



**Jefferson County - City of Port Townsend**  
**All Hazard Mitigation Plan**  
(Including Special Purpose Districts)  
Revised 2016

**Jefferson County Emergency Management**  
Emergency Operations Center  
81 Elkins Road, Port Hadlock, WA 98339  
360.385.9368 - [www.jeffcoeoc.org](http://www.jeffcoeoc.org)

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# PREFACE

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## Special Thanks & Acknowledgements

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*Thanks also to the members of the Jefferson County Natural Hazards Mitigation Steering Committee for their patience, organization, enthusiasm, and tenacity:*

Bob Hamlin, Program Manager, Jefferson County Department of Emergency Management (Retired)  
Keppie Keplinger, Deputy Program Manager, Dept. of Emergency Management, Jefferson County (Retired)  
Lance Bailey, Director, Developmental Services Department, City of Port Townsend  
Michael Evans, Deputy Chief of Police, City of Port Townsend  
Ken Clow, Director of Public Works – City of Port Townsend  
Ken Horvath, Project Manager – Hazard Mitigation Plan Update  
Lynn Sterbenz, Program Manager, Jefferson County Department of Emergency Management (Dec. 2016)

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### City of Port Townsend

Tyler Johnson, GIS Coordinator / Project Manager, Public Works Department  
Judy Surber, Senior Planner / Planning Manager, Developmental Services Department  
Joanna Sanders, City Clerk, City of Port Townsend

### Jefferson County

Carl Smith, Director, Department of Community Development, Jefferson County  
David Goldsmith, Interim Director, Department of Community Development  
Doug Noltemeier, Geographic Information Systems, IDMS

### Neighborhood Emergency Preparedness Groups (NPREP)

Deborah Stinson, Mayor, City of Port Townsend

#### Concerned Citizens

Robert Bindschadler (NASA Emeritus Scientist)	Sue Horvath (2016)
Pam Clise	Pete Hubbard (2016)
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Jeffery Hartman	Deborah Stinson



Washington State Military Department, Emergency Management Division

Timothy Cook, State Hazard Mitigation Programs Manager  
Brynne Walker, State Hazard Mitigation Program Officer

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Photo & Map Acknowledgements

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Thomas W. Camfield – for allowing us to use photos from his book, “Port Townsend – An Illustrated History of Shanghaiing, Shipwrecks, Soiled Doves and Sundry Souls”, Ah Tom Publishing, 2000.

Bob Hamlin, Program Manager, Jefferson County Department of Emergency Management

Scott Kilmer, Department of Public Works, Jefferson County

Walsh, T.J., C.G. Caruthers, A.C. Heinitz, E.P. Myers, A.M. Baptista, G.B. Erdakos, and R.A. Kamphaus, 2000 GM-49: Tsunami hazard map of the southern Washington coast - Modeled tsunami inundation from a Cascadia Subduction zone earthquake, Washington Department of Natural Resources, Washington, 1 pl.

Walsh, T.J., E.P. Myers, and A.M. Baptista, OFR 2002-2: Tsunami inundation map of the Port Townsend, Washington, area, Washington Department of Natural Resources, Washington, 1 pl.

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Extra special thanks to Commissioner David Sullivan, Robert Bindschadler (NASA Emeritus Scientist), and Cindy Jayne, Chair, Jefferson County/Port Townsend Climate Action Committee for their comprehensive review of the draft versions of the *Jefferson County – City of Port Townsend All Hazard Mitigation Plan (Rev. 2016)*.

**Without their contribution, we would have been able to demonstrate a drought on these pages.**

## Points of Contact

**For information regarding this plan or to comment on this plan, please contact the Jefferson County Department of Emergency Management:**

**MAILING ADDRESS:** Jefferson County Department of Emergency Management  
81 Elkins Road  
Port Hadlock, WA 98339

**TELEPHONE:** (360) 385-9368

**FAX:** (360) 379-0521

**E-MAIL:** [dem@co.jefferson.wa.us](mailto:dem@co.jefferson.wa.us)

**Or the City of Port Townsend Grant Administration Department:**

**MAILING ADDRESS:** City of Port Townsend  
Attn: Michael Evans  
1925 Blaine St  
Port Townsend, WA 98368-6330

**TELEPHONE:** (360) 344-4613

**FAX:** (360) 379-4438

**E-MAIL:** [mevans@cityofpt.us](mailto:mevans@cityofpt.us)

Contact points for particular topics, jurisdictions, and special districts are contained in Appendix C.





## List of Plan Recipients

<b>Copy Number</b>	1	<b>Agency</b>	Washington State Military Dept. - EMD Division
<b>Date Distributed</b>		<b>Recipient's Name</b>	Brynne Walker – Hazard Mitigation Section
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## Promulgation

The **Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan, dated November 2016**, is hereby adopted this **(Insert FEMA Approval Date here)** as the official Natural Hazards Mitigation Plan for the governments of Jefferson County and the City of Port Townsend, and the special districts contained within. The participation in and adoption of a multi-jurisdictional pre-disaster mitigation plan shall not necessarily imply advocacy of, or support for, individual mitigation initiatives proposed by other participating jurisdictions, and the adoption of the plan by each jurisdiction shall be subject to limitations as set forth in each jurisdiction’s adoption resolution.

<b>Summary of Adoption Resolutions</b>				
<b>Agency/Jurisdiction</b>	<b>2004 Adoption Resolution Number</b>	<b>2009 Adoption Resolution Number</b>	<b>2016 Adoption Resolution Number</b>	<b>2016 Adoption Date</b>
Jefferson County	50-04	21-10	04-17	01/23/2017
City of Port Townsend	04-037	10-013	16-046	11/07/2016
Port Ludlow Drainage District	13	Not Numbered	Opt Out	Opt Out
Jefferson County Fire District 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR)	2004-07	10-06	16-08	09/21/2016
Jefferson County Fire District 2 (JCFD2) dba Quilcene Fire - Rescue	2004-1	2010-03	2016-09	11/14/2016
Jefferson County Fire District 3 (JCFD3) dba Port Ludlow Fire & Rescue (PLFR)	2004-01	2010-004	2016-10	11/08/2016
Jefferson County Fire District 4 (JCFD4) dba Brinnon Fire - Rescue	2004-4	2010-5	2016-5	11/08/2016
Jefferson County Fire District 5 (JCFD5) dba as Discovery Bay Volunteer Fire Dept	01-04	2010-6	2017-01	02/08/2017
Jefferson County Fire District 6 (JCFD6)	282-04	Annexed by JCFD1		
JeffCom 9-1-1	County Dept	County Dept	2017-001	01/26/2017
Public Hospital District No. 1	Opt Out	Opt Out	Opt Out	Opt Out
Public Hospital District No. 2	2004-013	2010-18	2017-05	01/18/2017
Jefferson County Library District	04-02	10-01	16-06	12/14/2016
Port of Port Townsend	426-04	550-10	657-17	01/25/2017
Port Townsend School District No. 50	04-16	10-12	16-16	11/28/2016
Brinnon School District No. 45	Opt Out	207-10	246-16	11/17/2016
Chimacum School District No. 49	2004-13	2010-05	2016-9	12/14/2016
Queets/Clearwater School District No. 20	01-04/05	1040	16-09	11/15/2016
Quilcene School District No. 48	01:04/05	01:10/11	02:16/17	12/14/2016
Quillayute Valley School District No. 402	01-04/05	04-10/11	06-16/17	02/14/2017
Jefferson Transit Authority	04-12	Opt Out	17-3	02/21/2017
Public Utility District No. 1 of Jefferson County	2004-013	2010-007	2016-022	11/15/2016

## How to Use This Plan

Each section of the *Natural Hazards Mitigation Plan* provides information to assist local governmental jurisdictions and agencies, local Indian Tribes, and the citizens of Jefferson County and the City of Port Townsend in understanding the community in which we live and work and the hazard related issues facing government, citizens, businesses, and the environment. Combined, the various sections of this plan work together to create a document that guides the mission to reduce vulnerability and minimize loss from future natural hazard events.

The structure of this plan enables people to use only that portion of the plan that is of interest to them and/or pertains to their needs. It also allows local government to review and update specific sections as new data becomes available. New data can be easily incorporated, resulting in a natural hazards mitigation plan that remains current and relevant to the needs of the citizens of Jefferson County.

The **Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan** is organized into eleven sections:

**Preamble:** contains the *Table of Contents*, Acknowledgements, Distribution List, and the Promulgation List for the document.

**Plan Revisions Summary:** Summarizes the updates made in the 2016 revision.

**Plan Review Crosswalk** contains a cross-reference grid that ties the *Disaster Mitigation Act of 2000*, and *44 CFR Part 201 – Mitigation Planning, Interim Final Rule* to the contents of this plan.

**Executive Summary** contains a summary of the plan and a five-year action plan matrix.

**Section I** contains the introduction and an overview of the planning process.

**Section II** contains information regarding the various natural and man-made hazards that can affect Jefferson County. This section is also known as the *Hazard Identification & Vulnerability Analysis (HIVA)*.

