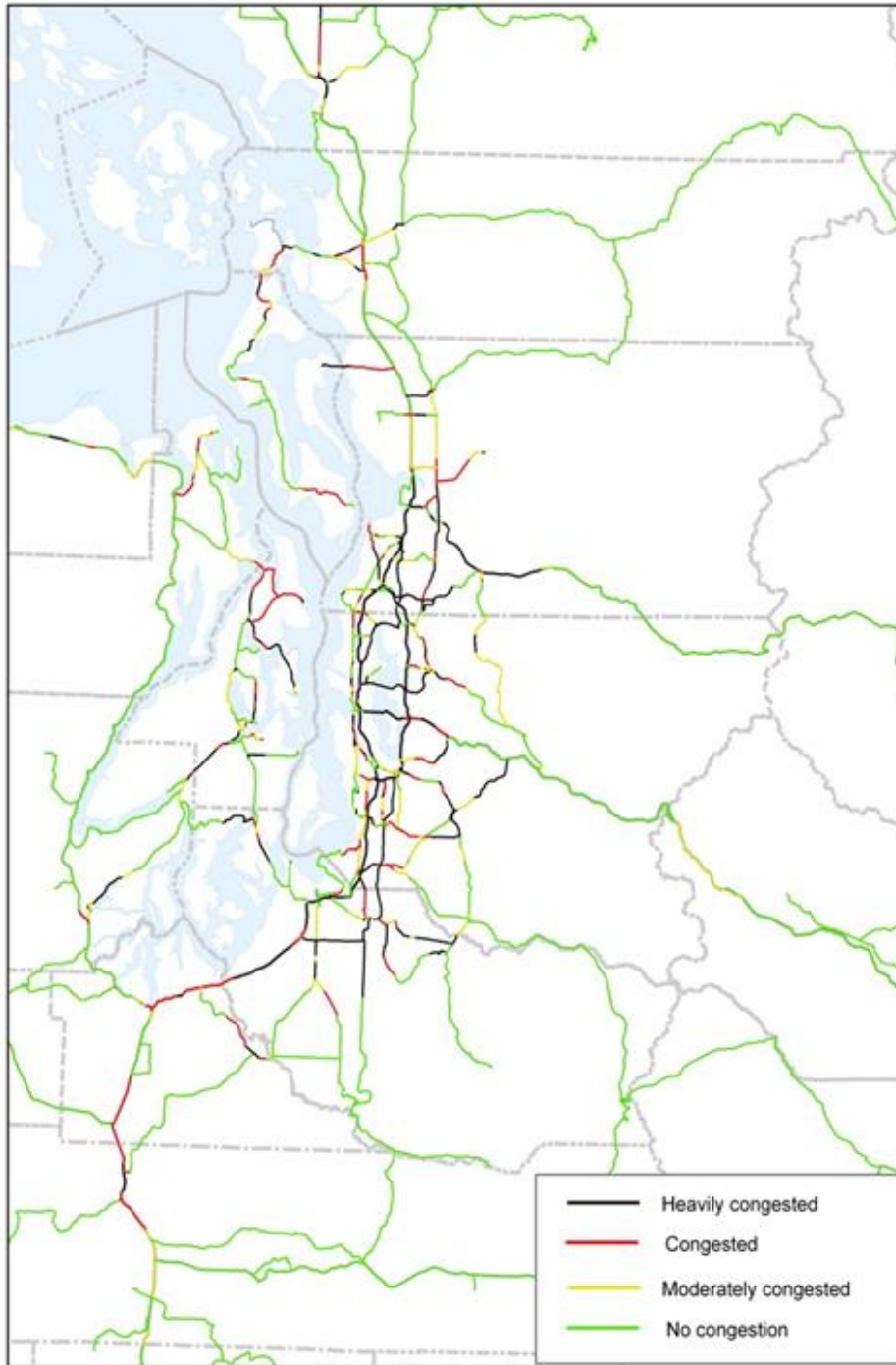
Source: WSDOT (2006)

Table A- 4: Roadway Segment Volume Approximation

Route	Segment	Avg. No. of Lanes	Approx. Hourly Vol.
2	I-5 to SR 9	4	8000
2	SR 9 to East	2	2632
3	101 to SR 16	2	2632
3	SR 16 to SR 305	4	8000
3	SR 305 to end	2	2632
5	I-205 to Castle Rock	6	12000
5	Castle Rock to SR 121	4	8000
5	SR 121 to Capitol Exit	6	12000
5	Capitol Exit to Slater Rd	8	16000
5	Slater Rd to Thorne Lane	6	12000
5	Thorne Lane to I-405	8	16000
5	I-405 to I-90	10	20000
5	I-90 to SR 522	8	16000
5	Express Reversible	4	8000
5	SR 522 to Northgate	6	12000
5	Northgate to US 2	8	16000
5	US 2 to SR 534	6	12000
5	SR 534 to north	4	8000
7	SR 12 to 224th	2	2632
7	224th to I-5	4	8000
8	US 101 to US 12	4	8000

Route	Segment	Avg. No. of Lanes	Approx. Hourly Vol.
9	SR 522 to SR 524	4	8000
9	SR 524 to north	2	2632
12	west to SR 8	4	8000
12	SR 8 to I-5	2	2632
12	I-5 to east	2	2632
16	I-5 to toll plaza	6	12000
16	toll plaza to Gorst	4	8000
18	I-5 to Issaquah-Hobart Rd	4	8000
18	Issaquah-Hobart Rd to I-90	2	2632
20	south to Anacortes	2	2632
20	Anacortes to I-5	4	8000
82	All	4	8000
84	I-82 to Troutdale	4	8000
84	Troutdale to I-205	6	12000
90	I-5 to I-405	6	12000
90	Express Reversible	2	2632
90	I-405 to SR 900	8	16000
90	SR 900 to east	6	12000
96	I-5 to SR 9	4	8000
99	Tacoma to 272nd	4	8000
99	272nd to 276	6	12000

Route	Segment	Avg. No. of Lanes	Approx. Hourly Vol.
99	276 to SR 509	4	8000
99	SR 509 to AWV	6	12000
99	AWV	6	12000
99	Tunnel	4	8000
99	Tunnel to SR 523	6	12000
99	SR 523 to SR526 end	4	8000
101	I-5 to Crosby	6	12000
101	Crosby to SR 3	4	8000
101	SR 3 to Hoodsport	2	2632
104	all except SR 99 to I-5	2	2632
104	SR 99 to I-5	4	8000
106	All	2	2632
108	All	2	2632
121	All	2	2632
160	All	2	2632
161	SR 7 to 224th SR 702	2	2632
161	224th to SR 167	4	8000
162	All	2	4000
163	All	4	8000
164	SR 18 to Dogwood	4	8000
164	Dogwood to SR 410	2	2632

Route	Segment	Avg. No. of Lanes	Approx. Hourly Vol.
167	All	4	8000
169	Enumclaw to 196th	2	2632
169	196th to I-405	4	8000
181	All	4	8000
202	I-90 to Sammamish	2	2632
202	Sammamish to SR 520	4	8000
203	All	2	2632
204	All	3	6000
205	All	4	8000
302	All	2	2632
303	All	4	8000
304	All	4	8000
305	Ferry to Poulsbo	2	2632
305	Poulsbo to SR 3	4	8000
307	All	2	2632
310	All	4	8000
405	I-5 to I-90	6	12000
405	90 to SR 522	8	16000
405	SR 522 to I-5	6	12000
410	Sumner to Bonney Lake	2	2632
410	Bonney Lake to SR 167	4	8000

Route	Segment	Avg. No. of Lanes	Approx. Hourly Vol.
507	All	2	2632
509	SeaTac to 99	4	8000
510	I-5 to Pacific Ave	4	8000
510	Pacific Ave to SR 507	2	2632
512	All	4	8000
515	All	4	8000
516	I-5 to SR 18	4	8000
516	SR 18 to east	2	2632
518	SR 509 to SeaTac	4	8000
518	SeaTac to I-5	6	12000
519	All	4	8000
520	I-90 to I-405	4	8000
520	I-405 to Redmond	6	12000
520	Redmond to SR 202	4	8000
522	All	4	8000
523	All	2	2632
524	Edmonds to Lynnwood	2	2632
524	Lynnwood to SR 527	4	8000
524	SR 527 to SR 522	2	2632
525	I-5 to Paine Field	4	8000
525	Paine field to west (& Whidbey)	2	2632

Route	Segment	Avg. No. of Lanes	Approx. Hourly Vol.
526	all	4	8000
527	SR 522 to I-405	2	2632
527	I-405 to SR 96	4	8000
528	All	4	8000
529	All	4	8000
532	All	2	2632
534	All	2	2632
536	I-5 to Waugh	4	8000
536	Waugh to SR 9	2	2632
599	All	4	8000
702	All	2	2632
705	All	4	8000
900	All	2	2632
908	All	4	8000
Capacity = 2632 for 2 lane with D=60/40%			
Capacity = 2000/lane with D=50/50%			

K. References

5. Growth Management Indicators (GMI) Report- Skagit County
6. Mason County Comprehensive Plan – 2005
7. Pierce County TCMS 2009 Report
8. King County Transportation Needs Report 2008
9. Puget Sound Regional Council – LOS Map
10. Snohomish County – Transportation Element of the GMA Comprehensive Plan -2008
11. Thurston County Comprehensive Plan – 2004

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Appendix B. Potential Detour Scenarios: Route Information and Maps

A. General Information

This Appendix provides specific management and map information on each of the fifty (50) disruption scenarios. The summary of the development of the 50 potential detour scenarios and routes, the planning process with local stakeholders and the calculations used to produce the Level of Service (LOS) map for each scenario are covered in Appendix A.

Alternative routings are presented graphically on maps in Appendix B, along with written narratives and any comments or special considerations for each particular scenario. Each individual scenario contains information on who is in charge of implementing the particular alternative route and what agencies or jurisdictions have coordination responsibilities for routes to be used as alternatives. Information is provided on anticipated Level of Service (LOS) and mitigation strategies and alternatives work out with the respective stakeholder working groups.

Notification protocols anticipate information sharing among specific transportation agencies, such as between WSDOT and a local Transportation Management Center (TMC) and jurisdictional coordination between the County EOC and respective cities within the county as per local notification and warning plans. Coordination and communications concepts are covered in Section V – Information Collection and Dissemination, Section VI - Communications and Appendix E – Roadways Toolbox.

B. Fifty (50) Potential Detour Scenarios: Route Information and Maps

Due to the size of the files containing this information, this Appendix, with its own Table of Contents and Record of Revisions is published separately. An index of the disruption scenarios is found in Table B- 1.

Table B- 1: Potential Detour Scenarios and Routes Index

	Type	Route	Location	Comment
Potential Detour Scenarios and Routes Index				
Island County				
1	SR	20	Deception Pass Bridge	Bridge
2	SR	532	Davis Slough Bridge	Bridge to Camano Is.
King County				
3	SR	167	I-405 to County Line South	Segment
4	I	405	I-90	Interchange
5	I	405	I-5 to SR 167	Segment
6	I	5	Ship Canal Bridge	Bridge
7	I	90	Snoqualmie Pass	Pass
8	I	405	Renton, Exit 2 to Exit 4	Segment
9	I	405	Bothell, Exit 18-20	Segment
10	I	5	SR 599 to SR 900	Segment
11	I	90	Floating Bridge	Bridge to Mercer Is.
12	SR	522	I-405 to I-5	Segment
13	I	405	SR 520	Interchange
King County (con't)				
14	SR	520	Floating Bridge	Bridge to Bellevue
15	SR	99	I-90 to Snohomish Co. Line	Segment
16	SR	181	I-405 to SR 516 (W Valley Hwy)	Segment
17	W. Seattle Hwy		High Bridge	Bridge
18	I	5	I-405/SR 518	Interchange
19	SR	99	Aurora Bridge	Bridge - Ship Canal
20	US	2	Skykomish	To Stevens Pass
21	I	5	I-90	Interchange
22	SR	99/AWV	Battery Street Tunnel	Tunnel to South End
23	I	5	SR 520	Interchange
Kitsap County				
24	SR	305	Bridge to Bainbridge Island	Bridge
25	SR	3	SR 16	Interchange
26	SR	104	West of Miller Bay Road	To 307
Mason County				
27	US	101	Hoodsport to Potlatch	Segment
28	US	101	Kennedy Creek Bridge	N of Thurston Co. Line
Pierce County				
29	Various		Bridges over the Puyallup River	Bridge
30	SR	16	Tacoma Narrows Bridge	Bridge
31	I	5	SR 16	Interchange
32	I	5	Puyallup River Bridge	Bridge
33	I	5	SR 16 to King Co. Line	Segment
34	I	5	SR 512	Interchange
35	I	5	SR 512 to Thurston Co. Line	Segment

			Potential Detour Scenarios and Routes Index	
36	SR	410	SR 167/SR512	Interchange
37	I	5	SR 512 to SR 16	Segment
Skagit County				
38	I	5	Skagit River Bridge	Bridge
39	SR	20	Swinomish Channel Bridge	Bridge
Snohomish County				
40	I	5	Snohomish River Bridge	Bridge
41	I	5	SR 529	Interchange
42	US	2	I-5 to SR 204	Segment
43	I	5	I-405	Interchange
44	SR	9	Snohomish River Bridge	Bridge
45	I	405	SR 527	Interchange
46	SR	522	Snohomish River Bridge	Bridge
47	US	2	SR 9 to King Co. Line	Segment
Thurston County				
48	Various	I-5/SR507	Bridges over the Nisqually River	Bridge Incl. Mounts Rd.
49	I	5	US 101	Interchange
50	US	101	SR 8	Interchange

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Appendix C. Regional Coordination

A. Regional Coordination

Transportation recovery requires inter-agency and inter-jurisdictional coordination within and between all levels of government. Affected regional jurisdictions must utilize and apply effective Incident Command System (ICS) and National Incident Management System (NIMS) methodologies and techniques. This is especially important in catastrophic incidents involving multiple jurisdictions and multiple disruptions to the transportation network. There are several options for local jurisdictions to be part of a regional coordination process for making decisions and recommendations concerning regional transportation recovery issues.

Concepts for regional coordination are based on several factors. One important factor is that local governments have the authority under state law to establish entities, such as "Working Groups," that bring together appropriate local elected and appointed officials and private sector personnel, decision makers and selected subject-matter experts and stakeholders in specified geographic or functional areas. There is also the authority to use existing entities, such as Metropolitan Planning Organizations, that have pre-existing structures and processes for making transportation related decisions.

A key element in regional coordination is pre-planning. Membership by title or organization in ad hoc organizations could be decided ahead of time, and be based upon recommendations from local elected leaders, department heads and key stakeholders. Local elected officials could take part or delegate decision-making authority. Or they could direct a Unified Command approach, depending upon the circumstances and authorities involved.

Recovery entities focus on information and coordination from the regional perspective for long-term transportation recovery issues in a specific geographic location or functional area. Further, these Working Groups would only be set up when needed to address specific issues best resolved by authorities and stakeholders in a specific geographic or functional area.

Regional transportation recovery entities would be made up of personnel who have jurisdictional responsibility, are key stakeholders in transportation recovery or are significantly impacted by the transportation disruption issues. These personnel would be fully authorized to represent their jurisdiction or agency and could have the authority to commit resources, and authorize expenditure of funds.

> *Recovery entities* do not supersede, replace or duplicate the existing recovery structures established in local plans or that routinely occur among Federal, state and local emergency management organizations.

There are three (3) key regional functions that these regional transportation recovery entities are responsible for during mid- and long term recovery and reconstruction of the transportation network.

1. Regional Common Operating Picture: Information needs will shift from a focus on damage assessment and situational awareness to evaluation of disaster impact on transportation services, estimated timelines for repair and reconstructions and cost estimates. This information is shared among stakeholders and regional partners.

2. Regional Coordination: Developing long term plans for the resumption of freight movement, road and waterways alternatives for commuters, new and revised transit operations and the resumption of

both local and regional traffic movement will require communication and cooperation among transportation stakeholders. Regional transportation recovery entities are a mechanism that can facilitative this coordination and refine criteria to set regional priorities if necessary.

3. Regional Public Information: Developing mid- and long term recovery priorities and strategies will increase pressure to provide information on alternative routes, new transit services and schedules and traffic mitigation strategies to the general public. Regional Transportation Recovery entities will coordinate with local and state Joint Information Centers to ensure accurate transportation related information is available for release to the news media.

Regional Transportation Recovery entities typically engage ESF 2 – Communications, ESF 5 – Emergency Management and ESF 15 – External Affairs from either the State or local levels to collect and share key information with regional partners to facilitate making decisions and recommendations. ESF 15 is the primary public information support function at all levels. Other ESFs may be activated to support the respective entities as needed.

Recovery entities *focus on information and coordination from the regional perspective for long term transportation recovery issues in a specific geographic location or functional area.*

Once formed, regional transportation recovery entities would provide a platform for interaction among regional jurisdictions, transportation stakeholders and potentially, other ESFs in a specific geographic or functional area. They would also facilitate implementation of specified recommendations or directions from the Governor's Task Force during extended recovery periods. Key actions are listed in Table C-1.

Table C- 1: Regional Transportation Recovery Actions

	Regional Transportation Recovery Entities Key Actions
1	Notify and share information with key regional decision makers, subject-matter experts, and ESF members during the recovery process.
2	Facilitate assessment of regional or functional issues by bringing together members of affected jurisdictions and transportation stakeholders and the other ESFs. The assessment information could be made available to regional stakeholders via conference calls, e-mail, or the secure websites, WebEOC or SharePoint sites.
3	Facilitate regional conference calls to receive and share situational awareness reports regarding transportation disruptions and the recovery efforts, to discuss current situation status of affected jurisdiction(s) and stakeholders, prioritize resources and response requirements, and to ensure consistent and uniform messaging.
4	Maintain an incident tracking and status reporting system available on a secure website, through WebEOC or a SharePoint site for authorized parties. Support staff could be assigned the task of continuously updating the informational website/database.
5	Facilitate the coordination of decisions and recommendations regarding recovery priorities, transportation routes and activating the alternate route scenarios.
6	Assist in the development of common messages that could be made available to the respective Joint Information Center to help ensure consistent information to the public.
7	Use websites available to the public, such as WSDOT's http://wsdot.wa.gov/traffic/seattle to relay information on recovery priorities, transportation routes, route status and alternative routes to the public.

Three options for regional coordination in transportation recovery are outlined below:

1. "Bottom up" approach – This involves local jurisdictions taking the initiative to organize working groups to address regional issues.

2. Utilization of existing organizations and institutions – Examples of this are the Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Organizations (RTPOs).

3. "Top down" approach – This involves the State establishing task forces or working groups to address regional issues as part of the governor's long term recovery strategy.

These options are not mutually exclusive. All may play a role in long term recovery operations as other strategies emerge at either the local or state level.

B. Entities Formed by Local Government

Local jurisdictions may form regional transportation recovery entities that are designed to facilitate regional recovery situational assessment, communication, priority setting or decision making. This would be led by ESF 1 – Transportation which has established relationships and lines of communication with public and private transportation stakeholders. This effort would be coordinated with local emergency management agencies and with the overall regional recovery effort. Establishing and operating these entities would involve the following:

- Engage appropriate transportation stakeholders from the public and private sectors to resolve regional transportation issues and help manage local long term transportation recovery efforts.

- Coordinate regional recovery issues that transcend single jurisdictional boundaries. This would provide a forum and a process to resolve problems, find solutions, set priorities and make recommendations. If situations arise where consensus cannot be reached, a method to come to a decision would be agreed to, such as a majority vote or turning to a higher level of government, such as the State.

- Assemble representatives from the County, incorporated cities and towns and other stakeholders that have jurisdiction within their respective political boundaries or have information and resources to contribute. They would be assigned technical, legal and administrative support from their respective jurisdictions.

- Develop a common set of objectives or strategies for the specific issue. Share information, maximize the use of available resources, and provide a unified local or regional voice in coordinating with the State and the Governor's priorities.

- Operate from a virtual or an identified physical location, or establish ad hoc Regional Recovery Centers as necessary.

- Address issues that affect a specific geographical area (such as three counties) or a specific single function (such as coordinating traffic mitigation strategies).

- Involve representatives from other modes of transportation including representatives from state and federal agencies, special districts, and the private sector, military and non-governmental organizations (NGOs), as appropriate. As directed by their respective elected or appointed officials, recommend recovery priorities, goals and objectives to the State recovery organization or to the respective local jurisdictions.

- Construct the capability to sustain the effort throughout the recovery process to minimize turnover of representatives. Document the authority to commit their jurisdiction's resources and commitment to speak with "one voice" to avoid confusion to the public in the recovery process. Members of these groups do not relinquish jurisdictional authority, responsibility, or accountability.

These entities could also play a role in any recovery organization established by the State. If local regional coordination entities are formed, coordination with the State could occur so structures and organizations established locally could be integrated into any state structure formed under the Governor's authority. A conceptual diagram is shown in Figure C-1.

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Figure C- 1: Local Transportation Recovery Entity Concept
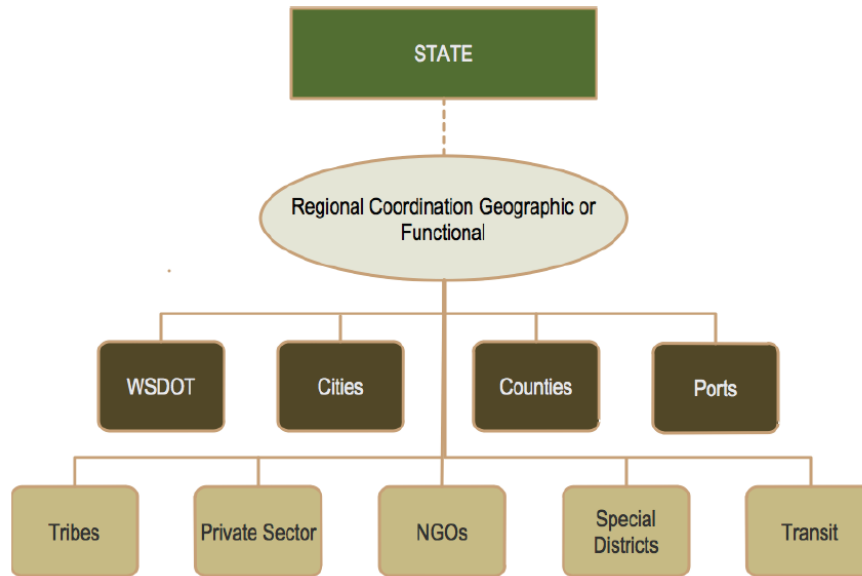
The General Accounting Office (GAO), in their report *HOMELAND SECURITY - Effective Regional Coordination Can Enhance Emergency Preparedness* identified three factors that have historically characterized effective regional coordination. These factors can serve as a guide for the development of regional coordination entities formed by local government initiative.

- Decisions made collaboratively by regional organizations with representation from many jurisdictions and diverse stakeholders are more likely to have broader support than those that are unilateral.

- Overly prescriptive requirements can impede effective coordination. Where regional collaboration is encouraged by the local and state leadership and there is flexibility to establish their membership requirements and collaborative processes, regional organizations can be flexible and expand the scope of collaborative activities to adjust to the uncertainties of the disaster recovery environment.

- Recovery plans developed by regional organizations that contain measurable and quantifiable goals and objectives are effective tools to focus transportation recovery resources and efforts. These goals and objectives help define problems and planned steps and measure progress.

C. Regional Coordination Accomplished by Existing Organizations

Local leadership has the authority to delegate some recovery decision making to existing organizations, including Metropolitan Planning Organizations

MPOs and RTPOs serve the same basic transportation planning functions:

- Develop a long-range plan,
- Coordinate within a region, and
- Prepare a transportation improvement program.
- The lead agency for a RTPO is also the lead agency for the MPO within the region.

(MPOs) and Regional Transportation Planning Organizations (RTPOs), which are the primary entities responsible for transportation planning in a region.

Federal transportation law requires MPOs with multi-jurisdictional representation, such as the Puget Sound Regional Council (PSRC), to agree on a regional plan, and allows the use of federal highway and transit funding for such planning. State law has established RTPOs to support regional planning efforts. The federal MPO and state RTPO requirements are complementary.

Local leadership could delegate some recovery decision making to existing organizations such as these MPOs and RTPOs. RTPOs were authorized as part of the 1990 Growth Management Act to ensure local and regional coordination of transportation plans.

An RTPO covers both urban and rural areas and receives state funding in support of its planning efforts. WSDOT provides some administrative and technical assistance, supports RTPO coordination activities, and actively participates in the regional transportation planning process.

An MPO covers an urbanized area and receives federal funding to support its planning efforts. WSDOT may provide administrative and technical assistance, supports RTPO coordination activities, and actively participates in the regional transportation planning process.

RTPO requirements and expectations

- Planning must involve cities, counties, WSDOT, transit agencies, ports, and private employers;
- Required to prepare a Regional Transportation Plan;
- Must certify that countywide planning policies and the transportation element of local comprehensive plans are consistent with the Regional Transportation Plan;
- Must develop and maintain a six-year Regional Transportation Improvement Program.

Considering these responsibilities, MPOs and RTPOs may be suited to assume the coordination role for some regional transportation recovery issues, including but not limited to such factors as the scope of the issue, the involved jurisdictions and authorities, and the source of recovery funding. A conceptual diagram is shown in Figure C-2.

Figure C- 2: Existing Organizations Transportation Recovery Concept
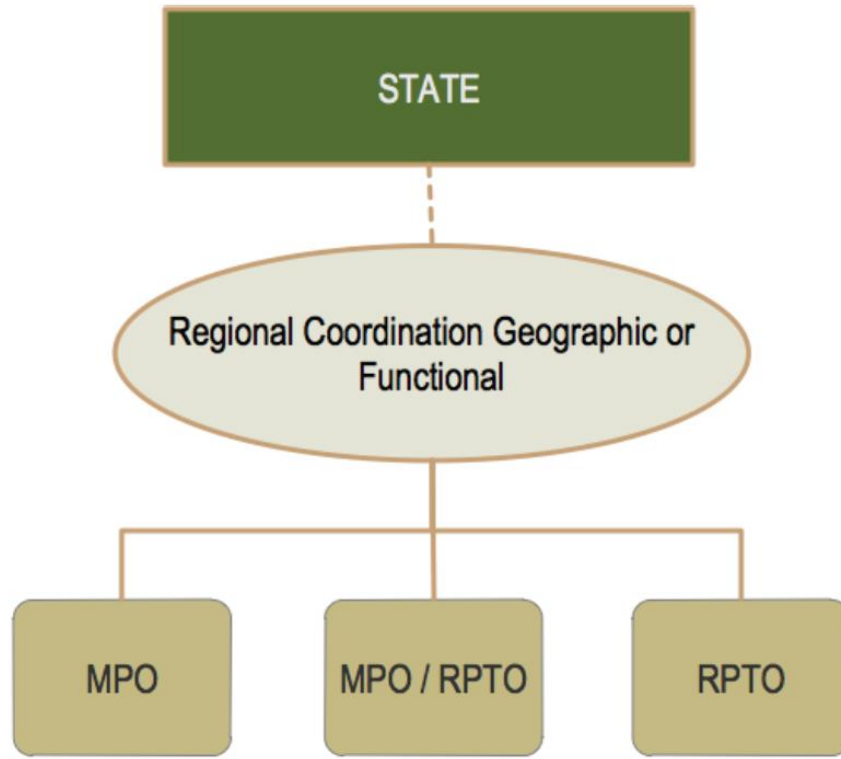
The MPOs and RTPOs in the Puget Sound Region are shown in Table C-2.

Table C- 2: Puget Sound MPOs and RTPOs.

Organization	Kind	Jurisdictions
Puget Sound Regional Council	MPO/RTPO	Snohomish, King, Pierce and Kitsap Counties. Thurston is an Associate Member
Thurston Regional Planning Council	MPO/RPTO	Thurston County
Peninsula Regional Transportation Planning Organization	RTPO	Jefferson, Clallam, Mason and Kitsap Counties
Island-Skagit Regional Transportation Planning Organization	RTPO	Island and Skagit Counties
Skagit Metropolitan Planning Organization	MPO	Skagit County

D. Regional Coordination - State Draft Plans

Local jurisdictions are involved in regional coordination through coordination concepts in the State of Washington Comprehensive Emergency Management Plan. Part of this plan includes Emergency Support Function ESF 14 – Long Term Community Recovery, which is under development. The current draft concept on how the State intends to manage long term economic recovery is the Washington Restoration Organization (WRO). Under the current concept, after catastrophic incidents, the governor will establish the WRO by Executive Order and it shall work directly for the Office of the Governor in coordinating and managing statewide and regional recovery and restoration activities.

Purpose of the WRO

• Accelerate recovery by providing a single point of contact at the state level for Washington citizens, the private sector, and local, state and federal governments to facilitate, coordinate and manage restoration operations.

• Encourage broad participation from all levels and sectors of the community to implement executive level policies and coordinate long-term restoration activities and programs.

The process is also designed to link local jurisdictions, the private sector, voluntary agencies and state agency recovery efforts to federal relief and federal assistance programs. The current Draft WRO structure envisions the formation of five individual task forces made up of public and private sector representatives, appointed by the WRO Director with the approval of the WRO Board of Directors. These task forces will work on issues relating to:

- State Agency Recovery and Restoration
- Infrastructure
- Economic Recovery and Development
- Communities
- The Environment

Elements of the structure of the WRO call for liaison with communities and the private sector. A conceptual diagram is shown in Figure C-4.

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Figure C- 3: Washington Restoration Organization Recovery Concept
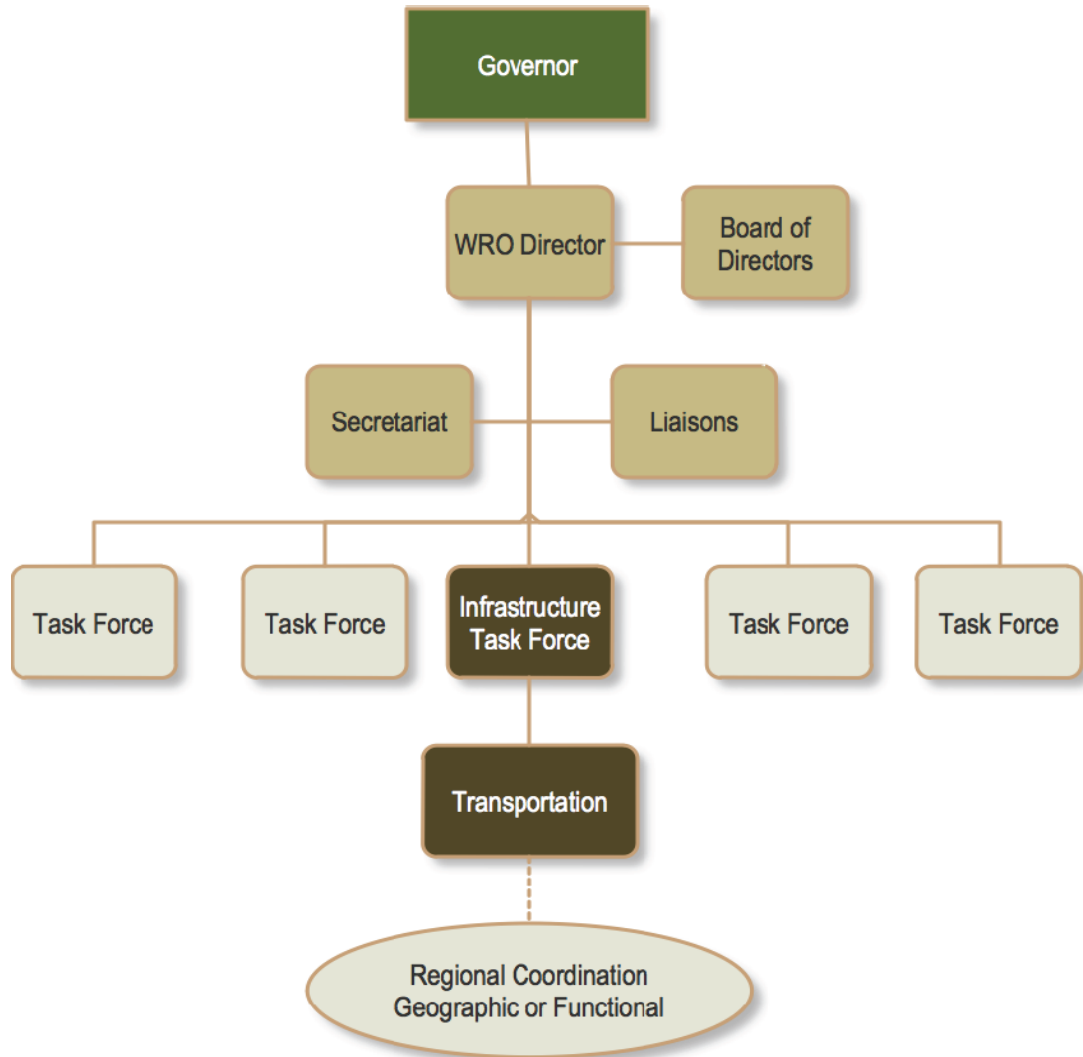
As much as possible, the regional and county, metropolitan and urban liaison positions are filled through existing institutions such as the Washington State Association of Counties and the Association of Washington Cities. State agencies such as WSDOT, WSP and others with transportation responsibilities are part of this process. For long-term transportation recovery, a critical component is the Transportation Working Group under the Infrastructure Task Force.

The Working Group develops long-term transportation restoration strategy through direct participation and consensus of affected local, regional and state level stakeholders. The process prioritizes transportation recovery strategies and initiatives that require the governor's approval for implementation. If local jurisdictions form working groups to address regional transportation recovery issues, these could merge into the WRO process after a catastrophe.

The basic Concept of Operations for the WRO is as follows:

- Governor's Office identifies potential candidates for key roles in the WRO and appoints a director and a board of directors.

- The Department of General Administration provides support.

- Activation of the WRO assumes that state and local government recovery capabilities are overwhelmed.

- Local recovery plans must be compatible with and able to coordinate seamlessly with state recovery planning efforts.

- The WRO will coordinate with local government recovery organizations to develop community driven local and regional recovery plans.

- Counties, tribes, cities and private sector entities to provide a liaison to the WRO to ensure their needs come before the appropriate WRO element.

Appendix D. Prioritization of Roadway Restoration and Reconstruction

A. General Information

This appendix provides a guideline for prioritizing the restoration of the roadway portion of the transportation system after a major catastrophe that severely impacts the regional transportation network. It could be applied on a jurisdictional or a regional basis. The process could be led by a jurisdiction of by the state. This guideline may also be adapted for use with prioritizing projects for other modes of transportation.

B. Prioritization Process

Multiple critical roadway infrastructures may need replacing after a disaster, and the prioritized timeline for which roadway sections and structures are replaced has significant economic impacts at local, state and federal levels. This information is a starting point for local jurisdictions to use for discussions within the region and the state.

> *Prioritization is an iterative process that requires the following:*
> - *Information gathering;*
> - *Ranking segment repair;*
> - *Assessing the outcome; and*
> - *Adjusting the weights in the ranking spreadsheet based upon the situation at the time of a catastrophe.*

The prioritization guideline comes from *"A Guide to Highway Vulnerability Assessment"* prepared for the American Association of State Highway and Transportation Officials' Task Force (AASHTO) by the Science Applications International Corporation (SAIC). The guideline was then modified based on recovery planning best practices and stakeholder input. Table D- 1 lists the needed information to establish rankings for roadway segments. Local authorities should obtain those items listed in the "information gathering" category.

Table D- 1: Prioritization Components

Prioritization Components
Description of High Priority Regional Transportation Asset Factors and Values
Spreadsheet for Calculation for Priority Ranking of Restoring Damaged Road Segments
Information Gathering
Emergency Response
• Map of Hospitals   • Map of Resource Points of Distribution   • Map of Emergency Response Routes and/or Lifelines
Military Importance
• Map of military bases and routes that serve bases

Available Alternate

- Map of alternative routes and status (e.g. capacity)

Communications Dependency

- Map of utilities located within rights-of-way that are affected by disruption (see attached contact list)

Economic Impact

- Local Economics and Finance Departments to provide information

Intermodal Freight Connections

- Map of intermodal facilities and status of connecting modes (i.e. ports, rail, trucking, etc.)

Transit Services

- Map of transit service regions

C. Prioritization Tools

Jurisdictions establish priorities about which transportation assets should be repaired/restored first. The prioritization process entails scoring a set of criteria developed in relation to the transportation network. Circumstances at the time of the incident will determine the selection of criteria and weighting of the categories.

Use the prioritization guidelines in Table D- 2and Table D- 3 as a starting point for this process.

Table D- 2: Priority Regional Transportation Asset Factors and Values

High Priority Asset Factor/Criteria	Max Value	Weight	Description	Scoring Considerations
Benefit to Public Services				
A. Emergency Response Function	3	15%	Does the asset serve an emergency response function and will the action or activity of emergency response be affected?	Does route directly serve hospitals, resource points of distribution, etc.? Is route a previously identified emergency response route?
B. Government Continuity	3	15%	Is the asset necessary to maintain government continuity?	Does route directly serve city/county/state agencies essential for government continuity?
C. Military Importance	3	15%	Is the asset important to military functions?	Does the route directly serve military bases and/or facilitate movement of military resources?
Benefit to the General Public				
D. Available Alternate	3	10%	Is this the only asset that can perform its primary function?	Are there no alternatives that will substitute adequately in lieu of this asset? A max score of 3 translates to no alternatives routes are available.
E. Communication Dependency	3	5%	Is communication dependent upon the asset?	Does this asset support critical communication infrastructure facilities or operations?
F. Economic Impact	3	15%	Will restoration of the asset have a positive effect on the means of living, or the resources and wealth of a region or state?	Does this asset serve major employment or trade centers? Does this asset serve ports?
G. Intermodal Freight Connections	3	15%	Does this route connect to intermodal transportation hubs?	Does this route connect to deep water ports?
H. Transit Services	3	10%	Does the route provide relief to congestion and traffic mitigation?	Is it or will it be a transit route or alternative transit route?

Table D – 3: Priority Ranking for Repair/Restoration of the Regional Transportation Assets

Table D- 3 provides a spreadsheet for calculating the priority ranking for repair/restoration of regional transportation assets. The letters A through H correspond with the asset factors listed above. For each asset, enter the applicable factor/criteria value up to the maximum score possible within each category.   The sum of these values (x) times the respective weighting factor represents the total score for that asset. Then rank the scores from highest to lowest. The maximum possible value is 3. The assessment team then compares the results and adjusts weights and categories as required. Priorities will change with changes in regional policy; subsequently, the prioritization process may be ongoing.

Table D- 3: Priority Ranking of Regional Transportation Assets

Regional Transportation Asset 3 – High 2 – Medium 1 – Low	Critical Transportation Asset Factor/Criteria								Total Score (x)
	15%	15%	15%	10%	5%	15%	15%	10%	
	A Emergency Response Function	B Government Continuity	C Military Importance	D Available Alternate (3 = no alternate)	E Communication Dependency	F Economic Impact	G Intermodal Connections	H Transit Route	

Appendix E. Roadway Toolbox

A. General Information

This section provides toolbox information for road and bridge assessments, mitigation strategies for use in lessening the impact of roadway disruptions and resource information listings.

B. Roadway Assessments

A significant element of the recovery process for the roadway transportation system begins with the assessment of damages to bridges and roadway structures and the sharing of this information among local jurisdictions and the state. Information in this sub-section on inspection and damage assessments of bridges are taken from the WSDOT "Handbook for the Post-Earthquake Safety Evaluation of Bridges", which is also referenced in the WSDOT EOP. The National Bridge Inspection Standards (NBIS) was also used as a reference. This information can be utilized to gather initial assessment information for transportation infrastructure, such as roads, bridges, retaining walls, seawalls, stairways, and tunnels, and to aid in prioritizing restoration.

Table E- 1: The WSDOT Bridges and Roadway Structures Checklist provides a process for local jurisdictions for inspecting bridges and coordinating with neighboring cities and/or counties upon closure of bridges. It also contains information about coordinating with fire departments and considering alternative transportation options for extended closures of bridges to island communities.

Table E- 1: Bridges and Roadway Structures Checklist

Bridges and Roadway Structures Checklist	
√	Local Road Services Division – Level I Inspection of Bridges and Roadway Structures
	Provide Level I inspection of local bridges and relay information to local EOC/ECC (See Figure E -2)
	Walls (retaining, seawalls, sound barriers, etc.), stairways, and tunnels may be damaged or have collapsed. Level I inspection by local authorities (to the extent possible) should be conducted for other local roadway structures.
	Coordinate traffic mitigation with neighboring cities or counties and local law enforcement.
	Prioritize structures to be repaired/replaced within the city and/or county and send to State EOC, as needed for funding. (See Appendix D - Prioritization guideline procedures for damaged or collapsed road segments).
√	Identify Inspection Access Routes for Level II and III analysis
	Provide routes based on observation (i.e. van-type, maritime (if over navigable waterway), helicopter) for personnel to inspect the roadway structures.

Bridges and Roadway Structures Checklist	
√	Closure, Repairs, and Shoring
	Is the structure in imminent danger of collapse? If so:
	Coordinate with the State Patrol/local law enforcement to stop traffic from crossing the bridge.
	Radio for regional assistance to provide temporary barricades.
	Inform the local EOC/ECC of the closing.
	What needs to be done to ensure public safety and prevent further damage? Traffic restrictions on the bridge will be implemented by local road services divisions based on inspection teams' recommendations.
	Shoring or repair requests should be sent to local EOCs.
	The local EOCs will make decisions concerning repair implementation.
	The local EOCs will inform County or State EOCs of closings and repairs.
√	Conduct Level II and III inspections
	State and local roadway structures inspectors conduct Level II and III inspections based on Level I inspections.
√	Life Safety -Restrictions or Bridge Closures
	Fire Department vehicles may exceed weight limitations and may Conduct Level II and III inspections be affected by bridge closures.
	State Patrol and/or local law enforcement and Fire Departments should be notified of any roadway alterations or restrictions.
	Bridges over navigable waterways are regulated by the United States Coast Guard (USCG). As such, the USCG must be notified of any drawbridge closures or bridges presenting an imminent danger of collapsing on navigable waterways.
√	Lifelines – Single Bridges that Access Islands
	A single bridge that is the primary access to an island is considered a "lifeline" to island communities. If the bridge is closed for an extended period of time, freight/supplies may need alternative modes of transportation. (See the Appendices F and G for alternative transportation options)

Figure E- 1is the WSDOT flow chart for the post-earthquake inspection of bridges.

Figure E- 1: Flow Chart for the Inspection Procedure for Bridges (January 2011)
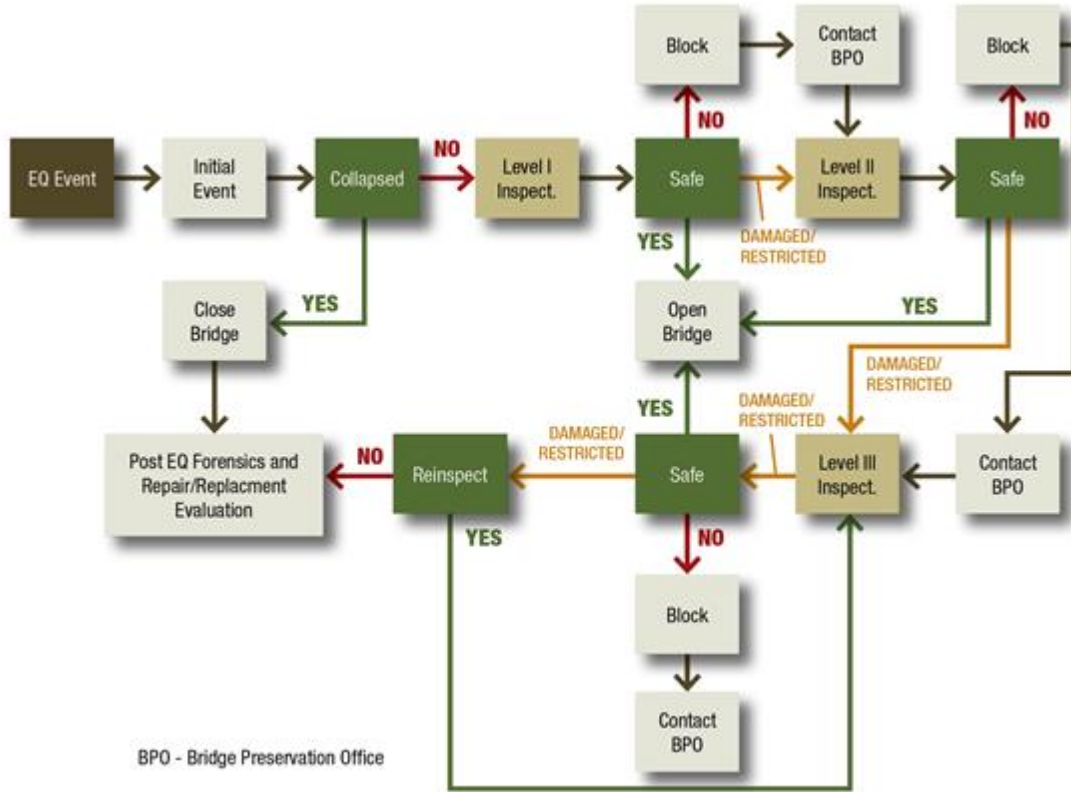
Source: WSDOT Handbook for the Post-Earthquake Safety Evaluation of Bridges

Table E- 2 provides a description of Inspector Qualifications, Methods and Objectives.

Table E- 2: Inspector Qualifications, Methods and Objectives.

Inspector Qualifications, Methods and Objectives			
	Level I First Response	Level II Structural/Geotechnical Inspection	Level III In-Depth Inspection
Inspection Area	All bridges within the area affected by the earthquake.	All bridges in the affected area except those that have complete span collapse.	All bridges recommended for further inspection by Level II teams.
Method of Inspection	Rapid visual survey using: Aerial view (helicopter), drive through, or traffic video-camera.	Hands on visual inspection using: Ladders, ropes and safety harnesses, and any other available access equipment.	Hands on visual inspection supplemented with specialized equipment and/or personnel as required.
Personnel	Region maintenance Law enforcement Incident response teams News media	Bridge inspection team leaders Civil/Structural PE's	Civil/Structural PE's Geotechnical engineers Bridge inspection team leaders
Objectives	(1)Close obviously unsafe bridges. (2) Identify routes that cannot be traversed. (3) Identify vicinities with major damage.	(1)Close or restrict bridges. (2) Open bridges deemed not critically damage but previously closed by Level 1 responders. (3) Document inspection findings. (4) Collect information for capacity and repair calculations. (5) Establish baseline information (measurements, photos, etc.) for Level III inspections as necessary. (6) Identify manpower and equipment needs for Level III inspection as necessary.	(1) Confirmation or adjustment of Level II restrictions. (2) Follow up inspection to complete Level II assessment (3) Establish repair recommendations. (4) Develop and implement a structural monitoring plan as necessary.
Resources	Any and all resources available. Emergency Kits.	Standard bridge inspection equipment supplemented with water, food, and supplies for 72 hours per person.	"Handbook for the Post-Earthquake Safety Evaluation of Bridges", see Chapter 4. Coordinate through the State EOC for further information.

Source: *WSDOT Handbook for the Post-Earthquake Safety Evaluation of Bridges*

Figure E- 2, LEVEL I First Response Inspection Documentation Form is already in use for state owned bridges. This form has been recommended for use by local public works agencies and/or bridge inspection departments for Level I inspections.

The form is part of the new WSDOT "Handbook for the Post-Earthquake Safety Evaluation of Bridges" (not yet available). Training for first inspections is currently available by using the video and manual, "Student Manual to Accompany Training Video on Post-earthquake Safety Evaluation of Bridges State of Washington" posted on the WSDOT website:
ftp://ftp.wsdot.wa.gov/incoming/Nisqually%20Post%20EQ%20Inspection/

LEVEL I First Response Inspection Documentation Form (from WSDOT Handbook for Post-Earthquake Safety Evaluation of Bridges)		
REPORT THIS INFORMATION TO EOC		
Bridge Identification		**Overall Assessment**
Bridge Number		**Cause for Closure (Y/N)** _____
Bridge Name		**Closed to Traffic (Y/N)**_____
Bridge Location		
Inspector Identification		**Inspection Method**
On site Inspector (if applicable)		☐ **On Site Inspection**
Form Completed by (if other than inspector)		☐ **Traffic Video**
Inspection Date/Time	*/*	☐ **Aerial Reconnaissance**
		☐ **Public Media**
		☐ **Other** _____
Condition Findings		
Structural Collapse/Partial Collapse (Y/N)		
Does collapse obstruct arterial or RR below? (Y/N)		

Figure E- 2: Level 1 First Response Inspection Documentation Form

LEVEL I First Response Inspection Documentation				
Bridge Assessment	**Yes**	**No/Not Applicable**	**Not Inspected**	**Needs Level II Inspection Y/N**
Structural Damage				
A. Deck				
1	Horizontal or vertical misalignment of deck or rails (take measurements of misalignment)			
2	Fresh damage to rails, curbs, deck joints			
3	Excessive deck joint openings (take measurements of opening)			
4	Large settlements of bridge approaches (take measurements of settlement)			
5	Other deck structural damage (describe below)			
B. Superstructure				
1	Settlement or shifting of girders (take measurements of settlement/shifting)			
2	Spalling/cracking of girders (large and/or dense cracking visible from 30 feet or more justifies bridge closure)			
3	Girder movement off of bearing supports (take measurements)			
4	Bent or broken steel members			
5	Other superstructure structural damage (described below)			
C Substructure				
1	Substructure movement – tilting, bending, settlement			
2	Dense or large concrete cracks			
3	Concrete spalling			
4	Soil cracking and/or slumping under in immediate vicinity of bridge			
5	Spalling of concrete above columns			
6	Broken piles or columns			

7	Loss of soil under substructure				
8	Other substructure damage (describe below)				
Comments:					
Utilities (Comment on utility damage – leaking pipes, live wires, etc.)					
For any items listed as "not inspected" above, state reasons. Use alphanumeric reference for notes.					