**Section III** contains multi-jurisdictional community profile information as well as information regarding multi-jurisdiction/multi-hazard mitigation measures and a listing of multi-jurisdictional mitigation strategies and projects suggested by stakeholders and citizens as part of the public process associated with the development of this plan.

**Section IV** contains jurisdiction-specific and special purpose district specific information as well as vulnerability assessment information for each jurisdiction and special purpose district that has participated in the hazard mitigation planning process.

**Section V** contains the mitigation strategies of each jurisdiction and special purpose district that has participated in the hazard mitigation planning process

**Section VI** contains the mitigation issues of coordinating agencies that impact Jefferson County's plan.

**Section VII** contains the various appendices to the plan. These include copies of the adoption resolutions, frequently asked questions, acronyms, and references for sources of information.

# **2016 Plan Revisions Summary**

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# 2016 Plan Revisions Summary

## Background

The *Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan* (the Plan) was originally written and adopted in 2004 and updated and readopted in 2009, as required by law. The mitigation planning regulation at 44 CFR 201.6(d)(3) states:

*A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five (5) years in order to continue to be eligible for mitigation project grant funding.*

The following updates reflect the 2016 review and revision process reflected in the Plan and submitted to the Washington State Hazard Mitigation Office for review.

Each participating organization was provided with turn-around documents that detailed their organization profile and goals that were submitted in 2015 and 2016. They were asked to review them against their current situations, and update them to reflect current plans, documents and policies. The updated turn-around documents were then returned to the core writing team to be incorporated into the overall Plan.

## Revisions

**Overall** – Due to the size of the final Plan, only one master copy and one copy for the State Hazard Mitigation Office will be printed unless otherwise requested. All participants and interested parties will receive the Plan in electronic format on a CD, unless specifically requested otherwise. Libraries, for example, may request either or both hard copy and CD format, depending on their needs.

**PREFACE** contains acknowledgements, the Table of Contents, and introductory material for the Plan. The following revisions have been made to this section:

- *Special Thanks and Acknowledgements* have been updated to reflect current personnel and special contributors to the 2016 revisions.
- *Table of Contents* has been updated to reflect changes in content and order of the Plan. Appendices have been re-ordered into a more logical progression.
- Steering Committee Members and contributors have been updated to acknowledge participation.
- *List of Plan Recipients* has been updated to reflect the current distribution.
- *Promulgation* has been updated to reflect historical adoption resolutions. Adoption Resolution numbers for 2016 will be added as each jurisdiction adopts the revised Plan.

**Executive Summary** contains a summary of the plan and a five-year action plan matrix.

- The Five-Year Action Plan Matrix has been updated to reflect current revisions to action items as provided by Plan participants.
- Action Plan Matrix has been synchronized with the City, County, and Special Districts.
- Climate Change Summary has been added.

**Section I – The Planning Process** contains the introduction and an overview of the planning and participation process.

- Text has been updated to reflect that the 2015/2016 Jefferson County *Hazard Identification and Vulnerability Analysis* has served as a foundation document to the development of the 2016 revisions.
- *Plan Methodology* has been updated with the names of current committee participants, jurisdictions, and citizens. Text has been revised to highlight that a number of natural hazard categories have been broken out to provide more detail on locally important disaster issues.
- *Plan Development Process* has been updated with the names of key contributors. The Public Involvement table has been updated with representative 2015-2016 meetings illustrating the scope of public involvement.
- *Plan Participation and Adoption* table has had a column added so that both 2004 and 2009 Adoption Resolutions can be summarized. Adoption Resolutions will be entered after FEMA approves the Plan and participants adopt the approved Plan.
- *Plan Maintenance* has been updated to reflect the Plan update schedule for the period from 2017 through 2021.

**Section II – Multi-Jurisdictional** contains information regarding the most serious natural hazards within the State that can affect Jefferson County, and additional man-made hazards that are of concern to Jefferson County.

- *Jefferson County Profile* has been updated to call out the Plan’s current maps. Maps have been updated with most current information available.
- *Jefferson County Profile* narrative has been improved and updated using statistics from the most recent Census.
- *Significant Historical Disaster Events* – “Federal Disaster Declarations for Washington” table has been updated through most current declarations in 2016.
- Climate Change: A voluntary subsection has been added to discuss the possibility of climate change affecting local hazards. The topics include a summary of the Olympic Peninsula warming projections developed by NOPRCD. **Each hazard also has appropriate commentary when applicable.**
- Maps have been updated when more current versions are available.
- All citations have been moved from *Appendix G (Endnotes)* to immediately following the narrative in which it is cited. This makes it easier for researchers to focus on a given topic without having to open the appendices.
- *Avalanche* narrative has been updated. State avalanche risk map has been updated. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Damaging Winds* narrative has been brought up date through 2016. Added climate change topic. Citations moved to from *Appendix G* to end of topic.

- *Drought* narrative has been updated through 2016; Table DR-1, *Significant Droughts in Jefferson County* added; 2001 Drought and 2014-2015 drought narrative expanded. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Earthquake* narrative has been rewritten to reflect new information about the Cascadia subduction zone and a possible 9.0 earthquake scenario. Added table showing *Cascadia Historic Earthquakes*. Added topic on earthquake faults affecting Jefferson County. Amplified the narratives on Whidbey Island Fault and Cascadia Subduction Zone generated earthquakes (scenarios). Added results of Hazus simulation for the two scenarios. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Flood* narrative has been updated to include: updated table of flood-related Presidential Disaster Declarations; maps have been updated and photos added; new maps have been added based on modeled flood damage; NFIP discussion added; RiskMAP assessment added. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Heat Wave (Extended)*. Updated the topic through 2016. Added Heat Index Chart. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Landslide* - Updated the topic through 2016. Added Heat Index Chart. Added climate change topic. Citations moved to from *Appendix G* to end of topic. Added “before and after” picture of Ledgewood-Bonair landslide. Updated maps. Added Table LS-1, *Significant Landslides in Washington 1984 – 2014*. Added results of RiskMAP assessment. Added sample Slope Stability Map for Port Townsend.
- *Public Health Emergency* - Updated the topic through 2016. Added Table PH-1, *Pandemic Flu History*. Added paragraph on Zika virus. Added discussion of inoculation rates. Added a “Special Consideration” section for Ebola and the Zika Virus. They have not affected Jefferson County yet, but easily could. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Tornado* has been added as a new natural hazard. Updated the topic through 2016. Added Table TN-1 Tornado Events in Jefferson County. Added charts explaining the Enhanced Fujita Scale. Added climate change topic. Added comic relief. Citations moved to from *Appendix G* to end of topic.
- *Tsunami / Seiche* narrative has been updated to reflect current circumstances in Port Townsend as of 2016. Narrative, in general, has been improved. Added Table TS-1, Recurrence of the “Great Earthquakes” in Washington State. Added Tsunami ETA calculator. Added depiction of South Whidbey Island Fault. Added Figure TS-4, Notable Tsunamis in Washington. Added Figure TS-7, Queets Inundation Zone. Incorporated tsunami analysis from *Risk Report for Jefferson County*. Added a piece on tsunami wave heights generated in the 2011 Tohoku Japan M9.1 earthquake. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Volcano* narrative has been improved and brought up to 2016. Added Alaskan Volcano Map on the premise that Jefferson County is at risk from ash fall from Alaskan Volcanoes. Added Table VO-1, Alphabetical List of Alaskan Volcanoes. Added climate change topic. Added Figure VO-4, Volcanic Explosivity Index. Added Table VO-2, Volcanic Explosivity Classification. Citations moved to from *Appendix G* to end of topic.
- *Wildfire / Forest/ Urban Interface* narrative has been improved and brought up to 2016. Added Table WF-1 Representative Wildland Fires That Affected Jefferson County. (Goes back 8700 years.) Added Figure WF-2 Landfire Mean Fire Return Interval. Added Figure WF-3 WUI throughout Port Townsend. Added Table WF-2, which is a gallery of recent WUI incidents with a photo and short explanation. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Winter Storm* narrative has been made current through 2016. Added Table WS-1, Severe Storms Affecting Western Washington. Included Disaster Declaration Number if there was one. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *9-1-1 Outage* has been deleted. The longest outage was in *hours*. For this to take on disastrous proportions would mean something far worse was happening around the county.
- *Aircraft Mishap* has been updated through 2016. Previous Occurrences was enhanced with more incidents, including a C-141 crash in Quilcene area. Citations moved to from *Appendix G* to end of topic.