Note: Utility contact information is provided in sub-section G - Roadway repair and replacement information.

Table E- 3 is the Highway Facilities Checklist listing highway facilities eligible for FHWA Emergency Relief.

Table E- 3: Highway Facilities Checklist

Highway Facilities Checklist							
Facilities (Examples of facilities eligible for emergency relief within highway right of way limits)	Operations and Maintenance						
	Pavement Cracking	Observed Depression in Pavement	Landslide	Observed Damage to Structure	Obstructions	Building Damage	Ponding or Blockage
Base Courses	x	x					
Bike and pedestrian paths	x	x	x	x	x		
Bridges	x	x	x	x	x	x	x
Corridor parking facilities	x	x		x	x	x	x
Cribbing or other bank control features	x	x	x	x	x		x
Culverts, pipes, and similar structures	x	x	x	x	x		x

Highway Facilities Checklist							
Facilities (Examples of facilities eligible for emergency relief within highway right of way limits)	Operations and Maintenance						
	Pavement Cracking	Observed Depression in Pavement	Landslide	Observed Damage to Structure	Obstructions	Building Damage	Ponding or Blockage
Cut slopes			x		x		
Drainage courses			x	x	x		x
Embankments	x		x		x		
Fences				x			
Guardrail				x			
Natural stream channels or manmade channels, including riprap			x	x	x		x
Pavements or other surface courses	x	x	x	x	x		
Rest areas	x	x	x	x	x		
Retaining Walls	x	x	x	x			
Shoulders	x	x	x	x	x		x
Signs and traffic control devices	x	x	x	x	x		

Table E- 4 provides bridge inspection contacts for the Puget Sound Region.

Table E- 4: Bridge Inspection Contacts for the Puget Sound Region (July 2010)

Bridge Inspection Contact List	
Agency	**Contact Information**
Pierce	**Pierce County Public Works & Utilities** 2702 South 42nd Street, Suite 201 Tacoma, WA 98409-7322 Phone: (253) 798-7250
King	Bridge Unit Engineering Services Section King County Road Services Division 201 S. Jackson St. Seattle, WA 98104 Phone: (206) 296-6520 Phone: 1-800-527-6237 toll-free engineering.roads@kingcounty.gov Fax: 206-296-8754 TTY: 711 Relay Service
Island	Public Works Department 6th & Main, Coupeville, WA Phone: (360) 679-7331 Fax: 360-678-4550
Snohomish	Bridge Design Group 5th floor, County Admin-East Building 3000 Rockefeller Ave., M/S 607 Everett, WA 98201 Phone: (425)-388-3196
Skagit	Public Works Department 1800 Continental Place Mount Vernon, WA 98273 Phone: (360) 336-9400 Fax: (360) 336-9478

Bridge Inspection Contact List	
Agency	**Contact Information**
	pw@co.skagit.wa.us
Kitsap	Department of Public Works 614 Division Street, Port Orchard, WA MS-26 Phone:(360) 337-5777 Fax:(360) 337-4867 Kitsap1@co.kitsap.wa.us
Thurston	Thurston County Public Works (360) 709-3038 MILLSL@co.thurston.wa.us
Mason	Mason County Public Works 100 W Public Works DR, Shelton WA 98584 Phone: (360) 427-9670 x450
WSDOT Highways and Local Programs	http://www.wsdot.wa.gov/localprograms/bridge/
WSDOT Bridge Preservation Office	Phone: (360) 480-4500 for single incident Contact State EOC for multiple incidents http://www.wsdot.wa.gov/eesc/bridge/index.cfm?fuseaction=office_locations
FHWA – Washington Division	http://www.fhwa.dot.gov/wadiv/opd.htm
Seattle	http://www.cityofseattle.net/transportation/contact.htm
Tacoma	Tacoma Public Works Department http://www.govme.org/govME/Admin/Inter/Contacts/AContacts.aspx

Bridge Inspection Contact List	
Agency	**Contact Information**
Everett	Everett Public Works Department 3200 Cedar St. Everett, WA 98201 Phone: 425-257-8800 Fax: 425-257-8882 everettpw@ci.everett.wa.us
Bellevue	**Service First Desk** 450 110th Ave. NE P.O. Box 90012 Bellevue, WA 98009 Phone: (425) 452-6800
Renton	Renton Public Works Department 1055 S Grady Way Renton, WA 98057-3232 Phone: (425) 430-7204
Tukwila	City Public Works Dept. 6300 Southcenter Blvd # 100 Tukwila, WA 98188-8548 Phone: (206) 433-0179 tukpweng@ci.tukwila.wa.us
Mount Vernon	Public Works Department 1024 Cleveland Ave. Mount Vernon, WA 98273 Phone: (360) 336-6204 Fax: (360) 336-6299
Mill Creek	Public Works Dept. http://www.cityofmillcreek.com/DEPARTMENT%20PAGES/PUBLI

Bridge Inspection Contact List	
Agency	**Contact Information**
	C%20WORKS%20MAIN%20PAGE.html
Kent	Kent Public Works Department 5821 S 240th St Kent, WA 98032 Phone: (253) 856-5600
Auburn	Auburn City Public Works 25 W Main St Auburn, WA 98001-4916 Phone: (253) 931-3010
Bothell	Public Works Department Dawson Building 9654 NE 182nd St. Bothell, WA 98011 Phone: (425) 486 2768
Issaquah	Issaquah City Public Works 1775 12th Ave NW, Issaquah, WA 98027-8938 Phone: (425) 837-3400

C. Transportation Mitigation Strategies

Transportation mitigation strategies are grouped into four (4) categories based on the desired results. The strategies are classified as Increasing Capacity on Existing Lanes, Technology, Diverting or Redirecting Traffic and Demand Management.

Table E- 5 provides an overview of transportation mitigation strategies, from how to increase capacity on existing lanes to demand management, organized by the phase of the recovery effort in which they usually occur. It lists general transportation mitigation strategies and identifies which of the individual strategies can be applied during short-, mid- or long-term phases of recovery. (See Appendix 2 for applications to specific mitigation strategies associated with each disruption scenario.) Subsequent sections describe each set of strategies, and provide information on how it fits into the overall recovery plan, with considerations for ease of implementation.

Table E- 5: Transportation Mitigation Strategies

Strategies	Phases			Comments
	Short-Term	Mid-Term	Long-Term	
Increase Capacity on Existing Lanes				
Operate Contraflow Lanes	√	√	√	
Utilize Reversible Lanes	√	√	√	
Restrict Lanes for HOV or BAT	√	√	√	
Provide HOV Bypass at Bottlenecks	√	√	√	
Utilize the Shoulder of a Roadway as an Additional Traffic Lane	√	√	√	
Eliminate/Restrict On-street Parking	√	√	√	
Reduce Lane Widths to Accommodate Additional Lanes	√	√	√	
Ramp Metering	√	√	√	
Increase Transit Service	√	√	√	
Increase Ferry Service	√	√	√	See Appendix F – Waterways Toolbox
Improve Transportation Incident Management	√	√	√	
Implement Traffic Management Technology	√	√	√	
Change Signal Timing to Accommodate Changed Travel Patterns	√	√	√	
Reprioritize Current Transportation Projects	√	√	√	See Appendix D - Prioritization
Divert or Redirect Traffic				
Revise Transit Routes	√	√	√	

Transportation Mitigation Strategies				
Strategies	**Phases**			**Comments**
	Short-Term	Mid-Term	Long-Term	
Construct Bypass Roadway	√	√	√	
Close Selected Freeway On/Off Ramps	√	√	√	
Relocate Ferry Service		√	√	See Appendix F – Waterways Toolbox
Manage Truck Usage	√	√	√	
Designate Emergency Responder Routes	√	√	√	
Conversion of non-motorized trails to restricted use			√	
Demand Management				
Tele-Commuting	√	√	√	
Staggered Work Shifts			√	
Compressed Work Week	√	√	√	
Passenger-Only Ferry Service	√	√	√	See Appendix F – Waterways Toolbox
Congestion Pricing			√	
Vanpool/Carpool Incentives			√	
Additional Park and Ride Lots	√	√	√	
Increase Bicycle Usage	√	√	√	
HOV Designation	√	√	√	

1. Strategies for Increasing Capacity on Existing Lanes

a. Operate Contraflow Lanes

This involves increasing the capacity for travel in one direction by using a lane or lanes that normally serve opposing traffic. Depending on traffic volumes and other available routes, contraflow lanes can be used intermittently, temporarily during construction or permanently. Setting up contraflow lanes can take several months, and involve a detail review of safety and operating procedures. Some construction may be required at the physical start and end of the lanes, and this often requires extensive signing and

installation of safety devices. The planning and activation of contraflow lanes demands extensive coordination between the operating agency and law enforcement.

b. Utilize reversible lanes

This involves changing the direction of traffic flow in a lane or lanes, typically depending on time of day. This strategy is most commonly used to accommodate morning and evening peak traffic by switching the direction of traffic at preset times. Reversible lanes usually occupy a dedicated and physically separated roadway within the right of way. Setting up reversible lanes can take many months, and involve a detail review of safety and operating procedures. Some construction may be required at the physical start and end of the lanes, and this often requires extensive signing and installation of safety devices. The planning and execution of reversible lanes demand extensive coordination between the operating agency and law enforcement.

c. Restrict lanes for HOV or BAT

This involves reserving a traffic lane or lanes for a specialized use such as high occupancy vehicles (HOV), transit only or business access and transit (BAT) lanes. HOV lanes provide a less congested lane compared to the remaining general purpose lanes, thus providing an incentive for drivers to use transit and/or carpooling/vanpooling. HOV lanes on freeways are normally the leftmost lane(s), while HOV lanes on arterial roadways are typically the rightmost lane (BAT lane) or shoulder, where buses can easily make pickups and drop-offs.

Conversion may take several forms.

- Conversion of a regular traffic lane or shoulder to HOV or BAT lanes.
- Conversion of entire roadways to HOV and/or transit only.
- Operating an HOV lane in a contraflow or reversible configuration.

Cars and trucks are also allowed to use this lane for access to local business driveways. The public often resists conversion of general use lanes to HOV use because single occupant drivers represent the majority of road users. Converting shoulders to HOV use is often easier to implement, but decision-makers must evaluate safety issues concerning vehicle breakdowns. Implementation requires minimal construction, but may require extensive signing and pavement markings, and may require adjustment of the HOV designation.

d. Provide HOV bypass at bottlenecks

This involves increasing passenger throughput by providing priority to high occupancy vehicles at strategic locations where bottlenecks occur on a regular basis. The bypass can be limited to buses or include all HOVs. Jurisdictions use the bypass concept in a wide range of circumstances, from simple use of a shoulder for a short distance at a merge point, up to construction of a separate roadway section that bypasses a congested section or exit ramp. HOV bypass lanes provide an incentive for transit and carpooling/vanpooling by reducing travel time. HOV bypass lanes often have high value, since they frequently require little or no construction to provide preferential treatment for HOV vehicles.

e. Utilize the shoulder of a roadway as an additional traffic lane

Many roadways have shoulders of sufficient width to accommodate passenger vehicles. However, any proposed use for a long period of time may require strengthening of the pavement prior to use, prohibiting heavy vehicles from the lane, or reconstruction of the pavement at a later date.

*On non-freeway sections, **insufficient turning radii at intersections** may reduce capacity to less than that of a full travel lane.*

Local streets may require restriction of truck traffic from a converted shoulder lane. Planners must evaluate traffic conditions up and downstream from the section to determine if this strategy has benefit, but often, implementing this strategy requires only signs and pavement markings.

f. Eliminate/restrict on-street parking

This involves removing parked cars from the roadway to provide an additional traffic lane. Jurisdictions can easily implement the restriction, and use it intermittently (peak hours), temporarily or permanently, but it requires enforcement. Intersection geometry may reduce capacity due to insufficient turning radii similar to utilizing the shoulder lane. The biggest hurdle for implementing this strategy is the impact to residences and businesses along the route. Providing alternative parking areas or restricting the hours can help reduce local impact.

g. Reduce lane widths to accommodate additional lanes

This involves restriping an existing pavement to provide additional lanes. For example, a three-lane section with lanes of the standard freeway width of 12 feet can be restriped to four nine-foot wide lanes in the same 36 feet of pavement. Additionally, restriping can incorporate any pavement width gained by utilizing the shoulder areas or removing parking. Reduced lane widths producing an additional travel lane can often provide critically needed capacity through the most congested areas. Authorities may need to impose slower speed limits in these sections along with a review of large truck usage (the largest tractor trailers are 8.5' in width) and roadway geometry.

Transit usage is a key component of transportation recovery, since transit operations can move larger numbers of people, and managers can adjust routes to accommodate breaks in the transportation system and possible relocation of ferry service.

h. Meter ramps

This involves controlling the rate at which vehicles enter a freeway section to minimize disruption to the traffic flow on the mainline. Individual ramp metering can be responsive to demand and capacity in real time, or be programmed to a constant flow rate based on historical data. Ramp metering can be added with minimal construction.

i. Increase transit service

This involves adding and expanding transit service to increase passenger carrying capacity. This strategy may take the form of increased frequency, expanded hours of operation, additional routes, etc.

and may require an increase in vehicle fleet and adjustment in vehicle size. Roadway geometry must be considered along with routing for buses, since minimum turning radius is a concern with large buses.

j. Increase ferry service

This involves increasing frequency and expanding hours of operation to increase passenger carrying capacity. This may require an increase in vessel fleet and adjustment in vessel size, which must be matched with terminal/dock specifications. Passenger-only service (in smaller vessels) may be the only ferry service feasible for some locations.

2. Strategies Utilizing Technology – Can be implemented alone but will have a greater impact when integrated with other strategies.

a. Improve transportation incident management

This involves instituting or strengthening "quick clearance" practices such as roving emergency service patrols, stationing of tow trucks at critical locations, incident detection technology, coordinated dispatch efforts and shared services. Jurisdictions can implement some individual measures quite easily. However, others may require quick clearance legislation as well as coordinated policy adoption among different agencies (e.g. DOT and law enforcement).

b. Implement traffic management technology

This involves monitoring the transportation system by implementing traffic management technologies to improve basic operations and provide responsiveness in real time. Detection, verification, response and information dissemination are the basic requirements for responding to those daily traffic incidents that disrupt the system. The real time monitoring and response afforded by technology allows for flexibility in applying (or suspending) certain strategies as conditions warrant. Technology also provides flexibility for command center location and for coordinated response.

c. Install and use of electronic message signs

This involves quickly disseminating travel information to motorists, which is critical during emergency operations.

d. Change signal timing to accommodate changed travel patterns

This involves revising signal timings to accommodate changes in volume, priority, or travel patterns. Adding green time to an approach will increase capacity in that direction; however, signal changes will complement numerous other strategies. Computerized and interconnected signal systems will automatically adjust within certain limits, but most signals will require manual intervention. Timing changes are relatively easy to implement, but some strategies will also require changes to traffic control hardware (i.e., traffic signal heads or traffic signal controllers).

e. Reprioritize current transportation projects

This involves reassessing capital and operating resources at the time of the incident for immediate response as well as longer-term strategies. A reassessment of project priorities could result in actions as drastic as stopping ongoing projects to divert resources or because they are rendered ineffective by the incident being addressed. The assessment should cross all modes and be done in coordination with regional agencies.

3. Strategies to Divert or Redirect Travel

a. Revise transit routes (including add or remove routes)

This involves responding to the changes in travel patterns by serving those areas to which travel has been diverted. Traditional routes may be disrupted either by the incident or the travel pattern changes resulting from the response. Typically, new routes will serve traffic intercepted at new or existing park and ride locations, areas whose auto commuter route has been disrupted or temporary relocation of major employers.

b. Construct bypass roadway

This involves providing a temporary roadway section to bypass a damaged or congested section or a construction project. While constructing a new roadway section is more complicated to implement, removing all traffic from a roadway section or bridge to be repaired can substantially reduce construction time.

> *The Bypass can provide a short connection to a parallel roadway, a temporary bridge structure; or a more permanent section that can serve a portion of the traffic. In some cases, construction of new freeway ramps can create a more regional bypass route.*

c. Close selected freeway on/off ramps

This involves reducing traffic demand on specific sections of roadway by diverting vehicles to roadways with more capacity and/or away from areas of concern. Easy to implement, this strategy requires coordinated diversion planning and advance communication of alternate routes to the traveling public.

d. Relocate ferry service

This involves responding to altered travel patterns by relocating ferry services, consistent with revising transit routes. This may require intergovernmental or public-private agreements to repurpose marine facilities and equipment. Planners will require an inventory of terminal/dockage facilities at candidate locations to determine the type and size of vessels that can be accommodated. This strategy requires coordination with the reconfigured roadway and transit networks.

e. Manage truck usage

This involves increasing throughput by managing truck traffic in the affected or congested areas. These solutions are specific to the nature of the trucking activity that was present in the affected area (e.g. port vs. downtown).

> *Other considerations in developing specific truck usage plans:*
>
> - The commodity being transported;
> - The ability to control delivery schedules;
> - Alternatives available both locally and regionally.

Strategies for giving preference to trucks as an incentive to change travel patterns (route, hours, or frequency) include dedicated roadways, off-peak toll discounts, and relaxed delivery restrictions. Some conditions will necessarily require limiting truck traffic at certain times of the day, on certain roadways or on bridges with weight limits.

f. Designate emergency responder routes

This involves utilizing certain routes or travel lanes as emergency responder routes and prohibiting use by other vehicles during an incident. This requires coordinated response planning and a documented

implementation plan that crosses jurisdictional boundaries. Restricting entire roadways, contraflow lanes, and other priority vehicle techniques can be employed to accommodate emergency vehicles.

g. Convert non-motorized trails to restricted use

This involves temporarily converting existing trails to non-standard roadway configurations for emergency vehicles, construction vehicles or other professionally driven vehicles (e.g. tram) to reach areas inaccessible by existing roadways.

4. Strategies for demand management –

This is typically implemented as voluntary solutions to everyday congestion. Development of a plan for these strategies need not wait for an emergency. Implementing strategies involving employees often requires employers to voluntarily develop internal policies and procedures.

a. Tele-commute

This involves encouraging/allowing employees to work from home or other remote location to reduce the traffic demand for access to/through affected areas. This could involve providing space in a privately owned or leased facility, or a government sponsored internet Wi-Fi location. The employer would set number of days per week or length of time for the program. While not difficult to implement, many jobs cannot be done by telecommuting.

b. Stagger work shifts

This involves changing the start and finish times of employees to lessen the peak traffic demand on the system. Major employers can adopt this strategy independently. , Groups of smaller employers could introduce a coordinated program. Times shifted by as little as 15 minutes can be effective in "spreading out" the peak hour traffic demand. While more severe circumstances require a greater change, employee trip demand is relatively easy to analyze and implement. This may require adjusting transit schedules to accommodate altered travel patterns.

c. Compress the work week

Reducing the number of workdays per week can reduce traffic demand on certain roadway and transit sections significantly. For example, allowing 40-hour employees to work 4 10-hour days instead of 5 8-hour days reduces the weekly number of commute trips from that location by 20%. While employees are free to drive on the 5th day, it is unlikely that they will drive into the employment centers in the peak traffic hours on that day. Additionally, the longer days will likely have them commuting outside the peak hours. This strategy will have a similar impact on transit demand, but may require adjusting transit schedules.

Origin and destination surveys *of ferry passengers can provide information for evaluating the services needed to support the passenger-only ferry service option.*

d. Convert to passenger-only ferry service

This involves prohibiting vehicles on commuter ferries completely, or during certain times of the day or week. This directly reduces the number of vehicles entering the roadway network. This alternative is particularly applicable at those locations identified for new or relocated service where terminal/dockage

facilities will only permit smaller vessels. It requires adequate parking and transit connections at either end of the trip, as well as alternate means for those for whom the transit is not available.

e. Use cost incentives (congestion pricing)

This involves encouraging travel outside of the peak hour by charging higher tolls during congested hours, and less at other times on existing toll roads and bridges. On other facilities certain lanes can be reserved and tolled in this manner and work in conjunction with HOV lanes (called high occupancy toll lanes (HOT lanes)). Tolls can be waived for certain vehicles or during emergencies. Tolls can also vary by time of day, congestion level, and number of occupants in the vehicle.

f. Use vanpool/carpool incentives

This involves reducing the number of "single occupant vehicles" on the roadway network through incentives for ridesharing provided by employers and government partners. Existing programs include incentives such as employers providing vehicles and insurance, providing a cash subsidy for those that use transit or regional vanpools, guaranteeing a ride home for an emergency during the workday and providing flexible work hours to accommodate ridesharing schedules.

g. Provide additional park and ride lots

This involves providing parking facilities to intercept single occupant vehicles before they travel into the affected or congested area. This is effective in reducing overall traffic demand if frequent and adequate transit and ridesharing opportunities are available and the cost of parking plus transit is not a disincentive. Ease of implementation varies with location and size. Local inventories of potential park and ride locations are helpful during an emergency.

h. Increase bicycle usage

This involves encouraging the use of bicycle transportation by providing accommodations such as bicycle racks on transit and at worksites, and relocating rather than eliminating bike routes when utilizing travel lanes to increase vehicle capacity.

i. Increase HOV occupancy requirement

Changing the requirement for HOV use will affect usage of the HOV lane. Currently, most HOV designations in the region require 2 occupants, a driver and one passenger (HOV-2). HOV lanes work because there are fewer vehicles in the HOV lane compared to the general use lanes, thus providing a quicker trip for the HOV users. When HOV lane usage approaches that of the general use lanes, congestion becomes equal in all lanes, providing no incentive for the HOV users. At this point, consideration should be given to changing the definition of HOV to a higher occupancy requirement.

d. Roadway repair and replacement information

This section provides information in the repair and replacement of damaged roadways and structures following a disaster incident that will assist transportation recovery efforts. It includes operational information for coordinating with utilities, hiring contractors and replacing structures. It is not intended to replace local or state agency policies. Rather, it helps the reconstruction effort by informing emergency planners and elected officials of roadway options. Table E- 6 is a summary of roadway repair and replacement elements.

Table E- 6: Repair and Replacement Elements

Elements	Phase			Comments
	Short-Term	Mid-Term	Long-Term	
Assess bridges and roadway structures	√	√	√	See Roadway Toolbox - sub-section B
Prioritize segment restoration	√	√	√	See Prioritization in Appendix D
Repair bridges and roadway structures	√	√	√	
Replace bridges and roadway structures		√	√	
Coordinate with utility purveyors for utilities in roadway rights-of-way	√	√	√	
Provide engineering contract mechanisms			√	

1. Repair bridges and roadway structures

Repairable structures that restore most of the lost regional networks are high priority, and demand extensive coordination between the operating agency, public works, law enforcement, utility purveyors and other stakeholders during their planning and repair. Repairing roadway structures may require additional detours, and possibly some construction for signing and installation of safety devices at the physical start and end of the damaged section.

2. Replace bridges and roadway structures

Replacement or partial replacement of roadway structures requires substantial coordination during both planning and replacement among local and state officials, including the operating agency, public works, law enforcement, utility purveyors, and other stakeholders affected by the structure damage.

Replaceable structures that allow for increased capacity of the regional network are high priority.

Because replacement for some structures involves long-term construction projects, it is necessary to set up contracts ahead of time. See Appendix F for alternative maritime transportation options and the Roadways Mitigation Strategies included in this Appendix. Replacing structures may require additional detours for traffic to access the structure to perform the repairs.

Options for restoration of collapsed roadway structures include:

- Replace roadway back to its pre-disaster state
- Improve roadway section (i.e. add lanes, add pedestrian & bicycle lanes, revise channelization, add high capacity transit lane)
- Re-locate roadway section
- Re-locate utilities within ROW

Refer to Section VII for funding eligibility for replacing structures. Following are general options to consider prior to replacing the structure:

3. Coordinate with utility purveyors for utilities in roadway rights-of-way

Utilities located within the rights-of-way should be coordinated with the roadway reconstruction efforts. Upon roadway segment failure, identify all utilities within the rights-of-way and contact the respective utility purveyor or district. Table E- 7 provides a list of utilities and contact information.