- *Bankruptcy* has been updated to be current through 2016. Added Figure BR-1 Bankrupt Cities and Municipalities. Added Table BR-1 Selected Municipal Bankruptcies. Citations moved to from *Appendix G* to end of topic.
- *Civil Disturbance* has been updated through 2016. Added Figure CD-1 – Sit-in at NAVMAG. Added Figure CD-2 – Peace March from NAVMAG to Port Townsend. Citations moved to from *Appendix G* to end of topic.
- *Dam Failure* has been updated to 2016. Added discussion of Dam Hazard Classification. Added Table DF-1 Jefferson County Dams in the National Inventory of Dams and created figures to display their locations on relief maps. Added Table DF-2 Downstream Hazard Classifications. Added Table DF-3 Dams listed in WSECY State Dam Inventory. Citations moved to from *Appendix G* to end of topic.
- *Hazardous Materials Incident* has been brought up to 2016. Added Figure HM-1 Total Spills by County. Added Figure HM-2 Facilities and Chemicals by County. Added Figure HM-3 Clandestine Drug Lab by County. Added Table HM-2 Drug Lab Reports 1990 – 2012. Created Table HM-2 Drug Lab Reports per Capita. Added Figure HM-4 Meth Labs Reported Per Year. Citations moved to from *Appendix G* to end of topic.
- *Major Fire Activity* has been updated to 2016. Added photos of Aldrich Market Fire. Added Table MF-1 Significant Fires History. Citations moved to from *Appendix G* to end of topic.
- *Major Law Enforcement Activity* has been updated to 2016. Added photo of car burning during a standoff between police and a mob in Milwaukee, Wisconsin. Added photos and background of 2013 pipe bomb incident in Port Townsend. Citations moved to from *Appendix G* to end of topic.
- *Marine Oil Spill* updated to 2016. Added Figure OS-1 Oil Spills in Jefferson County Vicinity. Added Table OS-1 Maritime Oil Spills over 10,000 gallons. Citations moved to from *Appendix G* to end of topic.
- *Maritime Emergency (Ferry Accident; Ship Collision)* has been updated through 2016. Citations moved to from *Appendix G* to end of topic.
- *Military Ordnance Incident* has been updated through 2016. Citations moved to from *Appendix G* to end of topic.
- *Power Outage* has been updated through 2016. The discussion includes the purchase of power provider assets for Jefferson County from Puget Sound Energy by the Jefferson County Public Utility District No. 1. Added photo of a Mason county wildfire that cut power to 2000 Jefferson County residents. Added climate change topic. Citations moved to from *Appendix G* to end of topic.
- *Terrorism (CBRNE)* has been updated through 2016. Added brief mention of ISIS. Added brief discussion of cyberterrorism. Citations moved to from *Appendix G* to end of topic.
- *Water Shortage / Sewer Failure (Extended)* has been updated to 2016. New discussion on water vulnerabilities in Jefferson County. Added climate change topic. Added Figure H<sub>2</sub>O-2 Shift in Hydrologic Basin Types. Citations moved to from *Appendix G* to end of topic.

**Section III – Multi-Jurisdictional / Multi-Hazard Mitigation** contains multi-jurisdictional community profile information as well as information regarding multi-jurisdiction/multi-hazard mitigation measures and a listing of multi-jurisdictional mitigation strategies and projects suggested by stakeholders and citizens as part of the public process associated with the development of this plan.

- Added or Updated Mitigation Activities to reflect 2016 Status as provided by participants.
- Added an asterisk, “\*”, to the Mitigation Activity ID of new or updated activities.
- Completed tasks are highlighted by having their Timeline notations in **Blue**.
- Completed tasks or tasks to be deleted have a strike-through in their Activity ID.

- “*Stakeholder/Citizen Suggested Mitigation Strategies and Projects*” has been updated with additional inputs from current surveys and ad hoc citizen input. These are identified by (rev. 2016) after the item. Items that have been suggested and are underway are flagged with an asterisk (\*).
- Added special recommendations from Marrowstone Island Foundation regarding the island’s situation.
- Added recommendations made by public input from the NOPRC D report that could benefit the Port Townsend Water System. These should either be submitted to the City or have the City adopt the NOPRC D report recommendations in its entirety.
- Mitigation strategies suggested in the *Risk Report for Jefferson County, including City of Port Townsend and Hoh Tribe* are included as a table.
- Mitigation strategies (30 pages) presented in the NOPRC D report are included by reference.

**Section IV – Jurisdiction-Specific Information; Hazard Vulnerability Assessment and Proposed Mitigation Strategies** contains jurisdiction-specific and special purpose district specific information as well as vulnerability assessment information for each jurisdiction and special purpose district that has participated in the hazard mitigation planning process.

- *Natural Hazard Rating Process* has been updated to include all of the natural hazards as broken out in this document. Updated surveys were sent to Plan participants to build a 2016 rating table.
- The Natural Hazard Risk Rating by Jurisdiction table has been updated to include all of the participating jurisdictions.

- **CITY OF PORT TOWNSEND**

- Updated demographics and Current Hazard Mitigation Codes/Plans/Ordinances List
- Updated NFIP Participation through June 30, 2016
- Updated Disaster Event table for Port Townsend.
- Updated Codes and Comprehensive Plans Table
- Update List of Information for Hazard Mitigation Plan.
- Update Port Townsend Assets at Risk.
- Updated Critical Facilities List
- Updated Port Townsend Police and Port Townsend Library profiles.
- Updated and synchronized Mitigation Activity List
- *Added Mitigation Activity Write-up for Resiliency Center*
- Updated maps to most current available.

- **JEFFERSON COUNTY**

- Updated demographics and Current Hazard Mitigation Codes/Plans/Ordinances List
- Updated NFIP Participation June 30, 2016
- *Added Damage Events Table for 2008 - 2016*
- Updated Disaster Event table for Jefferson County including adding columns for PA.
- Updated Codes and Comprehensive Plans Table
- Update List of Information for Hazard Mitigation Plan.
- Update Jefferson County Assets at Risk.
- Updated Critical Facilities List
- Updated Jefferson County Sheriff’s Office profile.
- Updated and synchronized Mitigation Activity List
- Updated maps to most current available.

- **SPECIAL DISTRICTS**
- Brought all participating special districts’ profiles up to most current data available in 2016.
- Added photos or symbols and mission statements from each district to make the background profile more interesting.
- Updated and Synchronized Mitigation Strategies with the Special Districts and Executive Summary
- Removed Water Districts 1, 2, and 3. One has been absorbed by the PUD and the other two are so small that they have opted out since 2004.

### **Section V – Mitigation Strategies**

- Added or Updated Mitigation Activities to reflect 2016 Status as provided by participants.
- Added an asterisk, “\*”, to the Mitigation Activity ID of new or updated activities.
- Completed tasks are highlighted by having their Timeline notations in **Blue**.
- Completed tasks or tasks to be deleted have a strike-through in their Activity ID.

### **Section VI – Coordinating Entities**

- Added Clallam County Emergency Operations Center
- Added Fort Worden State Park
- Added KPTZ 91.9 FM
- Added Neighborhood Emergency Preparedness Groups (NPREP)
- Update Propane Providers
- Added Washington State Department of Ecology
- Added Washington Military Department – Emergency Management Division
- Added Clallam County Fire District 3 – JCFD8
- Added School District 323
- Reviewed, updated and gave all previously used coordinating entities a chance to edit their write-ups.

### **Section VII – Appendices**

- *Appendix A - Acronyms* – New acronyms have been added. Acronyms that have been added or had their description changed in the 2016 revision have been flagged with an asterisk.
- *Appendix B - Contributors & Contact Points* – Updated – All contacts and contributors have been updated to reflect contributions that are in the 2016 revision.
- *Appendix C - Endnotes* have been moved to the end of each topic for ease of access by researchers. Appendix C title page has been changed to reflect this and has no content. More thorough use of footnotes. Every footnote that has a link to the internet has been tested.
- *Appendix D - Frequently Asked Questions* – No changes.
- *Appendix E - Resources* – Major update of resources. All tested and verified.
- *Appendix F- Adoption Resolutions* –Summary table has a column added to track 2004, 2009, and 2016 Adoption Resolutions. Adoption resolutions will be in new Appendix G because they will be the last thing to go into the Plan and would screw up the page numbering if they weren’t last. Adoption resolutions will be added after FEMA approves the Plan and the subsequent adoptions

occur, as recommended by the State Emergency Management Division.

- *Appendix G - Public Participation Documentation* – Updated with representative samples of public participation within the year of the update.

### **Section VIII – FEMA CROSSWALK**

- *Plan Review Tool Introduction* has been updated to reflect the use of the 2011 version of the crosswalk.
- *2011 version of Plan Review Tool* has been added from the *Local Multi-Hazard Mitigation Planning Guidance*.
- Updated all page references from topic to “Location in Plan” in *Section 1: Regulation Checklist*.
- Updated *Section 3: Multi-Jurisdiction Summary Sheet* to reflect current Plan POCs.

### **ADDITIONAL ENHANCEMENTS**

- Created website, [www.jprephazmitplan.org](http://www.jprephazmitplan.org), for the public to access the Plan as it was developed and to make comments and suggest changes in real-time.
- Created ***Distribution Disk Menu System*** for recipients of the Plan on disk to use to easily drill down to the topics they want to see.

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# **Executive Summary**

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# Executive Summary

## Five-Year Action Plan

The *Jefferson County – City of Port Townsend Hazard Mitigation Plan* (the Plan) is an **All-Hazard** Plan, and includes resources and information to assist county residents, public and private sector organizations, and others interested in participating in planning for natural hazards. The Plan provides a list of activities that may assist Jefferson County in reducing risk and preventing loss from future natural hazard events. The action items address multi-hazard issues, natural hazards from avalanche, drought, earthquake, fire, flood, landslide, severe storm, tsunami, and volcano, as well as man-made hazards that are significant to Jefferson County entities.

## The Plan Organization:

The Plan contains a five-year plan matrix, background on the purpose and methodology used to develop the plan, a profile of Jefferson County, sections on the most threatening natural and man-made hazards that can occur within the County (avalanche, drought, earthquake, flood, landslide, severe local storm, tsunami, volcano, and wildfire, power outage, etc.), profiles and mitigation activities of special jurisdictions, mitigation issues with coordinating agencies and jurisdictions that impact Jefferson County, and the appendices. The sections are delineated as follows:

**Executive Summary** contains a summary of the plan and a five-year action plan matrix.

**Section I** contains the introduction and an overview of the planning and participation process.

**Section II** contains information regarding the most serious natural hazards within the State that can affect Jefferson County, and additional man-made hazards that are of concern to Jefferson County. *New this year is recognition of possible effects of predictable climate change.*

**Section III** contains multi-jurisdictional community profile information as well as information regarding multi-jurisdiction/multi-hazard mitigation measures and a listing of multi-jurisdictional mitigation strategies and projects suggested by stakeholders and citizens as part of the public process associated with the development of this plan.

**Section IV** contains jurisdiction-specific and special purpose district specific information as well as vulnerability assessment information for each jurisdiction and special purpose district that has participated in the hazard mitigation planning process.

**Section V** contains the mitigation strategies of each jurisdiction and special purpose district that has participated in the hazard mitigation planning process

**Section VI** contains the mitigation issues of coordinating agencies that impact Jefferson County's plan.

**Section VII** contains the various appendices to the plan. These include copies of the adoption resolutions, public participation, and the FEMA evaluation crosswalk.

## The Plan Development Participants:

The Plan is the result of a collaborative effort among Jefferson County citizens, public agencies, the private sector, and regional and state organizations. Public participation played a key role in development of goals and action items. Interviews were conducted with stakeholders across the county, and public meetings were held to include Jefferson County residents in the process of developing the plan. Where possible, Hazard Mitigation planning was brought into workshops and classes hosted by stakeholders for related topics. A detailed recounting of the planning process is contained in Section I. New this year is the use of both Neighborhood Emergency Preparedness (NPREP) groups and an online capability for citizens to review the document and make comments.

## The Plan Mission:

The primary mission of the Plan is to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, the county's economy and environment from natural hazards. This can be achieved by increasing public awareness, documenting the resources for risk reduction and loss-prevention, and identifying activities to guide the County towards building a safer community.

The secondary mission of the Plan is to provide the foundation for creating an "All Hazards Mitigation Plan" that effectively addresses issues of man-made hazards in addition to natural hazards.

## The Plan Goals:

The Plan goals describe the overall direction that Jefferson County and Port Townsend agencies, organizations, special districts, private industry and citizens can take toward mitigating risk from natural hazards. The goals are the guiding principles from the broad direction of the mission statement to the specific recommendations of the action items.

- (1) Protect Life and Property
  - Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural hazards.
  - Improve hazard assessment information to make recommendations encouraging preventive measures for existing development in areas vulnerable to natural hazards
  - Enhance Jefferson County Neighborhood Emergency Response Teams to provide citizens from all areas of Jefferson County with the information and tools they need to help them, their families, and their neighbors in the hours and days immediately following an emergency or disaster event.
  - Encourage homeowners and businesses to purchase insurance coverage for damages caused by natural hazards.
  - Encourage homeowners and businesses to take preventative actions in areas that are especially vulnerable to natural hazards.

- (2) Public Awareness
  - Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.
  - Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.
  - Continue the current flood awareness programs conducted by various jurisdictions as part of the National Flood Insurance Program Community Rating System.
  - Create an earthquake awareness program conducted by various jurisdictions in which the vulnerability to earthquakes is high.
  - Enhance the awareness programs for Wildland – Urban Interface fire risks, particularly with Homeowners Associations in wildland settings.
- (3) Natural Systems
  - Balance watershed planning, natural resource planning, and land use planning with natural hazard mitigation to protect life, property, the economy, and the environment.
  - Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.
- (4) Partnerships and Implementation
  - Encourage leadership within private and public sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.
  - Strengthen inter-jurisdiction and inter-agency communication and coordination and partnering of jurisdictions and agencies within Jefferson County to foster the establishment and implementation of natural hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
  - Develop a partnership with the local and regional newspapers to produce a series of in-depth articles on each natural hazard and both personal and public mitigation techniques.
  - Develop and strengthen coordination and cooperation with local business and industries that are particularly vulnerable to natural hazards in Jefferson County.
- (5) Emergency Services
  - Strengthen Emergency Management capabilities to prepare for, and to respond to disasters of all types.
  - Encourage the establishment of policies at the local level to help insure the prioritizing and implementation of mitigation strategies and/or projects designed to benefit critical/essential facilities, services, and infrastructure.
  - Where appropriate, coordinate and integrate natural hazard mitigation activities with existing local emergency operations plans.
  - Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, business, and industry.
  - Improve the interoperability capabilities among Emergency Services.
  - Improve the survivability of communications and disaster response effectiveness of Emergency Service entities.



Photo by Bob Hamlin

The Plan Is All About People.

## The Five-Year Action Plan Matrix:

The *action items* are a listing of activities in which county and city agencies and jurisdictions and citizens can be engaged to reduce risk. **Each action item includes an estimate of the timeline for implementation.** *Short-term action items (ST)* are activities that may be implemented with existing resources and authorities within one to three years. *Long-term action items (LT)* may require new or additional resources or authorities, and may take between one and five years to implement. *Ongoing action items (OG)* are continuous activities such as the annual review and update of the mitigation plan, itself.

The action items are organized within the following matrix, which lists all of the multi-hazard and hazard-specific action items included in the mitigation plan. These action items are the culmination of the data collection, research and analysis, and public participation process leading up to this plan. The Action Plan Matrix organizes this information into a management tool to be used in implementing the actions. The matrix includes the following information for each action item:

- **Natural Hazard ID.** A unique identifier within the document that tells the type of action item (short-term or long-term), the type of hazard, and the action item number for that action in the plan.
- **Action Item.** A description of the action to be taken.
- **Champions.** The organizations or individuals who are taking the lead responsibility in making the action happen. This can be the public agency with regulatory responsibility to address natural hazards, or that is willing and able to oversee activity, implementation, monitoring, and evaluation. Champions may include local, county, regional public and private agencies, businesses or individuals that are capable of or willing to be responsible for implementing activities and programs.
- **Timeline.** Action items include both short-term and long-term activities. The time-line attempts to put a gross estimate of the time it will take to implement the action given the availability of resources needed. Some items will be an ongoing effort that effectively requires a lifestyle change or permanent allocation of resources, while other items may be events or programs with specific accomplishments by a specific time.
- **Plan Goals.** This cell of the matrix contains the item numbers of the plan goals from the previous page that this activity seeks to meet.
- **Action Item Lifecycle Stage.** Each activity that is not continuous has a life cycle that it goes through: action item concept, public input & planning, funding, execution of action item, adoption or implementation, maintenance, monitor and evaluate. This grid within the matrix provides a visual quick-reference to progress on a given activity. Life Cycle Stages include:
  - (1) **Action Item Concept** - Indicates a concrete idea or plan has been developed to take forward in the process.
  - (2) **Public Input & Planning** – Indicates that the process is at the stage where it is collecting public input and planning, if appropriate.
  - (3) **Funding** – Indicates that funds are being sought to implement the action as appropriate. This can be from budget, grants, donations, etc.
  - (4) **Execution of Action Item** – May be drafting of a report, adoption of policy resolutions, implementation of building projects, etc.
  - (5) **Adoption or Implement** – Adoption of resolutions to implement plans or approve projects.
  - (6) **Maintenance, Monitor, and Evaluate** - Review, evaluate and maintain the project or plan as defined by the project charter.