Table E- 7: Utility Purveyors and Contact Information (January 2011)

Utility Purveyors and Contact Information	
Utility	**Contact Information**
Electric & Natural Gas	Puget Sound Energy Customer Service (Emergencies) 1-800-552-7171 (Gas) 1-800-245-7875 (Power) Cascade Natural Gas (Bremerton Area) www.cngc.com
Olympic Pipeline	Emergency - Renton Control Center/Operations: 425-224-8880 Main (425) 235-7736 Land and ROW - BPPipelinesROW@bp.com (425) 981-2506
Telecom	Contact the local EOC and/or Public Works Department for the county or city
Fiber Optic	Contact the local EOC and/or Public Works Department for the county or city (Note: Request information about school districts which also have fiber optic utilities)
Domestic Water & Raw Water (Transmission Mains)	Contact the local EOC and/or local Public Works Department
Sanitary Sewer	Contact the local EOC and/or local Public Works Department
Stormwater	Contact the local EOC and/or local Public Works Department
Steam & Condensate Return Pipes	Seattle Steam Company Emergency (206) 623-0442 Office address: 1325 Fourth Avenue, Suite 1440 Seattle, WA 98101 Telephone: 206.623.6366 Fax: 206.467.6394
Propane Gas	Various vendors

4. Provide engineering contract mechanisms

Each jurisdiction has methods for hiring contractors. WSDOT has procedures in place for hiring contractors which allow for expedited reconstruction. Table E- 8 provides an overview of methods for hiring contractors.

Table E- 8: WSDOT Emergency Contracting (January 2011)

WSDOT Emergency Contracting			
Method	**Agency**	**Contracting**	**Cost Limitations**
State Forces (RCW 47.28.030)	WSDOT	Yes	State forces can be used up to $100,000 of the cost of the project.
Force Account Contract 30 Days or Less	WSDOT	Region Level Contract	
Contract Without Bid	WSDOT	Region Level Contract	
Contract With Bid Without Advertisement	WSDOT	Region Level Contract	

When an emergency occurs, the WSDOT needs to determine if the emergency requires a "Declaration of Emergency". A "Declaration of Emergency" is required whenever it is necessary to utilize emergency contracting procedures for work related to transportation facilities and to increase the limit for State Force repair work from $60,000 to $100,000.

If the event is large enough (defined as: Widespread Area of Catastrophic Failure with a minimum repair cost of $700,000) that federal "Emergency Relief" funding will be pursued, the Region needs to complete a Detailed Damage Inspection Report (DDIR) that will be forwarded to the Federal Highways Administration (FHWA) in Olympia.

A Declaration of Emergency authority is delegated from the Secretary of Transportation to the Regional Administrators and the Directors of Aviation and Ferries for all work directly or indirectly related to transportation facilities. This also includes all work affecting property owned or used by their headquarters organization. For further information regarding the Declaration of Emergency authority see the WSDOT Emergency Relief Procedures Manual M 3014.01 (February 2007).

Communities should consider "Design-build" contracting to expedite reconstruction along with WSDOT's methods for hiring contractors. Design-build contracting allows for one entity (namely, the design-build contractor) to be contracted to the Owner. Procedures for design-build contracts and reimbursements from the State or local governments should be in place prior to a disaster.

D. Transit Resources

Table E- 9 provides a summary of regional transit resources and routes.

Table E- 9: Roadways (Bus and Streetcar) Transit Systems (January 2011)

Transit System	Fleet	Service Area	Additional/Connecting Service
Regional (King, Pierce, Snohomish Counties): *Sound Transit*	259 buses by late 2011; 38 light rail cars, 58 commuter rail cars and 11 locomotives	Express bus service to cities in King, Pierce and Snohomish Counties	Light rail service in King and Pierce Counties. Sounder commuter rail and connections with bus service operated by Skagit Transit, Island Transit, Everett Transit, Community Transit, King County Metro, Pierce Transit and Intercity Transit.
Island County: *Island Transit*	65 total buses in the fleet, including 10 on Camano Island 92 vanpool vehicles in the fleet	21 fixed routes, para-transit and vanpool service throughout Island County	Connects in Mt. Vernon with Skagit Transit, Whatcom Transit and Amtrak. In Stanwood connects with Community Transit, in Everett connects with Community Transit, Sound Transit, Skagit Transit, Metro and Amtrak. Also connects with Port Townsend and Mukilteo Ferries.
King County: *King County Metro*	1,443 vehicles, including standard and articulated buses, electric trolleys, dual-powered and hybrid diesel-electric buses and streetcars 1,073 Rideshare vans	223 fixed routes over a 2,134 square mile area in King County, with 13 transit centers; 1.3-mile electric bus and light rail tunnel underneath downtown Seattle; and peak-hour freeway express commuter service using the region's network High Occupancy Vehicle (HOV) lanes	Future plans include: *RapidRide* peak hour Rapid Transit network that will utilize five corridors in King County, totaling 53 miles. *Seattle Streetcar Network*, which will radiate from downtown Seattle to various Seattle neighborhoods.
Kitsap County: *Kitsap Transit*	120 buses 160 vanpool vehicles	47 fixed routes throughout Kitsap County	Connects to transit systems in Jefferson, Mason, Pierce Counties, and Washington State Ferries.
	40 buses	8 fixed regional routes and	Connects to transit systems

Transit System	Fleet	Service Area	Additional/Connecting Service
Mason County: *Mason Transit*	28 total vanpool vehicles, of which a maximum 24 are assigned	Dial-A-Ride service throughout Mason County	in Kitsap, Jefferson, Clallam, Grays Harbor, Pierce and Thurston Counties. Shelton school buses open to general public to connect with transit systems.
Pierce County: *Pierce Transit*	270 buses and para-transit vehicles 321 vanpool vehicles	50 fixed routes over 414-square-mile area in Pierce County, with 11 transit centers and stations; *SHUTTLE* service for disabled passengers.	Connects to surrounding regional transit systems, including ferries and trains.
Skagit County: *Skagit Transit*	38 buses and para-transit vehicles; 40 vanpool vans	11 fixed routes plus vanpools and Dial-A-Ride service throughout Skagit County	Express service to Island and Whatcom Counties, Everett, and Bellingham. *Pocket* service for area ¾ mile outside fixed route service.
Snohomish County:			
Community Transit	344 buses (plus 54 DART vans and 15 *Swift* Transit buses); 400 vanpool vans	28 local routes (including Swift) and 25 commuter routes throughout Snohomish County, and to downtown Seattle, University of Washington and eastside suburbs of Seattle	***Swift Transit:*** 17 miles on Highway 99 from Everett to Shoreline transit-station - contracted to operate 5 additional Sound Transit routes from Snohomish to King County
Everett Transit	49 buses	24 bus routes in Everett and Marysville, service to Mukilteo Ferry Dock	Connections to Community Transit, Sound Transit, Skagit Transit, Island Transit and AMTRAK
Thurston County: *Intercity Transit*	68 Coaches, 33 para-transit vehicles, 230 vanpool vans	20 local routes serving four urban cities in Thurston County including DAL service for ADA/disabled riders. Two inter-county express routes between Olympia/Lakewood/Tacoma.	Regional connections with Mason, Grays Harbor, Rural, CAP, Pierce and Sound Transit Systems, as well as Amtrak and Greyhound services.

E. Resources for Special Needs Transportation

The Washington State Department of Social and Health Services (DSHS) and the Washington State Department of Transportation (WSDOT) support transportation providers for persons with special needs in the Region. These providers are a combination of public transit authorities, non-profit and for profit "special needs" transportation providers, volunteer transportation organizations and 211 programs, local coalitions and Medicaid Transportation Brokers.

Medicaid Transportation Brokers maintain databases of "special needs' patients and have access to qualified non-profit and for profit transportation providers throughout the state. Figure E-3 illustrates the six (6) Medicaid Transportation Regions in Northwest Washington State. These providers also have an association (Community Transit Association of the Northwest (CTA/NW) that can be a point of contact resource for developing transportation plans for persons with special needs and providing resources in an emergency.

Figure E- 3: Transportation Broker Regions for Special Needs Patients for the Region

Northwest Washington
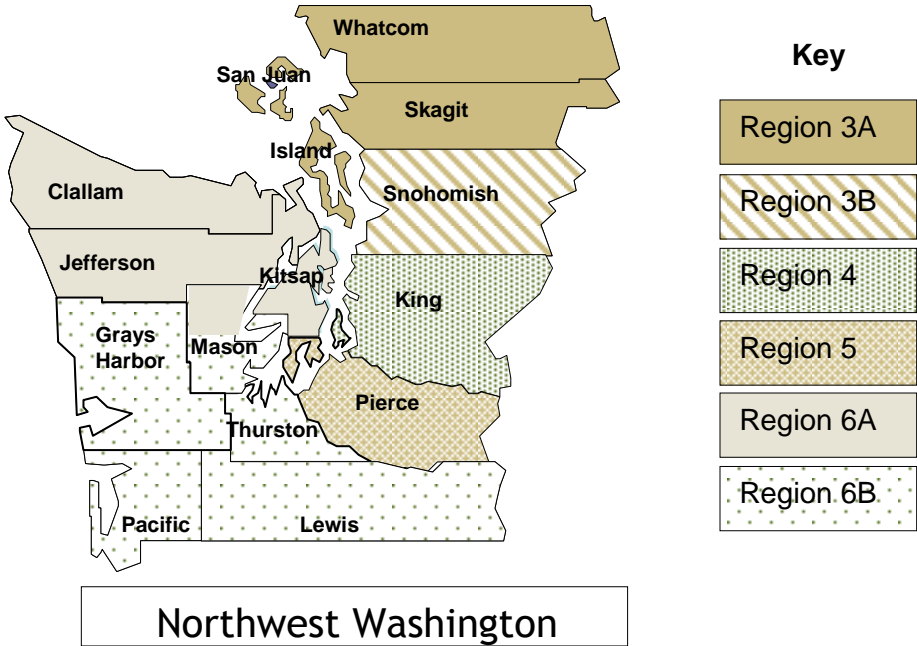
Note: Mason County is divided, with the Northern half in Region 6A and the Southern half in Region 6B

Source: Community Transit Association of the Northwest - May 2010

WSDOT encourages pre-planning for disaster response and recovery transportation needs for persons with special needs. Contacts for response and recovery planning with the Medicaid Brokers and CTA/NW can be obtained through the WSDOT Special Needs Planner, Public Transportation Division at (360) 705 – 6918.

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Appendix F. Waterways Toolbox

A. General Information

This section provides information as to how maritime services may mitigate transportation disruptions. The waterways strategies will expedite recovery by providing operational information (i.e., checklist, inventory, map, and spreadsheet of components needed for temporary maritime transportation service at a new location) to help move people and freight via the region's waterways when a disaster significantly reduces the capacity of other transportation modes. These strategies do not replace policies set forth under existing maritime protocols such as the USCG Captain of the Port (COTP) authority to reroute ships. Rather, the strategies should help emergency planners and elected officials understand maritime strategies and protocols.

Because this strategy assumes a reduced capacity of the region's transportation infrastructure, the focus here is on the maritime transportation sector as an alternative used to circumvent disruptions to other modal infrastructures.

B. Waterways Assessments

Damage assessments of port facilities or privately owned facilities on navigable waterways should be conducted according to the USCG Sector Puget Sound Marine Transportation System Recovery Unit (MTSRU) Event Data Sheet. Port tenants shall return forms to USCG Sector Puget Sound and to the port authority through the contact information provided via Homeport Alert. Privately owned facilities (not under port authority) shall return forms to USCG Sector Puget Sound through the contact information provided by Homeport Alert. For WSF the damage assessment procedure and checklist from the *WSF Terminal Engineering Manual* should be used, ensuring that USCG Sector Puget Sound is notified.

C. Waterways Mitigation Strategies

Table F-1 summarizes waterways strategies and the recovery phases.

Table F- 1: Waterways Mitigation Strategies

Waterways Strategies				
Elements	Phase			Comments
	Short-Term	Mid-Term	Long-Term	
1. Utilize waterways and maritime assets to deliver recovery equipment, personnel, and materials to otherwise inaccessible areas	√			During the initial recovery phase, this effort may be directed by the USCG
2. Provide qualified personnel to operate maritime assets	√	√	√	Coordinate represented labor through local union halls. Ensure law enforcement and other security personnel recognize proper maritime credentials.
3. Utilize federal, state and local maritime assets to support recovery efforts				Coordinate resource requests and utilization through the incident management system already in place (MTSRU or local EOC)
4. Establish alternate passenger and cargo transport services to provide mobility options during recovery efforts.	√	√	√	See attached spreadsheet for determining the feasibility of locations. New passenger and cargo transportation services may be viable if commute times are significantly less than alternate modes. WSF will coordinate with USCG Sector Puget Sound.
5. Relocate, or increase existing cargo and passenger transport services		√	√	See WSDOT Disaster Plan for WSF Coordination
6. Move intra-regional freight using maritime assets	√			Utilizing ports, barges, and boat ramps within the region to provide supplies. The USCG Marine Transportation System Recovery Unit advises via a planning section function the

Waterways Strategies			
Elements	Phase		Comments
	Short-Term	Mid-Term	Long-Term	

Elements	Short-Term	Mid-Term	Long-Term	Comments
				UC with proposed maritime EEI informed priorities of effort.
7. Re-open ports for movement of international trade	√			International trade is critical to regional economic recovery. Re-open sooner if possible. The USCG Marine Transportation System Recovery Unit advises via a planning section function the UC with proposed maritime EEI informed priorities of effort.as a part of the Maritime focused Unified Command transition from short term to long term regional recovery responsibilities with stakeholders/partners/agencies
8. Determine long-term contracting procedures			√	

1. Utilize waterways and maritime assets to deliver recovery equipment, personnel and materials to otherwise inaccessible areas

Parallel with the evacuation efforts, the USCG, through the JHOC and/or the emerging unified command structure(s) enabled w/MTS recovery units, directs all vessels and other maritime assets as needed to help position recovery personnel, equipment and material to areas that have suffered major damage and/or are not otherwise accessible. These efforts are directed in an escalating coordination environment that addresses immediate CG IC recovery responsibilities as well as community needs including public health, mass care, and other specialized logistical requirements.

2. Provide qualified personnel to operate maritime assets

Vessels, port equipment and terminals all require specialized skills and experience. While there are enough qualified personnel in the region to operate the maritime transportation system under normal conditions, ensuring these personnel can get to the necessary work sites is an important element of recovery

Jurisdictions may request temporary, short duration emergency support from the U.S. military through established channels during an emergency if local and state resources have been overwhelmed or a disaster has been declared by the President.

efforts. Trade unions represent a large portion of maritime labor, and they should be involved in locating and dispatching qualified personnel. Trade unions may also be asked for flexibility in allowing members to work across jurisdictions while the regional transportation system is restricted. Discussions regarding the potential need for flexibility should take place as a part of the planning process, prior to any incident or event which may disrupt day-to-day operations within the maritime transportation sector. The attached maritime assets inventory lists contacts at each of the major maritime trade unions.

3. Utilize federal, state and local maritime assets to support recovery efforts

For federal, state and local maritime assets, request support from the COTP and/or the Unified Command established to address Recovery operations. Requests for support during intermediate and long term Recovery efforts should go through Area Maritime Security Committee partners, such as U.S. Navy, Border Patrol, State EOC, etc. The Command Navy Region Northwest (NRNW) and Naval Base Kitsap Instructions (NRNW Instructions) document the process and protocol for requesting Defense Support of Civil Authorities (DSCA) regardless of phase of recovery environment.

> *Jurisdictions may request temporary, short duration emergency support from the U.S. military* through established channels during an emergency if local and state resources have been overwhelmed or a disaster has been declared by the President.

The use of military maritime assets is based on whether or not the assets are available (i.e., military use has priority over civilian use) and whether the military has jurisdiction (i.e. bringing military onto a port facility may not be productive). The NRNW provide directions for immediate response, along with three processes for requests of assistance (ROA), one of which allows for deployment in advance of the incident which can only be employed in limited scenarios in the Pacific Northwest, since most of our incidents do not have an advanced warning. DSCA operations are executed by the Fleet Commanders through Regional Planning Agents (RPAs). The Commander, NRNW, is the RPA for DSCA in the Pacific Northwest. Because of the large Navy presence in the Puget Sound region, military maritime assets that may be available include tugboats, barges, landing craft, utility boats, tankers, and large RO/RO and break-bulk cargo ships. Some of the equipment may not be available depending on supplies replenishment, personnel, and damage.

4. Establish alternate passenger and cargo transport services to provide mobility options during recovery efforts.

Where roadways that run parallel to waterways are either impassable or have significantly reduced capacity, new passenger and cargo transportation services may help mitigate the effects of the damage and facilitate recovery operations. The toolbox below outlines processes for identifying new landing sites and establishing new routes. Operation of new passenger and cargo transportation services may be provided by any of the licensed public or private passenger vessel operators in the region. See their contact information in the maritime assets inventory.

5. Relocate, or increase existing cargo and passenger transport services

Re-allocating vessels within the operators' fleet or contracting with other vessel owners and/or operators may be necessary if:

- Damage to existing terminals makes them inoperable, or

- Increased demand results from reduced capacity in other transportation modes.

The maritime assets inventory lists all existing ferry operators in the region along with their contact information.

6. Move intra-regional freight using maritime assets

After public safety concerns have been addressed, regional maritime assets can assist in the movement of freight. Waterways are particularly useful for the north-south movement of freight if capacity of the I-5 corridor is limited. The challenge may be the "last mile" of providing delivery options on the land side once the cargo is brought from the waterside to the freight terminal. Available assets include tugs, deck barges, derrick barges and landing craft. The maritime assets inventory contains contact information for some of the larger operators. Additional contact information is available in the Pacific Northwest Ports Handbook, published by the Marine Exchange, and other maritime directories. During the short term recovery phase, the Marine Transportation System Recovery Unit will advise the COTP unified command regarding this effort via coordination with entities such as ports, labor, and private industry.

7. Re-open ports for movement of international trade

Initially, depending on the facility conditions, port facilities may be used to support localized rebuilding and short term recovery efforts, but to ensure long term regional economic recovery international trade needs to be resumed as soon as possible. The maritime assets inventory provides contact information for each of the commercial ports in the region.

8. Determine long-term contracting procedures

Until the regional transportation system is restored to an acceptable capacity, private assets are likely to be necessary to mitigate the loss of capacity of public roadways. Contracting for the use of these assets requires careful consideration of the costs and risks incurred by the private sector relative to the public benefit, and many public agencies have developed general contracting plans for this purpose. Terms and conditions for each contract need to be worked out prior to long-term implementation.

D. Maritime Implementation Processes for Ferries and Freight

1. Implement new maritime service

If, as a result of capacity reductions in other transportation modes a new maritime service is needed to move either people or freight, the following steps should be taken:

- Determine the type of transportation required (people and/or freight).

- Identify potential origin and destination landing sites.

- Request the status of the potential landing sites from the local EOC and/or the unified command(s) established to address the incident.

- Assess the suitability of the potential landing sites based on EOC and/or the unified command(s) established to address the incident status report and other assessment tools as available.

- Identify and contact potential service provider(s).

- Obtain USCG approval of new service through local EOC and USCG JHOC and/or the unified command(s) established to address the incident.

- Negotiate contract terms and conditions with service provider.

- Start new service.

2. Implement/expand/relocate passenger ferry service

Because the region's waterways are likely to provide one of the few operational transportation corridors after a major catastrophe, passenger ferry services will be in high demand. Decisions to implement short term temporary and/or permanent long term new services or modify existing services through expansion or relocation must consider the availability of intermodal connections at both ends of the route. All response related and short term recovery strategies are coordinated via the COTP Unified Command and local, state EOC(s). The issues associated with permanent long term new, expanded, or relocated ferry services are summarized in Table F- 2.

Table F- 2: Long Term Ferry Service Strategies

Ferry Service Strategies
New Ferry Service
- Permanent new ferry services can be set-up relatively quickly but will require approval from the local and state jurisdictions, transit authorities, and the USCG.   - Any new ferry service will likely require a USCG-approved vessel for passengers. However, vessels under 100 gross tons carrying 6 passengers or less or vessels over 100 gross tons carrying 12 passengers or less do not require Coast Guard certification.   - The facilities required to support a new passenger-only ferry service include the following: a dock or float that can accommodate the planned vessel; a ramp from shore to the dock or float to accommodate passenger loading/unloading, a transfer span to bridge the gap between the dock or float and the vessel; and transit connections and/or a parking area nearby.   - The Maritime Map shows potential new passenger ferry.
Relocated Ferry Service
- If an existing ferry terminal is damaged or becomes inaccessible, use an alternate landing site, provided the facilities listed above are available.   - The Maritime Map shows potential alternate terminals.
Increased Existing Ferry Service
- Increase ferry service with additional ferry vessels, extended operating hours, or re-allocating vessels within an existing fleet to better meet demand.   - The attached inventory lists vessels that may be available.

Table F – 4 (New Ferry Service Template) includes a spreadsheet listing the elements of a new ferry terminal to assist in determining the feasibility of a proposed new service or alternate terminal. When evaluating landing sites, consideration should be given to the urgency of the need for and anticipated duration of the service. A landing site that is inadequate for permanent service may be quite serviceable for a week or two. Potential landing sites include:

- Marinas

- Accessible docks

- Navy shore facilities

- State and local waterfront parks

- Vessel maintenance facilities

- Recreational boat ramps

There have been a number of studies related to new passenger-only ferry services in the region and landing sites identified in these studies are shown on the Maritime Map (See Figure F- 1).

3. Implement freight service

Because of the capacity of the region's roadway and rail systems, intra-regional movement of freight and materials via waterways is limited primarily to small vessels supplying islands without bridge or ferry service, sand and gravel barges supplying local cement plants, and tank barges providing bunker service to ocean-going ships visiting regional ports.

Who can request Emergency Service from WSF?

- City or County Emergency Management Offices
- Hospitals
- Ambulance service companies
- Fire Departments
- Police Agencies
- Utility Companies

Local deck barges supplying goods to Alaska and supporting local construction could provide additional or alternative freight service. Island communities connected to the mainland via a single bridge, such as Whidbey Island and Camano Island, are likely to require new maritime freight service if the bridge is out of service for an extended period.

4. Break-Bulk and Container Cargo

Most freight to be moved will be either break-bulk or in containers, both of which require lifting equipment for transfer to and from shore. Handling equipment includes derrick barges or wheeled or tracked cranes operating from either shore or a deck barge. Water depth provides a safety margin for fully loaded vessel/derrick/barges. Consider local tides and natural resources in evaluating this strategy.

5. Roll-On/Roll-Off (RO/RO) Cargo

In some instances, ships, barges and landing craft outfitted with bow ramps may be able to land vehicles without the need for a derrick barge or crane.

- Landing craft may operate in much shallower water than tug boats and more conventional vessels. Small, private landing craft can typically carry only one or two vehicles but they can land almost anywhere.

- Barges equipped with ramps can carry several vehicles at a time but must be maneuvered by a tug boat, which will require deeper water.

- RO/RO ships, such as deep-draft car carries, trailer carries, and military pre-positioning ships, require 25' to 40' of water depth and large mooring facilities to offload vehicles.

WSF can also help in the movement of freight within the region. Movement of bulk materials must be in a drive-on/drive-off or roll-on/roll-off condition prior to loading on the vessel. During short term recovery situations all requests for WSF emergency marine transportation services should be submitted by the local area Emergency Operations Center to the State of Washington Emergency Operations Center at Camp Murray.

Movement of vehicles over 80,000 lbs. is tide level dependent and may require terminal engineer's assessment. Fares will be the current rate during normal hours. After hours fares will be billed to the agency requesting the movement.

The Washington State Ferries (WSF) Operations Center Manual details further information about requesting service to aid emergency operations. The WSF shall provide preferential loading in accordance with the rules established in the Revised Code of Washington.

Figure F-1 and Table F- 3 provide information on Puget Sound Maritime Assets.