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Multi-Hazard Mitigation Action Items</b>				
OG-MH-0*	Adopt and Participate in the Jefferson County – City of Port Townsend Hazard Mitigation Plan as official plan.	Jefferson County, City of Port Townsend, and all Special Districts	Ongoing – Participation in update – 2016; Adoption – after FEMA review.	4. Partnerships and Implementation 5. Emergency Services
OG-MH-1	Identify and pursue funding opportunities to develop and implement local and county mitigation activities.	Jefferson County, City of Port Townsend and all Special Districts.	Ongoing	4. Partnerships and Implementation
OG-MH-2	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.	DEM, Economic Development Council	Ongoing	1. Protect Life & Property, 2. Public Awareness, 4. Partnerships and Implementation
OG-MH-3	Educate the citizenry in the role of the 1 <sup>st</sup> Responder through Citizen’s Police Academy.	Port Townsend Police and Jefferson County Sheriff’s Office	Ongoing	2. Public Awareness,
OG-MH-4*	Train personnel on how to react in a natural disaster.	PTPD, JCSO, JCFD1, <b>JCPUD1</b>	Ongoing	1. Protect Life & Property. 5. Emergency Services



Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items</i></b>						
OG-MH-0	X	X	X	X		X
OG-MH-1	X	X	X	X		X
OG-MH-2	X	X	X	X		X
OG-MH-3	X	X	X	X		X
OG-MH-4*	X	X	X	X		X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Multi-Hazard Mitigation Action Items</i></b>				
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	JCDEM, Port of Port Townsend, All School Districts.	Ongoing	1. Protect Life & Property, 4. Partnerships and Implementation 5. Emergency Services
OG-MH-6*	Regular Review of Capital Improvement Plan to include newly identified mitigation plans.	Port of Port Townsend	Annual – Latest revision 2015; Prioritization in January 2016.	1. Protect Life & Property, 5. Emergency Services
ST-MH-1*	Establish a formal role for the Jefferson County Natural Hazards Mitigation Advisory Committee to develop a sustainable process for implementing, monitoring, and evaluating countywide mitigation activities.	Hazard Mitigation Advisory Committee	Short-Term – Reconstitute for 2016 update.	4. Partnerships and Implementation
ST-MH-2	Integrate goals and action items from the Jefferson County Natural Hazard Mitigation Plan into existing regulatory documents and programs where appropriate.	Hazard Mitigation Advisory Committee	Ongoing	4. Partnerships and Implementation
ST-MH-3	Develop public and private partnerships to foster natural hazard mitigation program coordination in Jefferson County	DEM, DCD, Economic Development Council; Neighborhood Emergency Groups	On-going	4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items</i></b>						
OG-MH-5	X	X	X	X		
OG-MH-6*	X	X	X	X		X
ST-MH-1*	X	X		X		X
ST-MH-2	X	X		X		X
ST-MH-3	X	X		X		X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Multi-Hazard Mitigation Action Items</b>				
ST-MH-4*	Improve facilities to survive earthquakes and storms better. Provide continuity of service.	Jefferson County Water Districts 1,2,3 <b>Opted Out in 2009</b>	Short-Term	1. Protect Life & Property, 4. Partnerships and Implementation
ST-MH-5*	Build new 911 Dispatch Center and new Emergency Operation Center	DEM, JeffCom	<b>Completed 2005</b>	1. Protect Life & Property, 4. Partnerships and Implementation 5. Emergency
ST-MH-6*	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	DEM, DSD, DCD, and GIS	Short-Term – Updated for 2016	1. Protect Life & Property 4. Partnerships and Implementation
ST-MH-7*	Evaluate and integrate citizen ideas into planning and implementation efforts.	Jefferson County, Port Townsend <b>and all participating Special Districts.</b>	Short-Term	1. Protect Life & Property 4. Partnerships and Implementation
ST-MH-8*	Improve interoperability through coordinated use of communications & OPSCAN Program.	JeffCom 911, DEM, PTPD, JCSO, All Fire Districts	<b>Completed 2007 - 2009</b>	1. Protect Life & Property, 4. Partnerships and Implementation 5. Emergency
ST-MH-9*	Increase fuel supply for generators to 72 hours and improve storage accessibility.	Jefferson County Hospital District 2 dba Jefferson Healthcare	Target: 12/31/2016	1. Protect Life & Property,
ST-MH-10*	Plan for Emergency Specialty Services Building power generation & fuel supply.	Jefferson County Hospital District 2 dba Jefferson Healthcare	Target: 12/31/2016	1. Protect Life & Property,

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items</i></b>						
ST-MH-4*	X	X	X	X	X	X
ST-MH-5*	X	X	X	X	X	X
ST-MH-6*	X	X	X	X		
ST-MH-7*	X	X				
ST-MH-8*	X	X	X	X	X	X
ST-MH-9*	X	X	X	X		
ST-MH-10*	X	X	X	X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Multi-Hazard Mitigation Action Items (cont.)</i></b>				
LT-MH-1	Strengthen emergency services preparedness and Long-Term response by linking emergency services with Multi-Hazard natural hazard mitigation programs, and enhancing public education on a regional scale.	DEM, DSD, DCD	Short-Term	5. Emergency Services
LT-MH-2	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses and schools.	JCDEM	Long-Term	1. Protect Life & Property, 2. Public Awareness
LT-MH-3*	Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.	DCD, DSD	Long-Term	3. Natural Systems
LT-MH-4*	Expand SCADA Controls	JCPUD1	Short Term to Long Term	1. Protect Life & Property
LT-MH-5*	Backup Transformer for Substation	JCPUD1	Long Term	1. Protect Life & Property
LT-MH-6*	Underground conductor where possible.	JCPUD1	Long Term	1. Protect Life & Property
LT-MH-7*	Create and build Port Townsend Resiliency Center	Port Townsend, PTSD50, JCPHD2, YMCA	Short Term to Long Term	1. Protect Life & Property, 4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items (Cont.)</i></b>						
LT-MH-1	X	X		X		
LT-MH-2	X	X		X		
LT-MH-3	X	X		X		
LT-MH-4*	X	X	X	X		
LT-MH-5*	X	X	X	X		
LT-MH-6*	X	X	X	X		
LT-MH-7*	X	X				

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Avalanche Mitigation Action Items</i></b>				
ST-AV-1	None Identified			
LT-AV-1	None Identified			



Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Avalanche Mitigation Action Items</i></b>						
ST-AV-1	N/A					
LT-AV-1	N/A					

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Drought Mitigation Action Items</i></b>				
ST-DR-1*	Coordinate drought policies with Port Townsend Paper.	Port Townsend Public Works	Active review during 2015 due to City water sources approaching critical levels due to drought.	1. Protect Life, Property and Local Economy

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Drought Mitigation Action Items</i></b>						
ST-DR-1*	X	X		X		X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Earthquake Mitigation Action Items</b>				
ST-EQ-1*	Integrate new earthquake mapping data and improve technical analysis of earthquake hazards.	USGS, JC-GIS	2 Years	1. Protect Life & Property, 4.Partnerships and Implementation
ST-EQ-2	Structural Bracing of Shelving;	JC Library	Short-term	1. Protect Life & Property,
ST-EQ-3*	Port Water System Upgrade Improvements; Improvements to Quilcene reservoir and distribution lines.	Port of Port Townsend	Short-term	1. Protect Life & Property,
<del>ST-EQ-4</del>	Build new Transit Facility to current earthquake codes.	Jefferson Transit Authority	Long-term <b>Completed June 15, 2015</b>	1. Protect Life & Property, 5.Emergency Services
ST-EQ-5	Purchase specialized equipment for water shortage emergencies	JCPUD1	Short-term	1. Protect Life & Property, 5.Emergency Services
ST-EQ-6	Secure Equipment to Floors & Walls	JCPUD1	Short-term	1. Protect Life & Property,
ST-EQ-7	Put automatic shut-off valves on all reservoirs.	JCPUD1	Short-term	1. Protect Life & Property,
ST-EQ-8*	Retrofit Fire Station for Earthquake Protection	JCFD2	Short-term – Not Done Yet.	1. Protect Life & Property
<del>ST-EQ-8*</del>	Retrofit Fire Station for Earthquake Protection	JCFD3	<b>Complete</b>	1. Protect Life & Property
ST-EQ-9	Seismically retrofit High School Gym; add seismic shut-off valves to propane tanks.	Chimacum School District	Short-term	1. Protect Life & Property
LT-EQ-1	Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.	City & County Government	Ongoing – Long-term	1. Protect Life & Property, 2. Public Awareness 4. Partnerships and Implementation
LT-EQ-2*	Encourage purchases of earthquake hazard insurance.	All entities	Ongoing – Long Term	1. Protect Life & Property, 4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Earthquake Mitigation Action Items</i></b>						
ST-EQ-1	X					
ST-EQ-2	X	X				
ST-EQ-3*	X	X	X			
ST-EQ-4	X	X	X	X		
ST-EQ-5	X	X				
ST-EQ-6	X	X				
ST-EQ-7	X	X				
ST-EQ-8*	X	X	X	X	X	X
ST-EQ-9	X	X	X	X		
LT-EQ-1	X	X		X		X
LT-EQ-2*	X	X	X	X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Earthquake Mitigation Action Items</b>				
LT-EQ-3	Encourage seismic strength evaluations of critical facilities in the County to identify vulnerabilities for mitigation.	City & County Government	Long-Term – started in 2007.	1. Protect Life & Property
LT-EQ-4	Encourage reduction of nonstructural and structural hazards in homes, schools, business, and government offices.	City & County Government	Long-Term	2. Public Awareness 4. Partnerships and Implementation
<del>LT-EQ-5*</del>	Seismically retrofit Port Townsend Historical City Hall.	PT Public Works	<b>Long-Term – Completed 2005</b>	1. Protect Life & Property
<del>LT-EQ-6*</del>	Replace Port Townsend Fire Station with seismically sound station.	PT Public Works & PTFD Construction Underway	<b>Completed 2005</b>	1. Protect Life & Property 5. Emergency Services
<del>LT-EQ-7*</del>	Move Port Townsend Police Station outside of liquefaction zone.	PT Government - Planning Underway	<b>Completed 2009</b>	1. Protect Life & Property 5. Emergency Services
<del>LT-EQ-8*</del>	Seismically Reinforce Port Townsend Library	Port Townsend	<b>Long-term – 1<sup>st</sup> piece of funding via PDM 2007. Completed 2013.</b>	1. Protect Life & Property
<del>LT-EQ-9*</del>	Seismically Reinforce Port Townsend Tunnel Lids	Port Townsend	<b>Long-term – Funded via Budget, DR-1682, DR-1734, and DR-1817. Completed.</b>	1. Protect Life & Property, 5. Emergency Services
<del>LT-EQ-10*</del>	Increase Emergency food supply for staff and patients.	JC Hospital Dist. 2	<b>Completed.</b>	1. Protect Life & Property,
LT-EQ-11*	Increase Emergency Water supply for staff and patients.	JC Hospital Dist. 2	<b>Not Yet Completed.</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Earthquake Mitigation Action Items</i></b>						
LT-EQ-3	X					
LT-EQ-4	X					
<del>LT-EQ-5*</del>	X	X	X	X	X	X
<del>LT-EQ-6*</del>	X	X	X	X	X	X
<del>LT-EQ-7*</del>	X	X	X	X	X	X
<del>LT-EQ-8*</del>	X	X	X	X	X	X
<del>LT-EQ-9*</del>	X	X	X	X	X	X
<del>LT-EQ-10*</del>	X	X	X	X	X	X
<del>LT-EQ-11*</del>	X	X	X	X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Earthquake Mitigation Action Items</i></b>				
LT-EQ-12*	Marina redevelopment to new building codes; Upland development in Quilcene will meet new building codes.	Port of Port Townsend	Long-term; Planning is Short Term.	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
<del>LT-EQ-13*</del>	Upgrade existing facilities to withstand earthquakes better.	Port Ludlow Drainage District <b>(Opted Out – 2016)</b>	Long-term	1. Protect Life & Property,
LT-EQ-14*	Nonstructural retrofitting of structures that are identified as seismically vulnerable.	School Districts: PTSD50; Brinnon SD46; Chimacum SD49; QVSD402	Ongoing – Long-term	1. Protect Life & Property,
<del>LT-EQ-15*</del>	Replace Station 1-1 with seismically sound station.	JCFD1	<b>Completed - 2014</b>	1. Protect Life & Property,
LT-EQ-16*	Continue hardening and upgrading infrastructure at tower sites.	JeffCom	Short Term	1. Protect Life & Property,
LT-EQ-17*	Expansion of the Library will allow the opportunity to seismically retrofit existing facilities.	Jefferson County Library District	Long-term – no immediate date.	1. Protect Life & Property
LT-EQ-18*	Enhance fire station 6-2 seismically.	Port of Port Townsend	New CIP being developed.	1. Protect Life & Property



Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Earthquake Mitigation Action Items</i></b>						
LT-EQ-12	X	X				
LT-EQ-13*	X	X	X	X	X	X
LT-EQ-14	X	X				
LT-EQ-15*	X	X	X	X	X	X
LT-EQ-16*	X	X	X	X		
LT-EQ-17*	X					
LT-EQ-18*	X	X				

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Flood Mitigation Action Items</b>				
ST-FL-1	Analyze each repetitive flood property within Jefferson County and identify feasible mitigation options.	DCD, DSD, <b>Wa Dept. of Ecology, FEMA</b>	Short-Term	1. Protect Life & Property 3. Natural Systems 4. Partnerships and Implementation
ST-FL-2	Recommend revisions to standards required for development occurring within the floodplain, where appropriate.	DCD, DSD	Short-Term	1. Protect Life & Property 3. Natural Systems
ST-FL-3*	Develop better flood warning systems.	JCDEM, DCD, DSD	<b>Complete – Using AHAB system.</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
LT-FL-1*	Enhance data and mapping for floodplain information within the County, and identify and map flood-prone areas outside of designated floodplains.	DSD	<b>Long-Term – FEMA FIRMS update to be completed in 2016.</b>	1. Protect Life & Property 3. Natural Systems 5. Emergency Services
LT-FL-2*	Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in the floodplain.	<b>City of Port Townsend, Jefferson County, Jefferson County Land Trust, and the Salmon Recovery Office</b>	Long-Term	1. Protect Life & Property 3. Natural Systems 4. Partnerships and Implementation
LT-FL-3	Identify surface water drainage obstructions for all parts of unincorporated Jefferson County.	Jefferson County	Long-Term	1. Protect Life & Property 3. Natural Systems

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Flood Mitigation Action Items</i></b>						
ST-FL-1*	X	X		X		
ST-FL-2	X	X		X		
ST-FL-3*	X	X		X		
LT-FL-1*	X	X		X		
LT-FL-2*	X	X		X		
LT-FL-3	X	X		X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Flood Mitigation Action Items (cont.)</i></b>				
LT-FL-4*	Establish a framework to compile and coordinate surface water management plans and data throughout the county.	Jefferson County Public Works	Long-Term	3. Natural Systems 4. Partnerships and Implementation
<del>LT-FL-5*</del>	Move JCFD4 Fire Station 4-2 out of repetitive flood zone.	JCFD4	Long-Term – Completed - 2010	1. Protect Life & Property 3. Natural Systems 5. Emergency Services
LT-FL-6	Coordinate with Fish & Wildlife to develop Hoh River mitigation plan.	JC Public Works	Long-Term – Underway	1. Protect Life & Property 3. Natural Systems 4. Partnerships and Implementation
<del>LT-FL-7*</del>	Upgrade drainage conveyance to handle 100-year flood event.	Port Ludlow Drainage District (Opted Out – 2016)	Long-Term	1. Protect Life & Property 3. Natural Systems

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Flood Mitigation Action Items (cont.)</i></b>						
LT-FL-4	X					
LT-FL-5*	X	X	X	X	X	X
LT-FL-6	X	X		X		
LT-FL-7	X	X			N/A	

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Landslide Mitigation Action Items</i></b>				
ST-LS-1	Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas.	JC Public Works, DEM	Short-Term	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>2. Public Awareness</li> <li>3. Natural Systems</li> </ol>
ST-LS-2*	Identify safe evacuation routes in high-risk debris flow and landslide areas.	JC Public Works, DEM	Short-Term	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>2. Public Awareness</li> <li>3. Natural Systems</li> </ol>
LT-LS-1	Evaluate current landslide warning systems to ensure effectiveness and efficiency and increase coordination between local jurisdictions.	DEM	Long-Term	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>4. Partnerships and Implementation</li> <li>5. Emergency Services</li> </ol>
LT-LS-2*	Limit activities in identified potential and historical landslide areas through regulation and public outreach.	County Government	Long-Term – Under review.	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>2. Public Awareness</li> <li>3. Natural Systems</li> </ol>

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Landslide Mitigation Action Items</i></b>						
ST-LS-1	X	X				
ST-LS-2*	X	X				
LT-LS-1	X					
LT-LS-2*	X	X				

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Severe Local Storm Mitigation Action Items</b>				
ST-WS-1	Enhance strategies for debris management for severe winter storm events.	PT Public works, JC Public Works	Short-Term	1. Protect Life & Property 4. Partnerships & Implementation
ST-WS-2*	Develop and implement programs to identify and remove hazard trees located in public right-of-way to reduce potential danger to lives, property, and public infrastructure during windstorms events.	PT Public works, JC Public Works Puget Sound Energy sold Jefferson County assets to Jefferson County PUD #1 (JCPUD1).	Short-Term	1. Protect Life & Property 4. Partnerships & Implementation
ST-WS-3	Map and publicize locations around the county that have the highest incidence of extreme storms.	DEM	Short-Term	2. Public Awareness 4. Partnerships & Implementation
ST-WS-4	Replace flat office roof with gable roof to shed snow.	JCPUD1	Short-Term	1. Protect Life & Property
ST-WS-5*	Replace windows on Jefferson General Hospital to withstand storms.	JC Hospital Dist. #2	Short-Term – Completed 2008	1. Protect Life & Property
ST-WS-6*	Replace roof on PT High School Annex	PT School Dist.	Completed - 2013	1. Protect Life & Property
ST-WS-7	Provide emergency backup power for school building.	Queets / Clearwater School Dist.	Short-Term	1. Protect Life & Property
ST-WS-8*	Replace roof of Shop, Bus Barn & Admin Building to handle weather. Severe snow would put most roofs in jeopardy of collapse.	Quilcene School District	Completed	1. Protect Life & Property
ST-WS-9*	Develop and Implement storm water pollution and protection plan through DOE.	Quillayute School District	Long / Short Term	1. Protect Life & Property



Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b>Severe Local Storm Mitigation Action Items</b>						
ST-WS-1	X					
ST-WS-2	X					
ST-WS-3	X					
ST-WS-4	X	X				
<del>ST-WS-5*</del>	X	X	X	X	X	X
<del>ST-WS-6*</del>	X	X	X	X	X	X
ST-WS-7	X	X				
<del>ST-WS-8*</del>	X	X				
ST-WS-9*	X	X	X	X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Severe Local Storm Mitigation Action Items (cont.)</b>				
ST-WS-10*	Establish Tree Trimming Protocols	JCPUD1	Short Term	1. Protect Life & Property
ST-WS-11*	Intertie water systems as much as possible.	JCPUD1	Short Term	1. Protect Life & Property
LT-WS-1*	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.	<b>PT Public works, JC Public Works</b>	Long-Term	1. Protect Life & Property 4. Partnerships & Implementation
LT-WS-2	Increase public awareness of severe winter storm mitigation activities.	County & City Governments	Long-Term	2. Public Awareness 4. Partnerships & Implementation
<del>LT-WS-3*</del>	Enhance Courthouse clock tower to be able to withstand 70-knot winds.	County & City Governments	<b>Long-Term – Completed 2008.</b>	1. Protect Life & Property
<del>LT-WS-4*</del>	Support/encourage electrical utilities in mitigation activities to reduce power outages from storms.	DEM, County & City Governments	<b>Complete – PUD representative is now present at EOC during activations – and participates in Incident Management Team training. PUD also does pre-storm briefings and prunes rights-of-way to reduce downfall.</b>	1. Protect Life & Property 4. Partnerships & Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b>Severe Local Storm Mitigation Action Items (cont.)</b>						
ST-WS-10*	X	X	X	X		
ST-WS-11*	X	X				
LT-WS-1*	X	X	X	X		
LT-WS-2	X			X		
<del>LT-WS-3*</del>	X	X	X	X	X	X
<del>LT-WS-4*</del>	X	X		X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Tsunami / Seiche Mitigation Action Items</i></b>				
ST-TS-1*	Breakwater Jetty / Wingwall Improvement	Port of Port Townsend	Long Term; Planning is Short Term	1. Protect Life & Property
<del>LT-TS-1*</del>	Move PT Police Station outside of inundation zone.	Port Townsend	<b>Long-Term – Completed 2009.</b>	1. Protect Life & Property 4. Emergency Services

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Volcanic Event Mitigation Action Items</i></b>				
ST-VO-1	Find ash fall models that are specific to Jefferson County.	DEM, JC GIS	Short-Term	1. Protect Life & Property 2. Public Awareness 3. Natural Systems

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Tsunami / Seiche Mitigation Action Items</i></b>						
ST-TS-1*	X	X				
LT-TS-1*	X	X	X	X	X	X

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Volcanic Event Mitigation Action Items</i></b>						
ST-VO-1	X	X		X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Wildfire Mitigation Action Items</b>				
OG-WF-1				
OG-WF-2*	Public Education	JCFD2 Commissioners	Yearly Classes - Ongoing	1. Public Awareness
ST-WF-1	Enhance Emergency Services to increase efficiency of wildfire response and recovery activities.	EJFR – JCFD5, DEM	Short-Term	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
ST-WF-2	Educate district personnel on federal cost-share and grant programs etc. so that full array of assistance to local agencies is understood.	JCFD1 – JCFD5	Short-Term	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
ST-WF-3	Create wildfire hazard atlas for City of Port Townsend.	EJFR	Short-Term	1. Protect Life & Property 5. Emergency Services
ST-WF-4	Install fire doors and fire suppression system.	Queets Clearwater School District	Short-Term	1. Protect Life & Property
LT-WF-1	Development and dissemination of maps relating to the fire hazard to help educate and assist builders and homeowners in being engaged in wildfire mitigation activities, and to help guide emergency services during response.	EJFR	Long-Term	1. Protect Life & Property 2. Public Awareness 4. Partnerships and Implementation 5. Emergency Services
LT-WF-2*	Firewise Program - Enhance outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards.	JCFD1, WSU, JCFD2, JCFD3	Long-Term Annual	1. Protect Life & Property 2. Public Awareness 4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Wildfire Mitigation Action Items</i></b>						
OG-WF-1*						
OG-WF-2*	X	X	X	X	X	X
ST-WF-1	X					
ST-WF-2	X					
ST-WF-3	X	X	X	X		
ST-WF-4	X	X	X	X		
LT-WF-1	X					
LT-WF-2*	X	X	X	X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Wildfire Mitigation Action Items (cont.)</b>				
LT-WF-3	Increase communication, coordination, and collaboration between wildland/urban interface property owners, local and county planners, and fire prevention crews and officials to address risks, existing mitigation measures, and federal assistance.	City & County Government	Long-Term	2. Public Awareness 4. Partnerships and Implementation 5. Emergency Services
LT-WF-4*	Consolidate fire districts to put more apparatus and personnel on wildfires.	PTFD & JCFD6 merged into JCFD1; JCFD3 & Kitsap County	Long-Term <b>JCFD1 Completed; JCFD3 executed MOU with Kitsap</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
LT-WF-5*	Develop a “battalion” strategy to more effectively coordinate rural districts on wildfires.	JCFD1 through JCFD5	Long-Term – <b>Completed in 2006.</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b>Wildfire Mitigation Action Items (cont.)</b>						
LT-WF-3	X					
LT-WF-4*	X	X	X	X	X	X
LT-WF-5*	X	X	X	X	X	X



## The Plan Maintenance: Implementation, Monitoring and Evaluation

The Plan Maintenance Section of this document details the formal process that will ensure that the *Jefferson County – City of Port Townsend Hazard Mitigation Plan (Plan)* remains active and relevant. The plan maintenance process includes a schedule for monitoring and evaluating the Plan annually and producing a plan revision every five years. This section includes an explanation of how Jefferson County and the City of Port Townsend intend to incorporate the mitigation strategies outlined in this plan into existing planning mechanisms such as the Jefferson County Comprehensive Plan.

### Plan Adoption

The Board of Jefferson County Commissioners and the Port Townsend City Council will be responsible for adopting the Plan for their respective jurisdictions. Special Districts participating in the Plan must have their own governing body adopt the Plan as the official plan of the special district. Coordinating agencies, jurisdictions, and entities will be responsible for adopting their own plans within their own jurisdictions.

### Coordinating Body

A Jefferson County Hazard Mitigation Advisory Committee will be responsible for coordinating implementation of Plan action items and undertaking the formal review process.

### Convener

The Board of Jefferson County Commissioners and the Port Townsend City Council will adopt the Plan, and the Hazard Mitigation Advisory Committee will take responsibility for Plan implementation. The County Administrator will serve as convener to facilitate the Hazard Mitigation Advisory Committee meetings, and will assign tasks such as updating and presenting the Plan to members of the committee. Plan implementation and evaluation will be a shared responsibility among all Natural Hazard Advisory Committee Members.

### Implementation through Existing Programs

Jefferson County and the City of Port Townsend address statewide planning goals and legislative requirements through GMA, CRS, and NFIP requirements, capital improvement plans, and building codes. The Plan provides a series of recommendations that are closely related to the goals and objectives of these existing planning programs. Local plans, such as Emergency Response Plans, that have sections related to Hazard Mitigation will be coordinated with the Plan so that requirements of the Plan are incorporated into local guiding documents and ordinances, and vice versa.

### Economic Analysis of Mitigation Projects

The Federal Emergency Management Agency's approaches to identify costs and benefits associated with natural hazard mitigation strategies or projects fall into two general categories: benefit/cost analysis (BCA) and cost-effectiveness analysis. Where appropriate, proposed activities will be evaluated using the BCA tools and

Hazus<sub>MH</sub> modeling software, along with empirical data to assess whether or not the mitigation strategy is justified.

#### Formal Review Process

The Plan will be evaluated on an annual basis to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. The convener will be responsible for contacting the **Hazard Mitigation Advisory Committee** members and organizing the annual meeting. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan.

#### Continued Public Involvement

Jefferson County and the City of Port Townsend are dedicated to involving the public directly in the continual review and updates of the Hazard Mitigation Plan. Copies of the plan will be cataloged and kept at all of the public libraries in the county. The existence and location of these copies will be publicized on the Jefferson County and the City of Port Townsend websites along with the Plan, itself. This site will also contain an email address and phone number to which people can direct their comments and concerns on an ongoing basis.

Public hearings will be held concomitant with the evaluation of the program so that changes in needs and perceptions can be addressed and updated in the Plan as appropriate.