Figure F- 1: Ports, Ferry Routes and Landing Sites (January 2011)
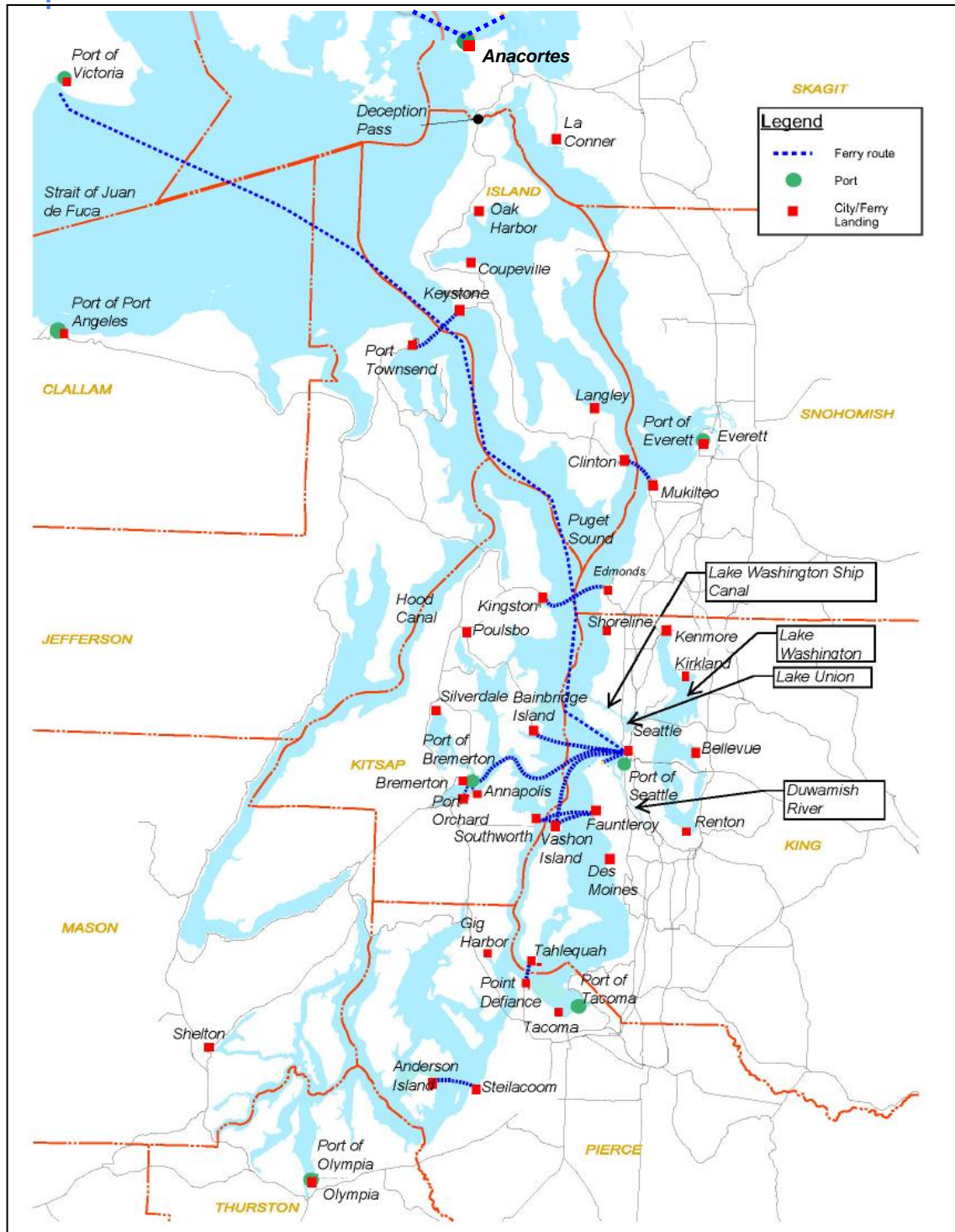
Source: KPFF Consulting Engineers

Table F- 3: Maritime Assets Inventory (January 2011)

1. Ports			
Facilities	**Response and Recovery Vessel Terminal**	**Functional Usage**	**Contact Information**
Port of Anacortes		3 deep-draft wharves	Phone: (360) 293-3134 Address: First and Commercial Ave Anacortes, WA 98221 www.portofanacortes.com
Port of Everett		Containerized (3 deep draft)	Phone: (425) 259-3164 Address: PO Box 528 Everett, WA 98206 www.portofeverett.com
Port of Olympia			Phone: (360) 528-8000 Address: 915 Washington St NE Olympia, WA 98501 www.portolympia.com
Marine (Ocean) Terminal	Berth 1	Containerized	
Swantown Marina			See Marinas Inventory
Port of Port Angeles			Phone: (360) 457-8527 Address: 338 W First Street Port Angeles, WA 98362
Port of Seattle			www.portofseattle.org
South Harbor			

1. Ports			
Facilities	**Response and Recovery Vessel Terminal**	**Functional Usage**	**Contact Information**
T5		Containerized	Phone: (206) 933-4554 Address: APL/Eagle Marine Services 3443 W. Marginal Way SW Seattle, WA 98108
T18		Containerized	Phone: (206) 654-3700 Address: Stevedoring Services of America (SSA) Address: 1131 SW Klickitat Way, T-18 Seattle, WA 98134
T25		Containerized	Phone: (206) 461-9169 Address: Matson 3225 E. Marginal Way S Seattle, WA 98134
T30		Containerized	Phone: (206) 461-9169 Address: (SSA) 2431 E. Marginal Way South Seattle, WA 98134
T46		Containerized	Phone: (206) 622-9130 Address: Total Terminals Inc. (TTI) 401 Alaskan Way Seattle, WA 98104
T115		Bulk	Phone: (206) 763-3000 Address: Northland Services 6700 W Marginal Way SW Seattle, WA 98106
Central Harbor			

1. Ports			
Facilities	**Response and Recovery Vessel Terminal**	**Functional Usage**	**Contact Information**
P66		Cruise Terminal	See Passenger & Vehicle Vessels Inventory
P69			See Passenger & Vehicle Vessels Inventory
T86		Grain Facility	Phone: (206) 284-4851 Address: Louis Dreyfus Corp 955 Alaskan Way W Seattle, WA 98119-3630
T91		Cruise Terminal (RO/RO)	See Passenger & Vehicle Vessels Inventory
North Harbor			
Shilshole Bay Marina			See Marinas Inventory
Fishermen's Terminal			See Marinas Inventory
Port of Tacoma	First western pier on the entrance to the Blair Waterway		Port Phone for EOC to Contact: www.portoftacoma.com Phone: (253) 383-5841 Address: Administrative Office One Sitcum Plaza Tacoma, WA 98421
Husky Terminal (Terminal 4)		Containerized	Phone: (253) 627-6963 Address: Husky Terminal 1101 Port of Tacoma

	1. Ports		
Facilities	**Response and Recovery Vessel Terminal**	**Functional Usage**	**Contact Information**
			Rd Tacoma, WA 98421
Olympic Container Terminal (OCT)		Containerized	Phone: (253) 779-6500 Address: Olympic Container Terminal/MTC Terminal 7D 710 Port of Tacoma Rd Tacoma, WA 98421
Cargill/Tacoma Export Marketing Company (TEMCO)		Grain	Address: TEMCO 11 Schuster Parkway Tacoma, WA 98402
APM Terminals		Containerized	Phone: (253) 593-8750 Address: MAERSK Pacific Limited 1675 Lincoln Ave, Building 950 Tacoma, WA 98421
Washington United Terminals (WUT)		Containerized	Phone: (253) 396-4900 Address: WUT 1815 Port of Tacoma Rd Tacoma, WA 98421
Blair Terminal		Autos	Phone : 253-283-5841 (ask for customer service) Address: Blair Terminal 3003 Marshall Ave. Tacoma, WA 98421
East Blair One (EB1) Terminal		Breakbulk	Phone : 253-283-5841 (ask for customer service) Address: East Blair One (EB1) Terminal 2940 E. Alexander Ave.

1. Ports			
Facilities	**Response and Recovery Vessel Terminal**	**Functional Usage**	**Contact Information**
			Tacoma, WA 98421
West Hylebos Log Facility			Phone : 253-283-5841 (ask for customer service Address: West Hylebos Log Facility 3401 Taylor Way Tacoma, WA 98421y
TOTE Terminal		RO/RO	Phone: (253) 449-8100 Address: TOTE 500 Alexander Way Tacoma, WA 98421
Pierce County Terminal (PCT)		Containerized	Phone: (253) 896-8300 Address: PCT 4015 SR 509 N Frontage Rd Tacoma, WA 98421

2. Facilities and Vessels			
Facilities	**Vessels**	**Interoperability**	**Contact Information**
Washington State Ferries Terminals			
Anacortes Bainbridge Island Eagle Harbor Repair Facilities - Bainbridge Island Bremerton Edmonds Fauntleroy Keystone Kingston Mukilteo Point Defiance Port Townsend Seattle Pier 52 (Colman Dock) Southworth Vashon Island	Large – 8 (Cap. > 2,000) Medium – 12 (Cap. 500 – 1,500)	WSF Large and Medium Vessels can interchangeably use WSF Terminals.	State EOC or WSDOT Operations Watch Supervisor Phone: (206) 515-3458 Phone: (206) 515-3456 2901 3rd Avenue Ste 500 Seattle, WA 98121-3014
WSDOT Temporary Ferry Passenger Only Loading Sites (Freight may be considered and/or boat landing ramp at sites for alternative route across the Hood Canal)			
South Point (Jefferson County)		Small Vessels	WSDOT (see above)
Lofall (Kitsap County)		Small Vessels	WSDOT (see above)
Kitsap Transit Foot Ferry Landing Sites			
KTFF (Port Orchard) KTFF (Annapolis)	Small -3 (Cap. < 500)	Small Vessels	Phone: (360) 373-2877 Address: Kitsap Transit 60 Washington Avenue Ste. 200 Bremerton, WA 98337

2. Facilities and Vessels			
Facilities	**Vessels**	**Interoperability**	**Contact Information**
KTFF (Bremerton)			
King County Ferry Landing Sites			
West Seattle			Phone: (206) 296-1020 Address: KC Ferry District 516 Third Avenue Room W 1039 Seattle, WA 98104
Seattle Pier 55			See Contact Information for "Argosy" below
Seattle Pier 50	Small – 2	Small Vessels	Phone: (206) 296-1020 Address: Pier 50 801 Alaskan Way Seattle, WA 98104
Vashon Island			Phone: (206) 296-1020 Address: KC Ferry District 516 Third Avenue Rm W 1039 Seattle, WA 98104
Pierce County Ferry Landing Sites			
Steilacoom			Phone: (253) 798-7250 Address: Pierce Transit 3701 96th St SW Lakewood, WA 98496-0070
Anderson	Small - 1	Small Vessels	
Ketron			
Skagit County Landing Sites			
Anacortes			Phone: (360) 336-9400 Address: Guemes Island Ferry 1800 Continental Place Mount Vernon, WA 98273 email: pw@co.skagit.wa.us
Guemes Island	Small - 1	Small Vessels	
Tour Vessels			

2. Facilities and Vessels			
Facilities	**Vessels**	**Interoperability**	**Contact Information**
Argosy Seattle Pier 54 - 57	Medium - 1 Small - 8	Small Vessels	Phone: (206) 622-8687 Address: 1101 Alaskan Way Pier 55 Seattle, WA 98101
Clipper Pier 69	Small - 3	Small Vessels	Phone: (206) 448-5000 Address: 2701 Alaskan Way Pier 69 Seattle, WA 98121
Naval Shipyard Puget Sound (Landing Sites)			
Potential Landing Site			Phone: Contact State EOC Address: 1400 Farragut Avenue Bremerton, WA 98314
Cruise Terminals			
T-66	Cruise Lines	Large Passenger Load/Unload Only (No Vehicles)	Phone: Address: 2225 Alaskan Way Seattle, WA 98121
T-91		Large Passenger Load/Unload Only (No Vehicles)	Phone: (206) 728-3628 (206) 728-3642 Address: Port of Seattle 2001 W. Garfield Street Seattle, WA 98119

3. Charters			
Mystic Seas Charter Docks Cap Sante Marina A Dock (Anacortes) Historic Wharf (Coupeville)	Small -1	Small Vessels	Phone: (360) 588-8000 Address: Office Headquarters 819 Commercial Avenue Anacortes, WA 98221
Waterways	3-Small	Small Vessels	Phone: (206) 223-2060 Address: 2501 N. Northlake Way Seattle, WA 98103
Seattle Charter Boat Assoc. **(Fishing charter boats in the Seattle area)**		Small Vessels	http://www.rentalboatcharters.com/fishing-charters/Seattle--Lake-Washington--Puget-Sound//page/1
"PS Adventure"			Ph. (206) 235-9339
Anchor Bay Charters "Seeker"			Ph. (206) 781-0709
Seattle Ferry Service **"Fremont Avenue"**			Ph. (206) 713-8446
Father and Son Charters		Small Vessels	Phone: (360) 491-6113 Toll Free: 1-800-563-5868 Address: 9410 Lohrer Lane NE Olympia, WA 98516

4. Tugs, Barges and Salvage Companies	
Facilities	**Contact Information**
Tugs & Barges	**www.maritime-database.com/company.php?cid=56880**
AK Pacific Barge Lines	Phone: (206) 763-2766 Address: 601 S. Myrtle Seattle, WA 98108
Alaska Marine Lines	Phone: (206) 763-4244 Address: P.O. Box 24248 Seattle, WA 98125
Boyer Alaska Barge Lines	Phone: (206) 763-8575 Address: 7318 4th Avenue S Seattle, WA 98108
CMS Crowley Marine Services	Phone: (206) 332-8000 Address: 1102 W. Massachusetts St. Seattle, WA 98134
Duff Tugboat Company	Phone: (206) 284-1613 Address: 4244 33rd W Seattle, WA 98199
Dunlap Towing Company	Phone: (206) 621-1723 Address: PO Box 593 Seattle, WA 98257
Foss Maritime Co. (Seattle)	Phone: (206) 281-3800 Dispatch 24-hour Address: 660 W. Ewing Seattle, WA 98119 Email: www.foss.com

4. Tugs, Barges and Salvage Companies	
Facilities	**Contact Information**
Glacier Marine Transport (Port Towage)	Phone: (206) 763-2766 Address: 765 S Myrtle Seattle, WA 98108
Harley Marine/Olympic Tug and Barge	www.harleymarine.com
Hurlen Marine Co (Port Towage)	Phone: (206) 762-3535 Address: 523 S Riverside Drive Seattle, WA 98108
Lightweight Marine Transport	Phone: (360) 445-5432 Cell: (360) 661-7695 Address: 5320 Orcas Road Eastsound, WA 98245
Pintail Inc.	Phone: (360) 317-8532 Cell: (360) 317-8532 Address: P.O. Box 3284 Friday Harbor, WA 98250 Email: pintail@rockisland.com
Samson Tug and Barge	Phone: (206) 767-7820 Address: Terminal 115, 6702 W Marginal Way Seattle, WA 98106
San Juan Ferry and Barge	Phone: (360) 317-8486 (Marty Starr) Address: PO Box 965 Friday Harbor, WA 98250 Email: mstarr@rockisland.com

4. Tugs, Barges and Salvage Companies	
Facilities	**Contact Information**
San Juan Marine Freight Co	Phone: (360) 202-8611 Address: P.O. Box 1258 Anacortes, WA 98221 Email: sanjuanenterprise@fidalgo.net
Sebring Marine Services Fleet	Phone: (206) 285-1471 Cell: (206) 948-4201 Address: 4005 20th Ave. W (Room 232 of the West Wall Building) Seattle, WA 98199-1290
Salvage	
Global Diving and Salvage	Phone: (206) 623-0621
Titan Salvage - A Crowley Company	Phone: (954) 545-4143

5. Marinas		
Marinas	**Jurisdiction Contact**	**Facility Contact Information**
State of Washington Marinas Directory		http://www.marinasdirectory.org/unitedstates/washington/
Island County		
Oak Harbor Marina	City of Oak Harbor	Phone: (360) 679-2628 Address: 865 Barrington Drive Oak Harbor, WA 98277 VHF 16 (switch to 68)
Deception Pass Marina	City of Oak Harbor	Phone: (360) 675-5411 Address: 200 Cornet Bay Rd Oak Harbor, WA 98277-9756
Langley Small Boat Harbor (contact Langley Public Works)	City of Langley	Phone: (360) 221-4246 ext.13 Address: 200 Cornet Bay Rd Oak Harbor, WA 98277-9756
Camano Island Yacht Club	Camano Island	Phone: (360) 387-3737 Address: 129 North Sunset Dr Camano Island, WA 98282
King County – Lake Washington		
Bellevue (Meydenbauer Bay Marina)	City of Bellevue	Phone: (425) 452-6123 Address: 2 99th Ave NE Bellevue, WA 98004
Carillon Point Marina (Kirkland)	City of Kirkland (Conditional Use Permit required)	Phone: (425) 822-1700 Address: 3240 Carillon Point Kirkland, WA 98033
Kenmore Tracy Owen Station Park (formerly known as Log Boom Park)	City of Kenmore	Phone: None Known Address: NE 175th Street Kenmore, WA
Kirkland Marina Park	City of Kirkland (Conditional Use Permit required)	Phone: (425) 587-3340 Address: 25 Lakeshore Plaza Kirkland, WA 98033
Leschi Park	City of Seattle (Conditional Use Permit required)	Phone: (206) 684-4075 Address: 201 Lakeside Ave S Seattle, WA

5. Marinas		
Marinas	**Jurisdiction Contact**	**Facility Contact Information**
Renton, Bristol at Southport	City of Renton (Conditional Use Permit required)	Phone: None Known Address: 1133 Lake Washington Blvd. N Renton, WA 98056
King County – Lake Washington		
UW - Waterfront Activities Center	City of Seattle (Conditional Use Permit required)	Phone: (206) 543-9433 Address: 3900Montlake Blvd NE Seattle, WA 98195
King County - Lake Washington Ship Canal		
Fishermen's Terminal	City of Seattle	Phone: (206) 728-3395 Address: 3919 18th Ave W Seattle, WA 98119
King County - Lake Union		
AGC Marina (South Lake Union)	City of Seattle	Phone: (206) 284-4204 Address: 1200 Westlake Ave N, Suite 504 Seattle, WA 98109
King County - Puget Sound		
Shilshole Bay Marina (Ballard)	City of Seattle	Phone: (206) 728-3006 Address: (Dock A, Slip 12) 7001Seaview Avenue NW Seattle, WA 98117
Des Moines Marina	City of Des Moines	Phone: (206) 824-5700 Address: 22307 Dock Street Des Moines, WA 98198-4
Various Marinas (Port of Seattle)	City of Seattle	http://www.portseattle.org/seaport/marinas/
Kitsap County		
Port of Silverdale	City of Silverdale	Phone: (360) 698-4918 Address: 3550 NW Byron Street Silverdale, WA 98383
Bainbridge Island Marina	City of Bainbridge Island	Phone: (206) 842-9292 Address: Eagle Harbor Drive Bainbridge Island, WA 98110

5. Marinas		
Marinas	**Jurisdiction Contact**	**Facility Contact Information**
Eagle Harbor Marina	City of Bainbridge Island	Phone: (206) 842-4003 Address: 5834 Ward Avenue NE Bainbridge Island, WA 98110
Winslow Wharf Marina	City of Bainbridge Island	Phone: (206) 842-4202 Address: 141 Parfitt Way SW Bainbridge Island, WA 98110
Mason County		
Various Hood Canal Marinas	Various	explorehoodcanal.com
Pierce County		
Various Gig Harbor Marinas	City of Gig Harbor	http://www.cityofgigharbor.net/businesses.php?cat=29
Breakwater Marina (Pt. Defiance)	City of Tacoma	Phone: (253) 752-6663 Address: 5603 N Waterfront Dr Tacoma, WA 98407-6536
Fox Island Yacht Club	Pierce County	Phone: (253) 549-2603 Address: 1061 12th Ave Fox Island, WA 98333
Skagit County		
Pioneer Point Marina (La Conner)	City of La Conner	Phone: (360) 466-1314 Address: 1320 Connor Way La Conner, WA
La Conner Marina	City of La Conner	Phone: (425) 252-3088 Address: 613 N 2nd St La Conner, WA 98257
Snohomish County		
Everett Bayside Marina	City of Everett	Phone: (360) 466-3118 Address: 1111 Craftsman Way Everett, WA 98201
Port of Edmonds	City of Edmonds	Phone: (425) 774-0549 Address: 336 Admiral Way Edmonds, WA 98020-7214

5. Marinas		
Marinas	**Jurisdiction Contact**	**Facility Contact Information**
Thurston County		
Swantown Marina & Boatworks	Port of Olympia	Phone: (360) 528-8049 Address: 1022 Marine Dr NE Olympia, WA 98020-7214
City of Olympia Municipal Pier	City of Olympia	Phone: (360) 753-8380 (City Parks Dept.) Address: 300 4th Avenue Olympia, WA 98507
Port Plaza	Port of Olympia	Phone: (360) 528-8049 Address: Port Plaza Docks, 701 NW Columbia Street, Olympia, WA 98501
Thurston County (con't)		
Other Marinas (Near Olympia)	City of Olympia	www.westbay-marina.com www.bostonharbormarina.com www.zittelsmarina.com http://pettitmarine.vpweb.com/ Fiddlehead Marine Inc. (360) 352-0528

6. Labor		
Trade	**Organization**	**Contact Information**
Deck Officers	Master's, Mate's and Pilots (MMP)	**Offshore Membership Group** Phone: (206) 441-8700 Address: 15208 52nd Ave. South, Ste 100 Seattle, WA 98188 **Pilot Membership Group** Phone: (206) 728-6400 Address: 101 Stewart Street, Ste 900 Seattle, WA 98101 **Inland Membership Group** Phone: (425) 775-1403 Address: 144 Railroad Ave., Suite 205 Edmonds, WA 98020
Unlicensed Seamen	Inland Boatmen's Union (IBU)	Phone: (206) 284-6001 Address: 1711 W Nickerson, Suite D Seattle, WA 98119
Marine Engineers & Oilers	Marine Engineers' Beneficial Association (MEBA)	Phone: (206) 762-0803 Address: 5527 Airport Way Suite 101 Seattle, WA 98108
Longshoremen	International Longshore and Warehouse Union (ILWU)	Phone: 415-775-0533 Address: 1188 Franklin Street San Francisco, CA 94109

7. Bridges over Navigable Waterways				
Waterway/Bridges	**Mile point**	**Type**	**Owner**	**Telephone**
Island County				
Deception Pass Bridge	0.5	F	WSDOT	425-739-3700 or 206-440-4490
King County				
Lake Washington				
SR 520 Evergreen Point Floating Bridge/Governor Albert D. Rosselini Memorial	N/A	RS	WSDOT	425-739-3700 or 206-440-4490
I-90 Floating Bridges/Lacey V. Murrow and Homer M. Hadley Memorial	N/A	F	WSDOT	425-739-3700 or 206-440-4490
Lake Washington Ship Canal				
BNSF RR Ballard Bridge or Bridge #6.4	0.1	B	BNSF	206-784-2976
Ballard/15th Ave Bridge	1.1	B	SDOT	206-232-9525
Fremont Bridge	2.6	B	SDOT	206-386-4234
US99/Aurora or George Washington Bridge	2.7	F	WSDOT	425-739-3700 or 206-440-4490
I-5	4.2	F	WSDOT	425-739-3700 or 206-440-4490
University Bridge	4.3	B	SDOT	206-684-4765
Montlake Bridge	5.2	B	WSDOT	206-720-3048 or 206-498-1469
Duwamish Waterway				
Spokane Street Bridge	0.3	S	SDOT	206-684-7443
West Seattle Bridge	0.3	F	SDOT	206-684-7443
BNSF RR	0.4	B	BNSF	206-935-1130
First Ave South dual	2.5	B	WSDOT	206-764-4160 or 206-440-4490
South Park Bridge	3.8	B	KING	206-762-2530
Kitsap County				
Hood Canal Floating Bridge	5.0	RS	WSDOT	253-548-2420

7. Bridges over Navigable Waterways				
Waterway/Bridges	Mile point	Type	Owner	Telephone
Agate Pass Bridge (n. Bainbridge Island)	1.0	F	WSDOT	253-548-2420
Port Washington Narrows (Manette Bridge SR 303)	0.3	F	WSDOT	253-548-2420
Port Washington Narrows (Warren Avenue Bridge)	0.5	F	WSDOT	253-548-2420
Mason County				
None Listed on USCG - Sector Puget Sound Bridge List				
Pierce County				
Hylebos Waterway (Hylebos Bridge 11th Street)	1.1	B	Tacoma	253-591-5204
Thea Foss Waterway (11th Street Bridge)	0.6	VL	WSDOT	253-548-2420
Tacoma Narrow Bridge (SR 16 dual)	N/A	F	WSDOT	253-548-2420
Skagit County				
Swinomish Channel				
SR 20 Rainbow Bridge	3.2	F	Skagit	253-548-2420
SR 20 dual bridges	8.2	F	WSDOT	253-548-2420
BNSF RR	8.4	S	BNSF	719-242-7333
Snohomish County				
Ebey Slough				
I-5 Bridge	1.4	F	WSDOT	425-739-3700 or 206-440-4490
BNSF RR	1.5	S	BNSF	425-304-6613
SR 529 dual	1.6	S	WSDOT	425-739-3700 or 206-440-4490
Steamboat Slough				
BNSF RR	1.0	S	BNSF	425-304-6613

7. Bridges over Navigable Waterways				
Waterway/Bridges	Mile point	Type	Owner	Telephone
SR 529 dual	1.1	S	WSDOT	425-339-1701 or 206-440-4490
I-5 Bridge	1.3	F	WSDOT	425-739-3700 or 206-440-4490
Snohomish River				
BNSF RR	3.5	S	BNSF	425-304-6613
SR 529 dual	3.6	VL	WSDOT	425-339-1701 or 206-440-4490
I-5 dual	5.4	F	WSDOT	425-739-3700 or 206-440-4490
Thurston County				
None Listed on USCG - Sector Puget Sound Bridge List				
Abbreviations				
BNSF = BNSF Railway Company		F = Fixed		
KING = King County		RS = Retractable span (floating)		
SDOT = Seattle Department of Transportation		S = Swingspan		
SR = State Route		VL = Vertical lift		
WSDOT = Washington State Department of Transportation		B = Bascule		

Source: United States Coast Guard - Sector Puget Sound

8. Boat Ramps		
Landing Site	**Jurisdiction Contact**	**Contact Information**
Island County		
Naval Air Station Whidbey Island - Seaplane Base	Military Dept EMD	State EOC, 800-258-5990 or, dutyofficer@emd.wa.gov
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
*King County**		
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
Various boat launches		http://www.angelfire.com/wa/nwfishing/lakewaboatlaunchs.html
Kitsap County		
Point White (fixed dock with small floating platform) Large vessels with ramps could offload items here.	City of Bainbridge Island	Phone: None Known. Address: Bainbridge Island, WA 98110
Fort Ward State Park (concrete recreational boat launch)	City of Bainbridge Island	Phone: (206) 842-9292 Address: Eagle Harbor Drive Bainbridge Island, WA 98110
Eagle Harbor (WSF Maintenance Yard)	WSDOT/WSF	State EOC or WSDOT Operations Watch Supervisor Phone: (206) 515-3458 Phone: (206) 515-3456 2901 3rd Avenue Ste 500 Seattle, WA 98121-3014
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
Kitsap County (con't)		
Various	Kitsap County	http://www.kitsapgov.com/parks/regionalparks/County_park_inventory.htm
Mason County		

8. Boat Ramps		
Landing Site	**Jurisdiction Contact**	**Contact Information**
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
Various Hood Canal Marinas		explorehoodcanal.com
Pierce County		
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
Various boat launches		http://www.piercecountywa.org/pc/abtus/ourorg/parks/boatlaunches.htm
Skagit County		
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
Snohomish County		
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm
Thurston County		
Various - See Department of Ecology - Geographic Response Plans	Dept. of Ecology	http://www.ecy.wa.gov/programs/spills/preparedness/GRP/wa_marine_grps.htm

Table F- 4: New Ferry Service Template

Site Name: _____   **Location/Address:**

New Ferry Service Template				
Description	**Length**	**Width**	**Height**	
Ramp			███	
Dock/Float			███	
Freeboard	███	███		
Water Depth	███	███		*Measurement taken on _____ at _____ AM/PM. Tide height was approximately_____ feet.*

Criteria	Yes/ No	Evaluation		Rationale for Evaluation / Considerations	Proposed Improvements
Marine Facilities		**Good**	**Fair**	**Poor**	
Ramp					
Railing	███				
Exposure	███				
ADA Accessibility	███				
Surface Condition	███				
Grade	███				

Criteria	Yes/ No	Evaluation			Rationale for Evaluation / Considerations	Proposed Improvements
Dock/Float	Yes/ No	Good	Fair	Poor		
Dimensions (Approx.)						
Freeboard						
Fendering						
Ladder						
Railing						
Exposure						
ADA Accessibility						
Surface Condition						
Mooring Capability						
Vessel Security						
In Water Work Required?						
Maintenance Issues						
Upland Facilities						
Accessibility		Good	Fair	Poor		

Criteria	Yes/ No	Evaluation			Rationale for Evaluation / Considerations	Proposed Improvements
General Assessment						
ADA Accessibility						
Surface Condition						
Passenger Parking	**Yes/ No**	**Good**	**Fair**	**Poor**		
Paid/Private Parking						
Park and Ride						
Street Parking						
Agency Owned Lot Parking						
Multi-Modal Connections	**Yes/ No**	**Good**	**Fair**	**Poor**		
Near Transit Stop						
Potential Shuttle Holding Area						
Pedestrian Connections/ Trails						

		New Ferry Service Template (con't)				
Criteria	**Yes/ No**	**Evaluation**			**Rationale for Evaluation / Considerations**	**Proposed Improvements**
Other	**Yes/ No**	**Good**	**Fair**	**Poor**		
Bicycle Facilities						
Sheltered Area or Potential Area						
Area for Signage and Customer Information						
Area for Electronic Ticket Vending						
Restrooms						
Maintenance Issues						
Safety	**Yes/ No**	**Good**	**Fair**	**Poor**		
Access and Egress from Dock/Ramp						
Lighting						
Potential Conflicts with other Uses						
Permitting	**Yes/ No**					

Criteria	Yes/ No	Evaluation			Rationale for Evaluation / Considerations	Proposed Improvements
Permit Required by jurisdiction (special, conditional use, etc.)						
Overall		Good	Fair	Poor		
Short-term						
Mid-term						
Long-term						

Estimated Capital Improvement Costs: **Less than** _____

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Appendix G. Airways Toolbox

A. General Information

This section provides information as to how jurisdictions can use aviation services to mitigate roadway disruptions, and includes emergency evacuation airlift information as well as strategies for relocating or increasing services. Aviation resources include airports and aircraft. Aviation classifications consist of commercial, private and military owned and operated facilities and aircraft. Commercial airports and aircraft are significant in transporting aid workers into the region as well as providing a mechanism for residents to leave and seek other housing.

The Washington State Division of Aviation (part of WSDOT) may use non air carrier aircraft for a variety of emergency purposes after a catastrophe. Non-air-carrier aircraft is all aircraft other than air-carrier, including: (1) all twin-engine aircraft not owned by air-carriers, (2) all turbine powered fixed-wing aircraft under 12,500 pounds gross weight, (3) all single-engine fixed wing aircraft not owned by air carriers, and (4) all rotorcraft not owned by air-carriers.

The aviation strategies described herein will expedite recovery by providing operational information (i.e. checklist, inventory and map) about available strategies to help move people and freight via the region's airways when a disaster significantly reduces the capacity of other transportation. These strategies do not replace policies set forth by existing aviation protocols such as Federal Aviation Administration (FAA) regulations or policies set by State or local jurisdictions. Rather, they are intended to help emergency planners and elected officials understand aviation strategies and protocols.

B. Airways Assessments

Damage assessment report policy and procedures are included in the State and Regional Disaster Airlift (SARDA) Plan which is part of the WSDOT Disaster Plan.

C. Airways Mitigation Strategies

Table G- 1 summarizes airways strategies and the response phase in which they would come into play. Additional information on each element follows.

Table G- 1: Airways Strategies

Elements	Phase			Comments
	Short-Term	Mid-Term	Long-Term	
Utilize aviation service to aid in movement of people within, into, and out of the affected region	√	√	√	During the initial response phase, this effort will be directed by the local EOCs or State EOC
Utilize airways and aviation assets to deliver response equipment, personnel, and materials to otherwise inaccessible areas	√			During the initial response phase, this effort will be directed by local EOCs or the State EOC
Provide qualified personnel to operate aviation assets (Ex. the Civil Air Patrol, or volunteer reconnaissance pilots per Washington State SARDA Plan)	√	√	√	Ensure law enforcement and other security personnel recognize proper aviation credentials.
Utilize military assets to support response & recovery efforts	√	√	√	Request military support through WSDOT Aviation Program Manager (APM)
Implement new aviation services to provide mobility strategies during recovery		√	√	See attached spreadsheet for airport capabilities within the region New passenger service may be viable if commute times are significantly less than alternate modes.
Relocate or increase existing aviation services		√	√	See WSDOT Disaster Plan. (Example of increased aviation service was used for closure of the Hood Canal Bridge)
Move intra-regional freight using aviation assets		√	√	Utilize airports within the region to provide supplies
Re-open airports for movement of freight and passengers	√	√	√	International trade is critical to regional economic recovery. Re-open sooner if possible.

Airways Strategies				
Elements	Phase			Comments
	Short-Term	Mid-Term	Long-Term	
Determine long-term contracting procedures			√	
Utilize aviation service to aid in movement of people within, into, and out of the affected region	√	√	√	During the initial response phase, this effort will be directed by the local EOCs or State EOC

1. Utilize aircraft to aid in initial evacuation efforts

In the immediate aftermath of a catastrophic incident, non-air-carrier aircraft resources are utilized through the State and Regional Disaster Airlift (SARDA). The Washington State Department of Transportation, Aviation Division, directs this effort in its capacity as the element of the State emergency organization to carry out SARDA responsibilities.

2. Utilize airports and aviation assets to deliver response equipment, personnel, and materials to otherwise inaccessible areas

Parallel with the evacuation efforts, Washington SARDA, through the State EOC, also directs aircraft and other aviation assets as needed to deliver first responders, equipment and material to areas that have suffered major damage and/or are not otherwise accessible.

3. Provide qualified personnel to operate aviation assets

Aircraft, airport equipment such as ramps, refueling trucks, bag carts, etc., and terminals all require specialized skills and experience to operate. Taking steps to ensure specialized personnel can get to the necessary work sites is an important element of response and recovery efforts. Trade unions represent a large portion of aviation labor and they should be involved in locating and dispatching qualified personnel.

4. Utilize military aviation assets to support response & recovery efforts

Per the WSDOT Disaster Plan, state air resources, including military, can be requested through the WSDOT Aviation Division's Aviation Program Manager. Jurisdictions may request temporary, short-duration emergency support from the U.S. military through established channels during an emergency. Civilian access to military aviation assets is based on availability and DOD priorities (i.e. military use has priority over civilian use). As long as federal assets including military aircraft are being used in the recovery effort, the State EOC remains activated.

Jurisdictions may request temporary, short duration emergency support from the U.S. military through established channels during an emergency if local and state resources have been overwhelmed or a disaster has been declared by the President.

5. Implement new aviation services to provide mobility strategies during recovery

Where roadways are either impassable or have significantly reduced capacity, new aviation services may be appropriate to help mitigate the effects of the damage. For example, when the Hood Canal Bridge was closed, airlines provided more frequent trips between Seattle and Port Angeles.

6. Relocate or increase existing aviation services

Relocating aviation operations or contracting with other aircraft owners and/or operators to provide additional flights/ sorties may be necessary in response to major damage at existing terminals or runways, or increased demand resulting from reduced capacity in other transportation modes. The Aviation Capabilities Inventory Table G- 3 lists all existing airports in the region and Table G- 4 lists contact information for each airport.

7. Move intra-regional freight using aviation assets

After the initial response phase, aviation assets that exist within the region or are brought in to the region may be necessary to assist in the movement of freight to landing sites near distribution centers or near the intended final destination.

8. Re-open airports for movement of international trade

As soon as the recovery effort gets underway, re-opening the region's major commercial airports will be important to regional economic recovery. Initially, port facilities can be used to support rebuilding and recovery efforts but pre-disaster operations should be resumed as soon as possible. See Table G - 4 for contact information for each of the region's commercial airports.

9. Determine long-term contracting procedures

Until the regional transportation system is restored to near its pre-event capacity, private aviation resources will likely to be necessary to mitigate the loss of capacity of public roadways. Contracting for the use of these resources requires careful consideration of the costs and risks incurred by the private sector as well as the public benefit. Many public agencies have general contracting plans in place for this purpose, but the specifics of each contract need to be worked out prior to long-term implementation.

D. Aviation Implementation Processes for Passenger and Freight Services

1. Implement new aviation service

If, as a result of capacity reductions in other transportation modes, a new aviation service is needed to move either people or freight, the following steps should be taken:

- Determine the type of transportation required (people and/or freight)
- Identify potential origin and destination airports or runways
- Request the status of the potential airport from the local EOC or State EOC
- Assess the suitability of the potential airport based on EOC status report and other assessment tools as available
- Identify and contact potential service provider(s)
- Coordinate with WSDOT Aviation through ESF-1 at the State EOC to obtain FAA approval of new service.

- Negotiate contract terms and conditions with service provider

- Start new service.

New aviation service is generally handled by airlines requesting information from airports about potential service. Airports coordinate with local agencies and/or local and State EOCs as required. Some jurisdictions in the Puget Sound Region own and operate seaplane bases which are a critical component to local emergency plans for both emergency passenger and freight movement. These facilities may also be critical to helping to restore regional transportation capabilities in conjunction with utilizing maritime capabilities. (See Appendix F)

2. Implement/expand/relocate passenger service

Decisions to implement new services or modify existing services through expansion or relocation must consider the availability of connections at both ends of the route. Table G- 2 summarizes the issues associated with new, expanded, or relocated services.

Table G- 2: Passenger Service Strategies

Passenger Service Strategies
New Service using an Existing Airport
- New services will require approval from the local jurisdiction, transit authorities, and/or the FAA.   - Any new service will require an FAA-approved aircraft for passengers.   - The airport facility may require additional measures such as security and/or personnel depending on the new service provided.
Relocated Service
- If an existing terminal/airport is damaged or becomes inaccessible, an alternate landing site can be used, provided the proposed site and facilities meet FAA standards.   - Potential alternative airports in the Puget Sound region are listed in the Airport Capabilities Table G - 3 and posted to the Aviation Map below.
Increased Existing Service
Increasing existing service may also help to mobilize people and freight in the region.

Figure G- 1 shows the airports in the Puget Sound Region

Figure G- 1: Map of Airports (December 2010)
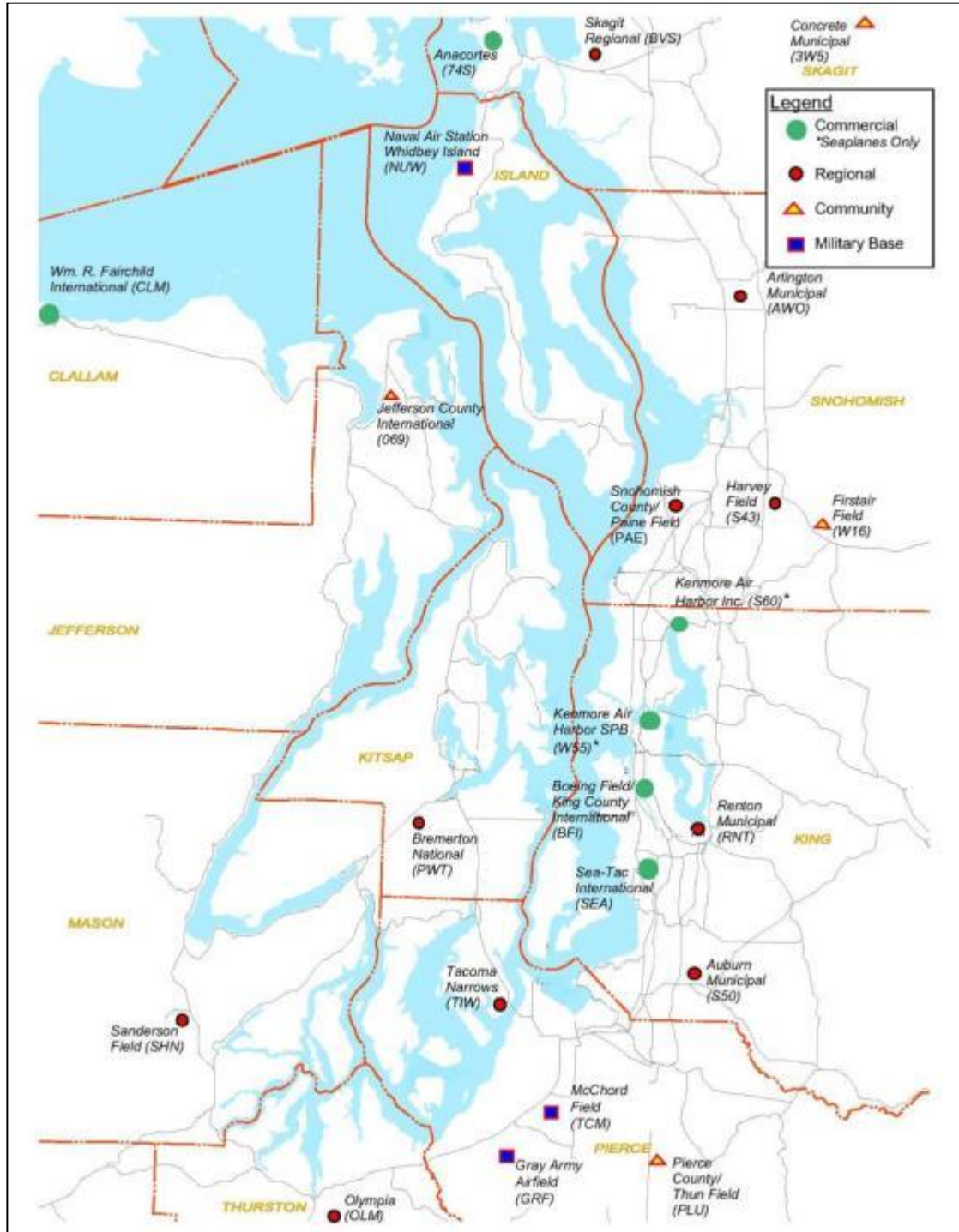
Source: KPFF Consulting Engineers

Table G- 3: Airport Capabilities

Airport	Owner/operator	County	FAA airport	Airport Reference Code**	Included in NPIAS	NPIAS role
Anacortes	Port of Anacortes	Skagit	74S	A-I	Yes	GA
Arlington Municipal	City of Arlington	Snohomish	AWO	C-II	Yes	GA
Auburn Municipal	City of Auburn	King	S50	A-I	Yes	Reliever
Bremerton National	Port of Bremerton	Kitsap	PWT	A-I	Yes	GA
Concrete Municipal	Town of	Skagit	3W5	A-I	No	-
Firstair Field	Private	King	W16	A-I	No	-
Harvey Field	Private	Snohomish	S43	A-II	Yes	Reliever
McChord Field	U.S. Air Force[1]	Pierce	TCM	-	N/A	-
Gray Army Airfield (AAF)	U.S. Army[2]	Pierce	GRF			
Kenmore Air Harbor – Kenmore*	Kenmore Air	King	S60	A-I	Yes	GA
Kenmore Air Harbor – Lake Union*	Kenmore Air	King	W55	A-I	No	-
King County International/Boeing	King County	King	BFI	D-V	Yes	Primary (non-
NAS Whidbey	U.S. Navy	Island	NUW	-	N/A	-
Olympia Municipal	City of Olympia	Thurston	OLM	C-II	Yes	GA
Pierce County/Thun Field	Pierce County	Pierce	PLU	B-II	Yes	GA
Renton Municipal	City of Renton	King	RNT	B-II	Yes	Reliever
Sanderson Field	Port of Shelton	Mason	SHN	A-II	Yes	GA
Sea-Tac International	Port of Seattle	King	SEA	D-V	Yes	Primary –
Skagit Regional	Port of Skagit	Skagit	BVS	B-II	Yes	GA
Snohomish County/Paine Field	Snohomish	Snohomish	PAE	E-V	Yes	Reliever
Tacoma Narrows	City of Tacoma	Pierce	TIW	C-II	Yes	GA
Will Rogers/Wiley Post Seaplane	City of Renton	King	W36	A-I	No	-
Seaplane bases marked with *	Sources: LATS (2009), NPIAS, WSDOT Airport Information System (www.wsdot.wa.gov/aviation/AllStateAirports/), AIRNAV airport database (www.airnav.com/airports/us/WA)					

	WSDOT Airport Class.	Runway	Runway length	Runway width	Runway surface	Air Traffic Control Tower
Anacortes	Commercial	1	3,015 ft	60 ft	Asphalt	No
Arlington Municipal	Regional	2	5,332 ft	100 ft	Asphalt	No
			3,498 ft	75 ft	Asphalt	
Auburn Municipal	Regional	1	3,400 ft	75 ft	Asphalt	No
Bremerton National	Regional	1	6,000 ft	150 ft	Asphalt	No
Concrete Municipal	Community	1	2,609 ft	60 ft	Asphalt	No
Firstair Field	Community	1	2,087 ft	34 ft	Asphalt	No
Harvey Field	Regional	2	2,671 ft	36 ft	Asphalt	No
			2,430 ft	100 ft	Turf	
McChord Field	Military	2	10,108 ft	150 ft	Asphalt/Concrete/Grooved	Yes
			3,000 ft	60 ft	Asphalt	
Gray Army Airfield	Military	1	6,125 ft	150 ft	Asphalt	Yes
Kenmore Air Harbor – Kenmore*	Commercial	1	10,000 ft	1000 ft	Water	No
Kenmore Air Harbor - Lake Union*	Commercial	1	5,000 ft	500 ft	Water	No
King County International/Boeing	Commercial	2	10,000 ft	200 ft	Asphalt	Yes
			3,701 ft	100 ft	Asphalt	
NAS Whidbey	Military	2	8,001 ft	200 ft	Concrete	Yes
			8,000 ft	200 ft	Concrete	
Olympia Municipal	Regional	1	5,501 ft	150 ft	Asphalt	Yes
Pierce County/Thun Field	Community	1	3,650 ft	60 ft	Asphalt	No
Renton Municipal	Regional	1	5,382 ft	200 ft	Asphalt/concrete	Yes
Sanderson Field	Regional	1	5,005 ft	100 ft	Asphalt	No
Sea-Tac International	Commercial	3	11,901 ft	150 ft	Concrete	Yes
			9,426 ft	150 ft	Concrete	
			8,500 ft	150 ft	Concrete	
Skagit Regional	Regional	1	5,477 ft	100 ft	Asphalt	No
Snohomish County/Paine Field	Regional	3	9,010 ft	150 ft	Asphalt/concrete	Yes
			4,514 ft	75 ft	Asphalt	
			3,000 ft	75 ft	Asphalt	

Tacoma Narrows	Regional	1	5,002 ft	150 ft	Asphalt	Yes
Will Rogers/Wiley Post Seaplane	Regional	1	5,000 ft	200 ft	Water	No
Seaplane bases marked with *	Sources: LATS (2009), NPIAS, WSDOT Airport Information System (www.wsdot.wa.gov/aviation/AllStateAirports/), AIRNAV airport database (www.airnav.com/airports/us/WA)					

Airport	Approach type	Approach lighting	Aircraft Rescue & Fire Fighting (on or off airport)	Fuel available
Anacortes	Non-precision	PAPI	Off airport	100 / Jet-A
Arlington Municipal	Non-precision	MALS/PAPI	Off airport	100LL / Jet-A
	Visual	PAPI		
Auburn Municipal	Visual	VASI	Off airport	100LL
Bremerton National	Precision ILS/GPS	MALSR/PAPI	Off airport	100LL / Jet-A
Concrete Municipal	Visual	No	Off airport	-
Firstair Field	Visual	No	Off airport	-
Harvey Field	Visual	VASI	Off airport	Avgas 100 /Jet-A
	Visual	No		
McChord Field	Precision ILS	ALSF1/2	On airport	100LL / Jet-A / Jet-A1
Gray Army Airfield	ILS (CAT 1)/DME	ODALS	On airport	J-8 FUEL
	Visual	No		
Kenmore Air Harbor – Kenmore*	Visual	No	Off airport	100LL / Jet-A
Kenmore Air Harbor - Lake Union*	Visual	No	Off airport	-
King County International/Boeing	Precision ILS-	MALSR/PAPI	On airport	100LL / Jet-A
	Visual	PAPI	On airport	100LL / Jet-A
NAS Whidbey	Precision ILS-	ALSF1	On airport	100LL / Jet-A / Jet-A1
	Precision GPS	ALSF1	On airport	
Olympia Municipal	Precision ILS-	MALSR/PAPI	Off airport	100LL / Jet-A
Pierce County/Thun Field	Visual	PAPI	Off airport	100LL
Renton Municipal	Non-precision	PAPI/RNAV/GPS/NDB	On airport	100LL / Jet-A / Jet-A1
Sanderson Field	Visual / GPS	PAPI	Off airport	100LL / Jet-A
Sea-Tac International	Precision ILS-	MALSR/PAPI	On airport	100LL / Jet-A / Jet-A1
	Precision ILS-	MALSR/PAPI	On airport	
	Precision ILS-	MALSR/PAPI	On airport	
Skagit Regional	Non-precision GPS	PAPI	Off airport	100LL / Jet-A
Snohomish County/Paine Field	Precision ILS-	MALSR	On airport	100LL / Jet-A / Jet-A1
	Visual	VASI	On airport	100LL / Jet-A / Jet-A1
	Visual	PAPI	On airport	100LL / Jet-A / Jet-A1
Tacoma Narrows	Non-precision	PAPI/VASI	Off airport	100LL / Jet-A
Will Rogers/Wiley Post Seaplane	Visual	No	Off airport	100LL JET-A JET-A1+
Seaplane bases marked with *	Sources: LATS (2009), NPIAS, WSDOT Airport Information System (www.wsdot.wa.gov/aviation/AllStateAirports/), AIRNAV airport database (www.airnav.com/airports/us/WA)			

Airport	Helipad or ramp avail.	Air Cargo off-load capability	Critical aircraft	Major route access
Anacortes	Yes	Yes	Cessna 207	SR 20
Arlington Municipal	Yes	Yes	Beech Super King Air B200	I-5, SR 531, SR 9
Auburn Municipal	Yes	-	Small Aircraft (< 12,500 lbs)	SR 167
Bremerton National	Yes	Yes?	Small Aircraft (< 12,500 lbs) / Piper	SR 3
Concrete Municipal	No	-	Small Aircraft (< 12,500 lbs)	SR 20
Firstair Field	No	-	Small Aircraft (< 12,500 lbs)	US 2, SR 522
Harvey Field	Yes	-	DeHaviland Twin Otter/Cessna 421	SR 9
McChord Field	Yes	Yes	C-17	I-5
Gray Army Airfield	Yes	Yes	Helicopters	I-5
Kenmore Air Harbor – Kenmore*	No	-	Small Aircraft (< 12,500 lbs)	SR 522
Kenmore Air Harbor - Lake Union*	No	Yes	Small Aircraft (< 12,500 lbs)	I-5, SR 99
King County International/Boeing Field	Yes	Yes - major	Boeing 747	I-5, SR 99
NAS Whidbey	Yes	Yes		SR 20
Olympia Municipal	Yes	?	Dornier 328 jet	I-5
Pierce County/Thun Field	Yes	-	Beech King Air	SR 161, SR 512
Renton Municipal	Yes	-	Beech King Air 350	I-405
Sanderson Field	Yes	-	Small Aircraft (< 12,500 lbs)	US 101
Sea-Tac International	Yes	Yes - major	Boeing 747-400	I-5, I-405, SR 509,
Skagit Regional	Yes	Yes	Cessna Citation II	I-5, SR 20
Snohomish County/Paine Field	Yes	Yes	Boeing 747	I-5, SR 525, SR 526
Tacoma Narrows	Yes	Yes	Falcon 2000	SR 16
Will Rogers/Wiley Post Seaplane	No	-	Small Aircraft (< 12,500 lbs)	I-405
Seaplane bases marked with *	Sources: LATS (2009), NPIAS, WSDOT Airport Information System (www.wsdot.wa.gov/aviation/AllStateAirports/), AIRNAV airport database (www.airnav.com/airports/us/WA)			

Airport	Annual aircraft ops.	Operations capacity	# based aircraft	Aircraft storage capacity	Undeveloped land (ac
Anacortes	27000	230000	43		
Arlington Municipal	149000	270000	592	625	190 ac
Auburn Municipal	144000	231000	276	389	23 ac
Bremerton National	55000	240000	196	248	636 ac
Concrete Municipal	8750		45		
Firstair Field	33000	150000	70	87	0
Harvey Field	139000	230000	326	363	125 ac
McChord Field					
Gray Army Airfield					
Kenmore Air Harbor – Kenmore*	57000	56250	70	70	0
Kenmore Air Harbor - Lake Union*	31000	60000	0	0	0
King County International/Boeing	300000	380000	447	479	0
NAS Whidbey					
Olympia Municipal	90000	230000	177		
Pierce County/Thun Field	62000	213000	230	293	25 ac
Renton Municipal	88000	230000	290	290	2 ac
Sanderson Field	58000	230000	76		
SeaTac International	318000	533000	12	12	250 ac
Skagit Regional	61000	270000	158		
Snohomish County/Paine Field	150000	316000	571	750	267 ac
Tacoma Narrows	93000	240000	169	230	40 ac
Will Rogers/Wiley Post Seaplane	2400	60000	0	0	0
Seaplane bases marked with *	Sources: LATS (2009), NPIAS, WSDOT Airport Information System (www.wsdot.wa.gov/aviation/AllStateAirports/), AIRNAV airport database (www.airnav.com/airports/us/WA)				

Table G- 4: Airport Contacts List (September 2010)

County	Airport	Phone	Title
Island			
	NAS Whidbey	360-257-5391	Airfield Manager
King			
	SeaTac	206-248-7488	Aviation Planning
	Boeing Field	206-296-7380	Operations & Compliance
	Kenmore Air Harbor SPB	425-482-2242	Vice President, Flight Operations
	Kenmore Air Harbor	425-482-2242	Vice President, Flight Operations
	Renton Municipal	425-430-7471	Airport Manager
	Auburn Municipal	253-333-6821	Manager
Kitsap			
	Bremerton National	360-674-2381	Director
Mason			
	Sanderson Field	360-533-9554	Business & Trade Development Asst.
Pierce			
	Pierce County Airport	253-871-3779	Airport Operations Manager
	Tacoma Narrows Airport	253-798-2576	Transportation Operations Supervisor

County	Airport	Phone	Title
	McChord Field	253-982-5611	Base Operations Manager
	Gray Army Airfield	523-968-2904	Operations Manager
Skagit			
	Skagit Regional	360-757-0011	Manager
Snohomish			
	Arlington Municipal	360-403-3472	Manager
	Paine Field	425-353-2110	Airport Director
	Harvey Field	360-568-1541	Manager
Thurston			
	Olympia	360-528-8074	Airport Manager

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Appendix H. Glossary of Terms

The following are common transportation terms used in this plan and in transportation recovery operations.

1. **Air Carrier** - The commercial system of air transportation comprising large certificated air carriers, small certificated air carriers, commuter air carriers, on-demand air taxis, supplemental air carriers, and air travel clubs.

2. **Airport** - A landing area regularly used by aircraft for receiving or discharging passengers or cargo.

3. **American Association of State Highway & Transportation Officials (AASHTO)** - A nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail and water. Its primary goal is to foster the development, operation and maintenance of an integrated national transportation system.

4. **American Public Transportation Association (APTA)** - Acting as a leading force in advancing public transportation, APTA serves and leads its diverse membership through advocacy, innovation, and information sharing to strengthen and expand public transportation.

5. **Amtrak** - Operated by the National Railroad Passenger Corporation, this rail system was created by the Rail Passenger Service Act of 1970 (Public Law 91-518, 84 Stat. 1327) and given the responsibility for the operation of intercity, as distinct from suburban, passenger trains between points designated by the Secretary of Transportation.

6. **Arterial** - A class of roads serving major traffic movements (high-speed, high volume) for travel between major points.

7. **Arterial Highway** - A major highway used primarily for through traffic.

8. **Arterial Street** - A class of street serving major traffic movements (high-speed, high volume) for travel between major points.

9. **Average Vehicle Occupancy** - The number of persons divided by the number of vehicles traveling past a selected point over a predetermined time period, usually expressed to two or three significant figures (i.e., 1.2 or 1.26).

10. **Bridge Management System (BMS)** - A systematic process that provides, analyzes, and summarizes bridge information for use in selecting and implementing cost-effective bridge construction, rehabilitation, and maintenance programs

11. **Bus Lane** - 1) A street or highway lane intended primarily for buses, either all day or during specified periods, but sometimes also used by carpools meeting requirements set out in traffic laws. 2) A lane reserved for bus use only. Sometimes also known as a "diamond lane."

12. **Bus Priority System -** A system of traffic controls in which buses are given a special advantage over other mixed-flow traffic (e.g., preemption of traffic signals or preferential lanes).

13. **Capacity, Design (or roadway capacity) -** The maximum number of vehicles (vehicular capacity) or persons (person capacity) that can pass over a given section of roadway in one or both directions during a given period of time under prevailing environmental, roadway, and roadway user conditions, usually expressed as vehicles per hour or persons per hour. (Operational capacity for an HOV lane should be less than this.)

14. **Carpool** - An arrangement where two or more people share the use and cost of privately owned automobiles in traveling to and from pre-arranged destinations together.

15. **Change of Mode -** The transfer from one type of transportation vehicle to another (i.e., auto to bus or pedestrian to auto).

16. **Class I Railroad** - Railroad with an annual operating revenue of at least $266.7 million.

17. **Collector (Highway)** - In rural areas, routes that serve intra-county rather than statewide travel. In urban areas, streets that provide direct access to neighborhoods and arterials.

18. **Commercial Service Airport** - Airport receiving scheduled passenger service and having 2,500 or more enplaned passengers per year.

19. **Commuter Lane** - Another name for "High-Occupancy Vehicle Lane."

20. **Commuter Rail** - Long-haul passenger service operating between metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fares for multiple rides, and commutation tickets for regular, recurring riders.

21. **Commuter Rail (Transit)** - Urban passenger train service for short-distance travel between a central city and adjacent suburb. Does not include rapid rail transit or light rail service.

22. **Congestion Management System (CMS)** - Systematic process for managing congestion. Provides information on transportation system performance and finds alternative ways to alleviate congestion and enhance the mobility of people and goods, to levels that meet state and local needs.

23. **Containerized Cargo** - Cargo that is transported in containers that can be transferred easily from one transportation mode to another.

24. **Corridor** - A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways and transit route alignments.

25. **Expressway** - A controlled access, divided arterial highway for through traffic and the intersections of which are usually separated from other roadways by differing grades.

26. **Federal-Aid Highways** - Those highways eligible for assistance under Title 23 U.S.C. except those functionally classified as local or rural minor collectors.

27. **Ferry Boat** - A boat providing fixed-route service across a body of water.

28. **Ferryboat (Transit)** - Vessels that carry passengers and/or vehicles over a body of water. Generally steam or diesel-powered, ferryboats may also be hovercraft, hydrofoil, and other high-speed vessels. The vessel is limited in its use to the carriage of deck passengers or vehicles or both, operates on a short run on a frequent schedule between two points over the most direct water routes other than in ocean or coastwise service, and is offered as a public service of a type normally attributed to a bridge or tunnel.

29. **Freeway** - A divided arterial highway designed for the unimpeded flow of large traffic volumes. Access to a freeway is rigorously controlled and intersection grade separations are required.

30. **General Aviation** - 1) All civil aviation operations other than scheduled air services and nonscheduled air transport operations for taxis, commuter air carriers, and air travel clubs that do not hold Certificates of Public Convenience and Necessity. 2) All civil aviation activity except that of air carriers certificated in accordance with Federal Aviation Regulations, Parts 121, 123, 127, and 135. The types of aircraft used in general aviation range from corporate multiengine jet aircraft piloted by professional crews to amateur-built single-engine piston-driven acrobatic planes to balloons and dirigibles.

31. **Heavy Rail (Transit)** - An electric railway with the capacity to transport a heavy volume of passenger traffic and characterized by exclusive rights-of-way, multicar trains, high speed, rapid acceleration, sophisticated signaling, and high-platform loading. Also known as: Subway, Elevated (railway), or Metropolitan railway (metro).

32. **High Occupancy Vehicle (HOV)** - Vehicles carrying two or more people. The number that constitutes an HOV for the purposes of HOV highway lanes may be designated differently by different transportation agencies.

33. **High Occupancy Vehicle Lane** - Exclusive road or traffic lane limited to buses, vanpools, carpools, and emergency vehicles.

34. **Highway** - Is any road, street, parkway, or freeway/expressway that includes rights-of-way, bridges, railroad-highway crossings, tunnels, drainage structures, signs, guardrail, and protective structures in connection with highways. The highway further includes that portion of any interstate or international bridge or tunnel and the approaches thereto (23 U.S.C. 101a). Infrastructure   1) In transit systems, all the fixed components of the transit system, such as rights-of-way, tracks, signal equipment, stations, park-and-ride lots, bus stops, maintenance facilities. 2) In transportation planning, all the relevant elements of the environment in which a transportation system operates. 3) A term connoting the physical underpinnings of society at large, including, but not limited to, roads, bridges, transit, waste systems, public housing, sidewalks, utility installations, parks, public buildings, and communications networks.

35. **Intelligent Transportation Systems (ITS**) - The application of advanced technologies to improve the efficiency and safety of transportation systems.

36. **Intermodal** - The ability to connect, and the connections between, modes of transportation.

37. **Intersection** - 1) A point defined by any combination of courses, radials, or bearings of two or more navigational aids. 2). Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

38. **Interstate** - Limited access divided facility of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.

39. **Interstate Highway** - Limited access, divided highway of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.

40. **Interstate Highway (Freeway or Expressway)** - A divided arterial highway for through traffic with full or partial control of access and grade separations at major intersections.

41. **Lane** - A portion of a street or highway, usually indicated by pavement markings, that is intended for one line of vehicles.

42. **Large Regionals (Air)**   Air carrier groups with annual operating revenues between $20 million and $99,999,999.

43. **Level of Service (LOS)** - A qualitative assessment of a road's operating conditions. For local government comprehensive planning purposes, level of service means an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Level of service indicates the capacity per unit of demand for each public facility.

44. **Light Rail** - A streetcar-type vehicle operated on city streets, semi-exclusive rights-of-way, or exclusive rights-of-way. Service may be provided by step-entry vehicles or by level boarding.

45. **Local Street** - A street intended solely for access to adjacent properties.

46. **Maritime** - Business pertaining to commerce or navigation transacted upon the sea or in seaports in such matters as the court of admiralty has jurisdiction.

47. **Memorandum of Understanding (MOU)** - A document providing a general description of the responsibilities that are to be assumed by two or more parties in their pursuit of some goal(s). More specific information may be provided in an associated Statement of Work (SOW).

48. **Metropolitan Planning Organization (MPO)** - 1) Regional policy body, required in urbanized areas with populations over 50,000, and designated by local officials and the governor of the state; responsible in cooperation with the state and other transportation providers for carrying out the metropolitan transportation planning requirements of federal highway and transit legislation. 2) Formed in cooperation with the state, develops transportation plans and programs for the metropolitan area. For each urbanized area, a Metropolitan Planning Organization (MPO) must be designated by agreement between the Governor and local units of government representing 75% of the affected population (in the metropolitan area), including the central cities or cities as defined by the Bureau of the Census, or in accordance with procedures established by applicable State or local law (23 U.S.C. 134(b)(1)/Federal Transit Act of 1991 Sec. 8(b)(1)).

49. **Minor Arterials (Highway)** - Roads linking cities and larger towns in rural areas. In urban areas, roads that link but do not penetrate neighborhoods within a community.

50. **Mode** - A specific form of transportation, such as automobile, subway, bus, rail, or air.

51. **Multimodal** - The availability of transportation options using different modes within a system or corridor.

52. **National Highway System (NHS)** - This system of highways designated and approved in accordance with the provisions of 23 U.S.C. 103b).

53. **Occupancy** - The number of persons, including driver and passenger(s) in a vehicle. Nationwide Personal Transportation Survey (NPTS) occupancy rates are generally calculated as person miles divided by vehicle miles.

54. **Paratransit -** 1) Comparable transportation service required by the American Disabilities Act (ADA) for individuals with disabilities who are unable to use fixed route transportation systems. 2) A variety of smaller, often flexibly scheduled-and-routed transportation services using low-capacity vehicles, such as vans, to operate within normal urban transit corridors or rural areas. These services usually serve the needs of persons that standard mass-transit services would serve with difficulty, or not at all. Often, the patrons include the elderly and persons with disabilities.

55. **Peak Period** - A portion of the day in which the heaviest demand occurs for a given transportation corridor or region, usually defined as a morning or evening period of two or more hours.

56. **Port** - Harbor with piers or docks. See "Airport" for airways related definition.

57. **Private Carrier** - A carrier that provides transportation service to the firm that owns or leases the vehicles and does not charge a fee.

58. **Privately Owned Vehicle (POV)** - 1) A privately-owned vehicle or privately-operated vehicle. 2) Employee's own vehicle used on official business for which the employee is reimbursed by the government on the basis of mileage.

59. **Public Transit System** - An organization that provides transportation services owned, operated, or subsidized by any municipality, county, regional authority, state, or other governmental agency, including those operated or managed by a private management firm under contract to the government agency owner.

60. **Rail** - A rolled steel shape laid in two parallel lines to form a track for carrying vehicles with flanged steel wheels.

61. **Ramp Metering -** A system used to reduce congestion on a freeway facility by managing vehicle flow from local-access on-ramps. An on-ramp is equipped with a traffic signal that allows vehicles to enter the freeway.

62. **Regional Planning Organization (RPO)** - An organization that performs planning for multi-jurisdictional areas. MPOs, regional councils, economic development associations, rural transportation associations are examples of RPOs.

63. **Road** - An open way for the passage of vehicles, persons, or animals on land.

64. **Road Class** - The category of roads based on design, weatherability, their governmental designation, and the Department of Transportation functional classification system.

65. **Stakeholders** - Individuals and organizations involved in or affected by the transportation planning process. Include federal/state/local officials, MPOs, transit operators, freight companies, shippers, and the general public.

66. **Urban Highway** - Any road or street within the boundaries of an urban area. An urban area is an area including and adjacent to a municipality or urban place with a population of 5,000 or more. The boundaries of urban areas are fixed by state highway departments, subject to the approval of the Federal Highway Administration, for purposes of the Federal-Aid Highway Program.

67. **Vanpool (Transit)** - Public-sponsored commuter service operating under prearranged schedules for previously formed groups of riders in 8- to 18-seat vehicles. Drivers are also commuters who receive little or no compensation besides the free ride.

Source Reference: Definitions incorporated in this glossary were developed based on the Parsons Brinckerhoff HOV Glossary and taken from Seattle Transit Blog, King County Transportation Plan, and the Federal Highway Administration Transportation Glossary.

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Appendix I. Recommendations, Sustainment, Training and Exercises

A. General Information

The Transportation Recovery Annex (the Annex) provides recommended guidelines for coordinating multi-jurisdictional regional transportation system recovery in the Puget Sound Region after a catastrophic incident. It provides information and recommended guidelines for regional coordination, collaboration, decision-making, and priority setting among Puget Sound area emergency response and transportation agencies and other partners across the disaster recovery spectrum.

The Annex also provides information, strategies and guidance for local jurisdictions to develop their respective local implementation plans to address local issues and procedures for connecting local transportation recovery measures with the restoration of the regional transportation network, as well as establishing coordination linkages with other local jurisdictions, state and federal transportation agencies and traffic management systems.

1. Key Elements

- Initial actions for situational awareness
- Initial detours for 50 key roadway disruptions
- Development and coordination of mid-term traffic management strategies
- Development and coordination of regional recovery working groups
- Development and coordination of a long term recovery process for transportation
- Development and coordination of long term recovery priorities
- Multi-modal resource lists

2. Core Capabilities Supported

- Planning
- Operational Coordination
- Community Resilience
- Threats and Hazard Identification
- Situational Assessment
- Infrastructure Systems for Response
- Infrastructure Systems for Recovery
- Public and Private Services and Resources

3. Target Audiences for Training and Exercises

- State/local EOCs and emergency management personnel

- State/local transportation departments and ESF-1 personnel

- Multi-Modal Transportation community (Air, Water, Road and Rail)

- Puget Sound Regional Council (PSRC)

- Pacific Northwest Economic Region (PNWER) and other private sector organizations

B. Recommendations

The Transportation Recovery Annex as written can be a useful tool for local and state transportation and emergency management stakeholders in addressing regional catastrophic transportation needs. It contains a number of checklists, resource lists, detour maps, guidelines, multi-modal alternatives and regional coordination strategies that could be utilized to help regional coordination in short, mid- and long term recovery efforts. It is, however, just a document, and emergency planning and preparedness is a journey, not a destination. For example, as time passes, some information, such as resource lists and phone numbers, will go out of date. The Annex needs to be periodically updated, used for training, and exercised if it is to sustain its usefulness.

One baseline for Annex capability evaluation and needed future effort can be found in the recommendations, gaps and best practices outlined in Section X of the Annex.

Although the development of the Transportation Recovery Annex with 2008 Grant Funds and the subsequent Training and Exercise project with 2010 Grant Funds did help to build new relationships and develop "planning communities" as suggested in the grant goals, there is still a long way to go in the Puget Sound Region to fully develop and sustain the resiliency in the multi-modal regional transportation system to rebound from a catastrophic event.

In some cases progress was hampered by basic human nature (other priorities) and the realities of government capabilities in the light of one of the worst recessions in our nation's history. Many stakeholders are already overloaded with their own mission and priorities, making it difficult to give proper attention to Transportation Recovery Annex objectives.

In order for the Annex, and the regional efforts by many transportation stakeholders and emergency managers in its development, to make a difference and improve regional capabilities, additional efforts are needed. The following comments are based upon the recommendations outlined in Section X of the Annex that were identified during Annex development.

1. Improve coordination among emergency management and transportation agencies, especially with transportation planners and engineers who are often not involved in emergency management planning, training and exercises, or if they are involved, it has historically been in response operations**.** Although there is now an increased emphasis on overall recovery planning in the Region, more efforts are needed to integrate the expertise of transportation planners and engineers who, in larger departments, are often not involved in day-to-day transportation operations or in planning for initial disaster response operations.

Although genuine efforts were made by RCPT members and others to expand the audience for participation in the Training and Exercise events, we often found attendance in many cases was limited to the same stakeholders that took part in the development of the Annex in the first place. A notable exception was in the maritime community where, due to some preexisting relationships and the US Coast Guard's emphasis on maritime recovery, there was a higher percentage of new stakeholders and additional training and exercise events scheduled. Efforts must be made to expand future participation.

2. Develop an interlocal agreement among the ports so there is a region-wide interlocal agreement among ports to provide for the sharing of resources after a catastrophe. An effort was initiated in 2010 to develop a regional port mutual aid agreement for response to disaster. In an effort to develop this agreement in a logical step by step process, the initial proposed draft primarily focused on assistance with management personnel to support Port Emergency Operations Center staffing and some equipment resources. Some progress has been made, but this still has not been completed. Currently, the Pacific Northwest Economic Region (PNWER) is coordinating the effort. The primary issue is who will be the coordinator of the effort and maintain the agreement. They are working with the Washington Public Ports Association (WPPA) to encourage them to take ownership of the agreement. (From conversations with Neil Clement of the Port of Bellingham and Eric Holdeman of PNWER)

3. Establish regional transportation recovery operations policy so there is a regional structure or process in place to accommodate regional coordination of transportation recovery. With the change in leadership that occurred at the Washington State EMD, there is new interest in the RCPGP products, especially in the Regional Catastrophic Disaster Coordination Plan.

Implementing coordinated regional transportation policy is essential for transportation recovery. From a basic span of control perspective, States without regional mechanisms have established them after a catastrophe to manage transportation recovery as well as in all functional areas. Since experience has shown that this is likely to occur, more discussion is needed in the concepts of regional approaches to solving problems after a catastrophe. This is best lead from the State level and should be a statewide discussion, not just among the RCPGP jurisdictions.

> *Considering the Governor's authority to "appoint, with the advice of local authorities, metropolitan or regional area coordinators, or both, when practicable", as outlined in RCW 38.52.050 (3) (d), the State EMD should take the lead in further discussions, planning and policy development for regional coordination.*

Additional work is being done to develop mid-term Transportation Coordination Groups in cooperation with the Puget Sound Regional Council (PSRC) under the Transportation Recovery Annex Training and Exercise Project, but more state and local leadership is needed in further discussion in this area, including defining roles and responsibilities of transportation and emergency management agencies, establishing plans for developing, implementing and maintaining cross-jurisdictional coordination, and identifying lead agencies to sustain the effort.

> *Some local jurisdictions, notably Seattle and Snohomish County, are working on comprehensive local recovery plans, but more discussion and planning is needed.*

4. Develop local transportation recovery plans and discussions to support restoration to the regional transportation network. Most of the regional roadway transportation network is under the direction and control of state government. Waterways, airways and railways are under the direction and control of a mix of local, state, federal and private sector stakeholders. Some recovery planning has been done, such as for the SR 520 Bridge and for potential closures of I-5 in the Olympia/Thurston County area. Transportation recovery should be integrated into existing ongoing planning, plan maintenance and updates.

5. Integrate transportation recovery into existing training and exercise plans and schedules. Local jurisdictions annually update a three (3) year training plan. Short term, mid-term and long term transportation recovery issues can be included in both local and state level, using information in the Annex as a guide. The integration of transportation recovery issues and ESF-1 experts (See Recommendation 1 above) into existing training and exercise schedules at local and state levels is a very cost effective way of both Annex sustainability and usefulness in a catastrophe.

6. Improve private sector coordination through such strategies as developing formal agreements between public transportation agencies and private sector stakeholders in each mode of transportation (roadway, waterways, airways and railways) to better integrate the private sector into ongoing emergency management preparedness programs. Formalizing public-private partnerships could enhance coordination amongst private sector facilities that are locally based with local government levels and with private sector facilities that provide a regional or multi-county function with state level transportation recovery efforts.

7. Develop incentives to expedite transportation recovery to cut "red tape" and speed mid-term and long term transportation recovery efforts. There are a number of models and best practices from past disasters, such as the Northridge Earthquake, Hurricane Katrina and Super Storm Sandy. Rebuilding a transportation network after a catastrophic event will require unprecedented cooperation between local, regional, state and federal agencies as well as with the private sector.

> *Developing incentive policies and procedures ahead of time, such as accelerated bid, design and award processes; 24-hour work days, seven days a week (12-hour shifts); 24-hour /day decision making and inspection; and, early bonuses and late penalties (as done in the Northridge Earthquake) can also support Recommendation 6 above.*

8. **Provide emergency replacement plans/procedures for marginal or inadequate structures** by integrating these discussions into local comprehensive transportation plans that identify roadway improvements based on population demands and maintenance required for local area roads. Many jurisdictions have identified marginal or inadequate structures (e.g., bridges that create traffic bottlenecks, bridges that will need to be replaced, addition of bike lanes or high occupancy vehicle lanes on bridges, etc.) that may need future improvements or additional capacity. In an effort to expedite recovery, local jurisdictions should prepare design/build requests for proposals (RFPs) that can be issued quickly after a major disaster for structures that may need replacement.

9. Provide uniform bridge damage assessment reporting to expedite damage assessment by first response bridge inspectors. Resources will be overwhelmed after a catastrophe. By developing uniform damage assessment reporting, consistent information can be provided in accordance with existing local communications protocols and used for operational planning and priority setting and emergency public information purposes.

10. Provide uniform airport damage assessment reporting to support WSDOT Aviation Division efforts to develop a status/damage report for airport sponsors (i.e., person or entity primarily responsible for airport operations), developing a query and report format, and creating access for outside agencies to view reports in the WSDOT Aviation – Airport Information Database (such as FAA and State EOC).

C. Training and Exercises

The following section includes information concerning future training and exercising to support Transportation Recovery Annex and its respective Toolkits. The Annex provides information, strategies and guidance for local jurisdictions to develop their respective local implementation plans to address local transportation disruption issues and procedures for connecting local transportation recovery measures with the restoration of the regional transportation network. It also guides the establishment of coordination linkages with other local jurisdictions and transportation agencies, state and federal transportation agencies and traffic management systems.

This Appendix identifies training, exercise and evaluation activities as they relate specifically to the Annex. Training includes, as outlined in the Homeland Security Exercise and Evaluation Program (HSEEP), discussion Seminars specific to the Annex to incorporating transportation elements into a scheduled Full Scale Exercise.

1. Training Needs

Emergency management agencies in the Puget Sound Region deliver a range of training classes to enhance the emergency planning and response capabilities of their respective community, including transportation stakeholders. The Annex recommends integrating its respective elements into the ongoing training programs of the local emergency management agencies, local jurisdictions and the State EMD on an ongoing basis. Transportation stakeholders are also encouraged to notify holders of the Annex of training opportunities associated with transportation recovery operations.

The specific training needs for the Annex include, but may not be limited to, the general knowledge of the existence and contents of the Annex; use of Annex tools and procedures, such as the Prioritization Tool, Bridge Assessment Information, Short Term, Mid-Term and Long Term Recovery Checklists, strategies for developing agreements, use of specific disruption alternative routes and developing additional diversion and detour routes.

2. Training Strategy

The RCPGP retained Witt | O'Brien's to conduct training for local and state transportation stakeholders and other personnel of participating public, private and non-profit agencies to train them on the contents and tools of the Annex and to exercise the Annex elements to test capabilities and interdependencies between jurisdictions; and to develop an After Action Report/Improvement Plan to improve the Annex based on lessons learned through planning, exercising or actual events.

A total of seventeen (17) training events were held and a total of 674 transportation stakeholders participated in the training and exercise opportunities. (See Table I- 1) In accordance with Homeland Security Exercise and Evaluation Program (HSEEP) policy, a Situation Manual (SitMan) was developed for each event outlining the objectives and content of the program.

Table I- 1. Transportation Recovery Annex Training & Exercise Results

Transportation T&E	Date	Number of Participants
County		
Island	11/14/2012	27
King	05/07/2013	63
Kitsap	04/24/2012	17
Pierce	04/09/2012	23
Snohomish/Skagit	01/24/2013	21
Thurston/Mason	12/12/2012	13
Cities		
Seattle	12/20/2011	36
Other Key Stakeholders		
Maritime (MTSRU)	04/19/2012	29
Maritime (HSC)	02/01/2012	32
PSRC	09/13/2012	45
WSDOT	06/13/2013	130
WSDOT Public Transit Conference	08/29/2012	15
Thurston TRB	03/14/2012	12
Thurston County Commissioners	06/07/2012	6
APWA MPAC	03/21/2012	30
Evergreen Quake 2012	10/01/2012	45
Evergreen Quake 2012	02/08/2012	130
	Total	**674**

The training focused on the three recovery related elements of the then-current DHS Target Capabilities List: Structural Damage Assessment; Restoration of Lifelines and Economic and Community Recovery. The training elements included:

- Initial actions for situational awareness

- Initial detours for road disruptions

- Development and coordination of mid-term traffic management strategies

- Development and coordination of regional recovery working groups

- Development and coordination of a long term recovery process for transportation

- Development and coordination of long term recovery priorities

The target audiences included, but were not limited to, State/local EOCs and ESF-1 personnel; State/local transportation departments; the Maritime community; the Puget Sound Regional Council (PSRC) and selected committees; the Pacific Northwest Economic Region (PNWER) and other private sector organizations; and elected officials.

The Transportation Recovery Annex Training and Exercise Project also included the development of a Train the Trainer Kit for each RCPT County and participating cities. This tool can be used in the future for RCPT members and others to sustain training and exercises with respect to the Annex. (See Section D of this Appendix)

3. Related Training Courses

There are currently no Independent Study Courses that relate specifically to the Transportation Recovery Annex. There are several courses that relate to transportation or to recovery that may have application. These courses are listed below and can be found on-line at http://training.fema.gov/IS. General emergency management or National Incident Management System (NIMS) general required training courses are not included in these tables.

Table I- 2- Transportation Recovery related courses

Course Number	Course Name
IS-556	Damage Assessment for Public Works
IS-558	Public Works and Disaster Recovery (2/15/2012)
IS-801	Emergency Support Function (ESF) #1 – Transportation (8/7/2008)
IS-814	ESF #14 - Long Term Community Recovery
IS-2900	National Disaster Recovery Framework (NDRF) Overview (11/1/2013)

Table I- 3. Other classes that could relate to this annex offered by different organizations

Course Name/Number	Offered by
E210 – Recovery from Disaster, the Local Gov't Role	Emergency Response Institute (EMI)
E286 – Short Term Recovery Operations	Emergency Response Institute (EMI)
E313 – Basic Hazus Multi-Hazard	Emergency Response Institute (EMI)
IS-0100.PWb Introduction to ICS for Public Works	Emergency Response Institute (EMI)
EO132 Discussion Based Exercise Design and Evaluation	Emergency Response Institute (EMI)
MGT 415 Disaster Recovery in Rural Communities	National Domestic Prep. Consortium (NDPC)
PER 300 Social Media for Disaster Response & Recovery	NDPTC – University of Hawaii
N/A	Recovery for the Financial Section (Snohomish Co.)

Other training and exercise opportunities often are planned or scheduled through transportation related associations, organizations, or conferences, such as RCPT member jurisdictions, the Washington State Emergency Management Association (WSEMA), the American Public Works Association – Washington Chapter (AWPA), the Washington State Department of Transportation (WSDOT), the Partners in Emergency Preparedness Conference (PIEP). Also, the Washington State Emergency Management Division publishes a Training and Exercise calendar posted on their web page. Please check with the websites of the above for additional information.

4. Exercises

In order to test cross-jurisdictional concepts of this plan, there is a need to exercise with multiple jurisdictions. Counties, cities, and other partners identified in this Annex should exercise together to test cross-jurisdictional plans as well as local plans. Efforts should be made to coordinate training and exercises of regional plans with other training and exercise efforts by using the Washington State EMD website at www.emd.wa.gov. (As of June 2014, there were no *Transportation Specific* training or exercise events on the Washington EMD web-site.)

With current budget realities, the best strategy is to integrate elements of transportation recovery and sustainment covered in the Transportation Recovery Annex into existing training and exercises as well as taking advantage of where transportation stakeholders gather already, such as conferences.

There are a number of existing and future training and exercise opportunities that could provide the State of Washington EMD, participating RCPGP jurisdictions and other stakeholders the opportunity to integrate a sustainable training and exercise effort for regional transportation resiliency and sustainment of the Transportation recovery Annex. Potential strategies could be grouped into three basic categories: individual agency or organization, local jurisdiction, and regional. Considering the importance of transportation and the recovery of the multi-

modal transportation system after a catastrophe, in a perfect world more would be done in transportation recovery planning and training.

Each year, local jurisdictions develop and update their training and exercise plans as part of the process the state requires for Emergency Management Preparedness Grant (EMPG) funding. (See Recommendation 5 in Section B above) This is done on a three year cycle. An analysis of existing training and exercise plans for counties in the RCPGP planning area show a number of opportunities for inclusion of elements of transportation recovery and the tools, information and suggested guidance from the Transportation Recovery Annex.

In November of 2013, a survey was done of the eight Counties in the RCPGP Region and the Cities of Seattle and Tacoma to identify any scheduled exercises of any kind through 2016 that were either targeted at Transportation Recovery issues or were of such scope that Transportation Issues could be included. The stakeholders should use their Training and Exercise Plans they develop for the WA State EMD to identify opportunities to continue training and exercising elements of the Transportation Recovery Annex. The currently planned trainings and exercises present numerous opportunities to integrate transportation recovery, policy and procedures using the information and tools in the Transportation Recovery Annex. This could be as simple as adding a question or two about transportation recovery into a TTX or Functional Exercise.

5. Evaluation

Evaluating exercises provides a forum where personnel can identify strengths, weaknesses and gaps to plans and training as well as areas that need improvement. An After Action Report (AAR) should be written any time the Annex is utilized in or integrated into an operations based exercise or an actual event or incident. The AAR should be completed in a timely manner following the completion of an exercise, generally within 90 days.

Any After Action Reports relative to transportation recovery or related topics should be shared with the Snohomish County DEM and WSDOT which have offered to lead any sustainment efforts for the Annex. The specific details of what they will be able or willing to do is being worked out.

6. Scheduling and Calendars

Lead agencies for the RCPGP plans, annexes and toolkits developed their respective training and exercise plans using FFY 2010 RCPGP funds. The FFY 2011 RCPGP award supported additional training and exercise activities. Sustainment of plans and annexes is being addressed in a separate section of the Regional Catastrophic Disaster Coordination Plan. The lead agencies identified in the sustainment section (Snohomish County DEM and WSDOT) may also provide leadership for training, exercising, and evaluation of this annex.

Training and exercise schedules are developed on an annual basis by project leads or respective local emergency management departments and organizations to be determined through the sustainment process. Training and exercise activities should be coordinated among plan participants and Washington State EMD Training and Exercise personnel as well as other RCPT members in case there is opportunity to share exercise activity with neighboring jurisdictions or on a regional basis.

D. Recommended funding opportunities and next steps

A key element to the next steps in the sustainment of transportation recovery planning has been the commitment from both Snohomish County and WSDOT to take responsibility for some elements of Transportation Recovery Annex maintenance and updating. This shows a commitment to make an effort to continue discussions and planning on this important element of regional recovery.

Table I- 4:- Snohomish County tentative commitments from participating agencies

		Minimum Sustainment Activity Commitments of Volunteer Lead Agencies
Minimum Commitments	1	Keep and share latest electronic copy of Plan/Annexes upon request
	2	Maintain and share contact list for the Plan/Annex upon request
	3	Update and circulate contact list 1x year
	4	Working in conjunction with State EMD, facilitate and promote integration of exercise and training opportunities for the Plan/Annex into third-party (state or other multi-county) hosted exercises/trainings.
	5	Forward electronic updates of Plan/Annex and contact list to a central website for posting (TBD: third party hosting the website)
	6	Participate in RCPT (or successor) meetings to provide periodic updates of Plan/Annex activities, opportunities re: training/exercise/sustainment
	7	Participate in periodic "Project Leads" meetings
	8	Provide electronic updates to RCPT members/other interested parties of Plan/Annex activities, opportunities re: training/exercise/sustainment ties, periodically as appropriate
	9	Provide RCPT members prompt notice if unable to perform any of these commitments
When Possible/ Subject to Resource Availability	10	Gather, compile and prioritize After Action Review (AAR) items relevant to the Annex and make these recommendations available to interested parties.
	11	Propose updates to Plan/Annex as appropriate based on Exercises/AARs/other information
	12	Incorporate any plan changes as RCPT (or successor) approves

They will work on advocating greater inclusiveness and for these recommendations in general under the auspices of numbers 4, 10, & 11 from Table 4 above. (From E-mail from Jason Biermann – 11/27/2013)

WSDOT has added a new planner to their emergency management staff who will have the assignment to support maintenance of the Annex. This will be in coordination with Snohomish County but the actual scope of this work has yet to be developed (Phone conversation with John Himmel, January 17, 2014)

At this time there is no targeted funding for Transportation Recovery Annex maintenance and sustainment efforts. It is being accomplished through the respective agencies and other regional partners' commitment to continuing transportation recovery planning efforts.

As with most targeted funding opportunities, other federal priorities are driving funding opportunities.

Through the life of the project, funding has come from specific federal funding streams focused on catastrophic planning. FEMA Region X staff have indicated that it was the expectation of the Federal Government that these efforts were important to State and local jurisdictions and they would continue to sustain those elements that were state and local priorities.

The Catalog of Federal Domestic Assistance (CFDA) annually lists all of the federal grants and other opportunities for federal financial assistance. A survey of existing opportunities for additional funding to support further transportation recovery projects or planning in the Puget Sound Region reveals that there are several programs that potentially could be used based on funding availability, current program guidance, current national, state and local priorities and other factors.

Table I- 5 – Potential funding opportunities from the CFDA

Catalog Number	Program	Agency	Date Modified
20.205	Highway Planning and Construction	Department of Transportation / Federal Highway Administration (FHWA)	12/28/2013
20.314	Railroad Development	Department of Transportation / Federal Railroad Administration (FRA)	12/4/2013
20.527	Public Transportation Emergency Relief Program	Department of Transportation / Federal Transit Administration (FTA)	2/6/2013
20.931	Transportation Planning, Research and Education	Department of Transportation / Research and Innovative Technology Administration	7/18/2013
97.039	Hazard Mitigation Grant	Department of Homeland Security	9/1/2013
97.047	Pre-Disaster Mitigation	Department of Homeland Security	9/1/2013
97.056	Port Security Grant Program	Department of Homeland Security	7/27/2013
97.075	Rail and Transit Security Grant Program	Department of Homeland Security	8/28/2013
20.205	Highway Planning and Construction	Department of Transportation / Federal Highway Administration (FHWA)	12/28/2013

Many of these grant programs are discretionary, meaning that priorities may be set by the recipients under the scope set out by the enabling legislation or by the funding agency regulatory process. The reality is, with all of the needs and priorities at the local and state level, there are currently other priorities outside of the projects that continue and sustain the regional transportation recovery planning that has been accomplished to date. Also, many of these programs set construction projects as a higher priority than planning. In the federal funding system, programs get authorized by statute, but need to be funded by separate appropriations action. Subsequently, although the program guidance may look promising, often no funding is available.

On July 6, 2012, the President signed into Law P.L. 112-141, the Moving Ahead for Progress in the 21st Century Act (MAP-21). USDOT was able to get authority under this Act for funds for Highway Resilience allowing the States to set and fund their multi-modal transportation priorities, including planning, retrofitting, airport and port improvements and the like. The regulations for these opportunities are under development and may offer opportunities for further transportation recovery planning and construction, if it becomes a State priority. Also, transportation funding by congress needs to be appropriated.

> **WSDOT is aware of MAP-21 funding opportunity, but already has numerous establish priorities for retrofitting transportation infrastructure and other projects.**

It is not likely that additional transportation recovery planning will trump existing priorities. WSDOT has made the commitment to work with Snohomish County on maintaining and sustaining the Annex. As stated previously, the details of this commitment have yet to be determined, but it does present an opportunity for sustainment and further work.

There is not likely to be any dedicated funding from the Federal government for these purposes unless there is an event that resets the national funding priorities, such as what Katrina did for catastrophic planning. So, in the meantime, regional transportation stakeholders should look for every opportunity to integrate sustainment measures for the Transportation Recovery Annex into existing activities, as recommended in this report and the After Action Report and Improvement Plan for this project.

Finally, if a catastrophe or lesser disaster occurs in our region, there may be opportunity for funding for repair and mitigation that could strengthen transportation resiliency. Recommendations 7 and 8 from Section X of the Transportation Recovery Annex anticipate this opportunity and suggest measures that could be taken ahead of time to increase the benefits from such an opportunity.

E. Improvement Plan

The Improvement Plan was developed to outline the observations, recommendations and needed corrective actions to continue efforts in implementing, maintaining and sustaining the Transportation Recovery Annex. Snohomish County DEM and WSDOT have both offered to assist in the maintenance and sustainment of the Annex and are currently developing their policy as to what they can realistically do to in this regard. RCPT jurisdictions and the general emergency management community in the

RCPGP planning are can use this Improvement Plan to integrate Transportation Recovery issues, recommended guidance, tools and procedures into their ongoing programs to assist in this effort.

Improvement Plan – Objective 1

Objective 1	Observations	Recommendations	Capability Element	Responsible Party	Completion Date
Increase overall awareness of the Transportation Recovery Annex and enhance coordination among transportation stakeholders in the Puget Sound Region by helping them understand how to use the Annex, how to use the tools in the Annex and how to integrate these tools into their local planning.	The Annex provides guidance for "connecting the dots" for disruption to the multi modal transportation system. There was not a broad awareness of the existence of the Annex or recovery planning among many transportation Stakeholders Few local transportation recovery plans exist for local implementation of recovery strategies. The tools and guidance provided in the Annex are not used very often at the local and state levels making further planning and training challenging.	Continue to reach out to public and private transportation stakeholders to involve them in the local emergency planning process. Continue to involve stakeholders in activities, such as scheduled training and exercise opportunities so public and private stakeholders could become familiar with the tools and guidance in the Annex. Take advantage of and get involved in current planning sponsored by the RCPGP to update the detour maps and developing mid-term transportation recovery groups to help public and private transportation stakeholders develop local plans and procedures. Stakeholders could utilize the Annex during exercises within the region including filling out ISNAP for transportation issues; holding transportation related coordination conference calls and discuss coordination groups; prioritizing regional transportation solutions; and, including mid-term and long term recovery considerations in exercise injects.	Planning	Snohomish Co DEM WSDOT RCPT members Washington EMD	Ongoing

Improvement Plan – Objective 2

Objective 2	Observations	Recommendations	Capability Element	Responsible Party	Completion Date
Enhance stakeholder's understanding of the coordination and operational issues required for setting priorities and organizing limited resources for mid-term and long-term recovery.	Transportation stakeholders do not have experience in multi-agency/regional priority setting. The forms and scoring processes in the Annex were confusing to participants. There was uncertainty and discomfort with the topic of prioritizing scarce resources. An established prioritization process could provide logical and objective explanations to share with the public regarding the prioritization of recovery projects. Participants felt that the role of the State versus the role of the County needed to be better defined in order to make regional prioritization decisions.	Get involved in current planning sponsored by the RCPGP to update the detour maps and developing mid-term transportation recovery groups to help public and private transportation stakeholders develop local plans and procedures. Provide additional training on the tools and processes in the Transportation Recovery Annex using the Train the Trainer tools provided to the RCPT members. Jurisdictions need to plan for prioritization decisions that may not be favorable to them and prepare to inform their residents of those decisions. Integrate Transportation Recovery issues and tools in regularly scheduled training and exercises. Develop local transportation recovery plans supporting the regional transportation recovery planning. Review the forms and instructions and clarify how the forms should be completed. Review the scoring methodology and provide excel spread sheets with proper formula so all that a jurisdiction needs to do is enter the raw data and the score is determined. Revisit the prioritization matrix and see if there is a more balanced way of scoring priorities, or develop an electronic method of prioritizing and hide the weighted values from the priority setters until projects are scored and ranked.	Planning	Snohomish Co DEM WSDOT RCPT members Washington EMD	Ongoing

Improvement Plan – Objective 3

Objective 3	Observation	Recommendation	Capability Element	Responsible Party	Completion Date
Help stakeholders understand regional inter-dependencies in recovery from a catastrophic event to guide future planning.	Transportation stakeholders often did not have an appreciation for, nor understanding of, the regional interdependencies of the regional multi-modal transportation system. Multi-modal transportation entities are loosely coupled and are not well acquainted. There are insufficient planning and coordination efforts in place that present opportunities for government agencies and private sector to meet and understand the needs and recovery capabilities of the private sector. Some participants did not have a thorough understanding of the interdependencies of bridges and utilities.	Continue to develop local transportation recovery plans supporting the regional planning elements. Continue to involve private sector transportation partners in local and state transportation planning, training and exercises. Integrate the planning and development work done on Transportation Recovery Annex with the State's Recovery Planning efforts. Expand participation in existing transportation planning efforts to private sector transportation partners and to elements of local government, such as planners and engineers who have not traditionally been involved in emergency planning. Planning and exercises should include discussions of the interdependencies in the regional transportation system. Engage elected officials and high level executives in the planning discussions, training and exercises. Continue to provide opportunities for public – private interaction and discussions about transportation recovery through existing public private partnerships like the Pacific Northwest Economic Region (PNWER).	Annex & Local Plans Planning	Snohomish Co DEM WSDOT RCPT members Washington EMD	Ongoing

F. Train-the-Trainer Information

A Train-the-Trainer Toolkit was developed to assist jurisdictions and transportation stakeholders continue training and exercising opportunities for the Transportation Recovery Annex. This Training Toolkit consists of several components which can be found on the Washington State EMD Website at the following web link: http://www.emd.wa.gov/plans/plans_index.shtml#R

The components include the following:

1.   General Guidance
2.   Situation Manual (SitMan) Template
3.   PowerPoint Presentation (PPT)
4.   Draft Announcement Flyer
5.   Transportation Annex Overview
6.   Priorities Handout (Optional)
7.   Feedback Form

A summary of each and their intended use are as follows:

1. General Guidance

Begin the session with the PowerPoint presentation explaining the Regional Catastrophic Planning Program, the Coordination Plan, and how the Transportation Recovery Annex fits into the plan. The PPT shows examples of the tools, maps and charts contained in the Annex.

The last three slides of the PPT explain the exercise and show the questions groups are seeking to answer in their break-out groups. These slides should remain on the screen for each of the three exercise scenarios which are described in detail in the student handouts.

In addition, there is a copy of the Annex Overview and the Annex User Guide. The Annex Overview is a 60+ page document summarizing the Annex and showing examples of the tools and maps contained in the larger plan. The Overview should be printed and given to each student at the beginning of the event. The PPT slides reference specific pages in the Overview so students can turn to the actual document shown on the screen. The Annex User Guide was developed to help explain key elements of the Annex and facilitate the use of the Annex tools.

Upon completion of the PPT presentations, give students a 10 minute break. When they return, break them into three or four groups, as appropriate to the size of the group. Groups are assigned Activity one, Short-Term Recovery. This is intended as a "get acquainted" activity and should not take more than 15 minutes of group time and 5 minutes of Report-Out time.

For the next activity, each group will be assigned a different piece of critical infrastructure significant to their jurisdiction and asked to come to consensus on the assigned questions (on the PPT slide). The Mid-Term recovery activity will take longer and groups should be allowed to work through their questions. Reporting out will take at least 10 minutes.

Follow the same process for the Long-Term recovery activity. The priority–setting activity may be the most challenging for the students. While it is set up such that each group evaluates the piece of infrastructure assigned to them and arrives at a score. It may make more sense to the group if they work as a large group to assign values to all infrastructure examples, thereby making the comparisons more

consistent. The key to this tool is to show that an objective, systematic methodology is needed to justify prioritization decisions.

2. Situation Manual (SitMan) Template

The SitMan includes the following:

    a) Structure and info
    b) Agenda
    c) Exercise scenario options

INSTRUCTOR NOTES:

A Situation Manual is recommended in the Homeland Security Exercise and Evaluation Program (HSEEP) to outline exercise activities. A generic Situation Manual is provided in the toolkit that should be customized for each event specific to the participants. The SitMan is for exercise developers only and should not be given to participants.

Appendix D to the SitMan is the Scenario and exercise requirements. It should be customized for the participants and printed as a stand-alone document. Incorporating maps contained in the Annex specific to the customized scenario.

To incorporate maps, find the document online, utilize a screen capture program to copy maps and insert them into the student scenario pages.

The Scenarios are printed in the SitMan and should be customized for each jurisdiction and each event. Once they are completed with maps and scenario descriptions, print just this Appendix of the SitMan and distribute to participants.

It works best of each exercise information is on a separate sheet of paper and given out at the beginning of each activity, as opposed to printing them and handing them out altogether.

3. PowerPoint Presentation (PPT)

The PPT includes the following:

    a) Origins of the RCP and the TR Annex
    b) Tools of the TR Annex
    c) Maps of the TR Annex
    d) Set up for exercise

INSTRUCTOR NOTES: Additional information for each slide is in the Notes section. The PPT is a template and needs to have specific local information filled in for each respective local session.

4. Draft Announcement Flyer

INSTRUCTOR NOTES: This is a basic announcement to advertise training and exercise events and to solicit participation. It can be completed for each respective event.

5. Transportation Annex Overview (Condensed TR Annex)

INSTRUCTOR NOTES: Print up this document and hand out to participants. It is a shortened Overview of the larger Annex. The PPT refers to specific pages on this document and it should be available for students.

The priority-setting matrix Table D- 2 and Table D- 3 are included in this overview and will be used by the students in the last exercise.

6. Priorities Handout (OPTIONAL)

INSTRUCTOR NOTES: This handout is useful if the event is heavily focused on priority-setting. It shows the actual forms from the Annex.   It can be used by the students for the final exercise if they do not wish to write in the larger Overview document.

7. Feedback Form

INSTRUCTOR NOTES: This form can be used to collect After Action Report and Improvement Plan (AAR/IP) information. Or, the instructors can do a two up/two down discussion having each participant list two positive items from the activity and two areas of improvement or concern.