**The plan also includes the contact information for the county department responsible for keeping track of public comments on the Plan.**

# **SECTION I**

## **THE PLANNING PROCESS**

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## Introduction

Throughout history, the residents of Jefferson County have dealt with the various natural hazards affecting the area. Photographs, journal entries, and newspapers from the mid to late 1800's to the present show that the residents of the area have dealt with flooding, severe windstorms, harsh winter storms, wildfires, earthquakes, landslides, and even indirectly from volcanic activity. Although there were fewer people in the area many years ago, the natural hazards did at times, adversely affect the lives of those who depended on the land and climate conditions for food and welfare. As the population of the county increased, the exposure to natural hazards created a greater risk than experienced historically. With an ever-continuing growth in population, the development of natural lands, and advancing climate change, the impact of these natural hazards will continue to escalate.

Jefferson County's rural setting, combined with its mild climate and close proximity to the waters of Puget Sound and the mountains and forests of the Olympics create an almost ideal locale that draws people to live here. However, the potential impacts of natural hazards typical to the area make the population, business community, and the environment vulnerable to natural disaster situations.

Jefferson County is subject to flooding, severe storms, landslides, earthquakes, wildfires, and volcanic activity and to a much lesser extent, avalanche, drought, and tsunami. It is impossible to predict exactly when these disasters will occur, or the extent to which they will affect the county, but occur they will – it is only a matter of time. However, with careful planning and collaboration among public agencies, private sector organizations, as well as citizens and businesses within the community, it is possible to minimize the losses that can result from these natural disasters.

### **What is natural hazard mitigation?**

Natural hazard mitigation is the development and implementation of activities designed to reduce or eliminate losses resulting from catastrophic natural events. This Plan identifies all major hazards affecting the participants, but focuses on developing strategies for dealing with the natural hazards.

### **Why develop a natural hazards mitigation strategy?**

Developing a revised mitigation strategy for Jefferson County completes the process of planning that began with the 2015 Jefferson County Hazard Identification and Vulnerability Assessment (HIVA), which is incorporated in the Plan. This report serves to establish a foundation for coordination and collaboration among local agencies, jurisdictions, and the citizens of Jefferson County in addition to providing a basis for identifying mitigation strategies and future mitigation projects as a means to assist in meeting the requirements of various federal assistance programs.

The rising cost of responding to and recovering from natural disasters has led to an increased interest in identifying effective ways to reduce the vulnerability to natural hazards and the disasters these hazards can create. Natural hazard mitigation plans assist communities in identifying the hazards that could impact them, determining the vulnerability of the community to these hazards, and identifying mitigation strategies to prevent or reduce the impacts these hazards pose to the community through a coordinated, multi-jurisdictional approach.

## What are the benefits of hazard mitigation?

- **Save lives and property** – communities can save lives and reduce property damage from natural hazards through mitigation actions, such as moving families and their homes out of harm's way or by limiting development and/or regulating the type of construction or structures allowed in certain areas.
- **Reduce vulnerability to future hazards** – by having a mitigation strategy in place, communities are better prepared to take the proper steps that will permanently reduce the risk of future losses.
- **Facilitate post-disaster funding** – by identifying mitigation strategies and projects before the next disaster, Jefferson County communities will be in a better position to obtain post-disaster funding because much of the background work necessary for funding assistance will already be in place.

## Who does the natural hazards mitigation plan benefit?

The **Jefferson County – City of Port Townsend Hazard Mitigation Plan** was developed, written, and adopted as a multi-jurisdictional all-hazards mitigation plan for the benefit of the incorporated municipalities, various special purpose districts, and the unincorporated rural areas of Jefferson County. It is anticipated that a large number of county special purpose districts will also adopt this plan in order to benefit from future hazard mitigation funding.

The information contained in this plan is applicable countywide and serves to provide the framework for natural hazard mitigation within Jefferson County. Much has already been gained in simply developing this plan and establishing the basic mitigation strategies that have been incorporated into this document. It is hoped that the spirit of inter-jurisdictional cooperation that has begun with this planning effort will continue in the years to come thereby providing further benefits to all jurisdictions and agencies within the county as well as the citizens these jurisdictions and agency serve.

Furthermore, the Plan was developed following the process set forth in the Disaster Mitigation Act of 2000 as well as the requirements of the National Flood Insurance Program Community Rating System. By doing so, it is anticipated that the citizens living in those jurisdictions within Jefferson County that participate in the Community Rating System could possibly further benefit from this plan through an additional decrease in their flood insurance premiums.

## Natural hazards land use policy in Washington

Planning for natural hazards in Washington has taken shape over the past 30 years beginning with the State Environmental Policy Act (1971) and the Shorelines Management Act (1971), and followed by the State Building Code Act (1974, 1985) and the Growth Management Act (1991). It is an integral element of Washington's statewide land use planning program which focuses on appropriate land use controls in critical areas that are prone to natural disasters, along with keeping up with the latest technology in construction methods to mitigate potential disasters.

## Support for natural hazards mitigation

The primary responsibility for the development and implementation of mitigation strategies and policies lies with local jurisdictions. However, local jurisdictions are not alone; various partners and resources exist at the state and federal levels to assist local government in the development of mitigation strategies and plans. Within Washington State, the Washington Military Department, Emergency Management Division is the lead agency for providing hazard mitigation planning assistance to local jurisdictions.

## Plan Methodology

Because of the similarity in hazards that pose threats to the various communities within Jefferson County, a decision was made that the Plan should meet three basic goals to serve the needs of the citizens of Jefferson County, and governmental jurisdictions and agencies:

1. *That the plan be multi-jurisdictional thereby satisfying the natural hazards mitigation planning requirements as specified in the Disaster Mitigation Act of 2000 for all communities within Jefferson County.*
2. *That the plan be developed following the process outlined by the Disaster Mitigation Act of 2000 as well as the National Flood Insurance Program Community Rating System so that the plan coordinates with and compliments Community Rating System programs that exist now or may exist in the future within Jefferson County.*
3. *That the plan be written in such a way so as to evolve into an “**All Hazards Mitigation Plan**” for Jefferson County and the City of Port Townsend.*

The Plan was written using the best available information obtained from a wide variety of sources. Throughout the plan development process, a concerted effort was made to gather information from participating municipal and county agencies and staff as well as stakeholders, business and industry, and the citizens of Jefferson County. **A concerted effort was made to solicit information from local agencies and individuals with specific knowledge of certain natural hazards and past historical events, as well as planning and zoning codes and ordinances and recent planning decisions.**

### Establishment of the Natural Hazards Mitigation Steering Committee

A new Natural Hazards Mitigation Steering Committee was formed in 2008 to assist Jefferson County in meeting the requirements of the Plan revision process and to keep the mitigation-planning project on schedule.

This committee was charged with the following responsibilities:

- Establish plan development goals and objectives.
- Establish a time line for completion of the plan.
- Ensure that the plan meets the requirements of the Disaster Mitigation Act of 2000 as well as National Flood Insurance Program Community Rating System requirements.
- Solicit and encourage the participation of municipalities, special purpose districts, stakeholders, and citizens in the plan development process.
- Assist local planning officials, special purpose district commissioners, and others in gathering information for inclusion in the plan.
- Organize and oversee the public involvement process.
- Gather all pertinent information to be included in the plan.
- And ... craft the plan.

### **Natural Hazards Mitigation Steering Committee Members**

Bob Hamlin, Director, Jefferson County Department of Emergency Management  
 Keppie Keplinger, Deputy Director, Jefferson County Department of Emergency Management  
 Ken Horvath, Project Coordinator, Hazard Mitigation Update Project  
 Ken Clow, Director, City of Port Townsend Public Works  
 Michael Evans, Police Chief, City of Port Townsend

***The Natural Hazards Mitigation Steering Committee will continue in an advisory capacity after this plan is completed and the Natural Hazards Mitigation Planning Grant is terminated. Responsibility for annual updates and revisions to the plan will be delegated to the Jefferson County Department of Community Development.***

To maintain continuity between the requirements of the planning grant and the plan development process, each member of the Natural Hazards Mitigation Steering Committee is also a member of the Natural Hazards Mitigation Planning Committee

### **Input from the Natural Hazards Mitigation Planning Committee**

The Natural Hazards Mitigation Planning Committee convened on an ad hoc basis as a means to gather and share information, assess vulnerabilities, identify critical facilities, assist in developing mitigation strategies, and provide continuity throughout the plan development process to insure that jurisdictional-specific natural hazards vulnerability information and mitigation strategies were incorporated into the plan.

### **Natural Hazards Mitigation Planning Committee Members**

#### **Community Representatives**

##### **Emergency Management / Public Safety**

Lynn Sterbenz, Director, Jefferson County Department of Emergency Management  
 Joe Nole, Undersheriff, Jefferson County  
 Michael Evans, Police Chief, City of Port Townsend



### Public Works/Engineering

Ken Clow, Director of Public Works, City of Port Townsend  
Ian Jablonski, Water Resource Asset Manager, City of Port Townsend  
Monte Reinders, Director of Public Works, Jefferson County

*The Natural Hazards Mitigation Planning Committee will remain a semi active group following the formal adoption of this plan. This committee will meet on a semi-annual basis to be determined each year as a means to network and maintain contact with each other. In addition, the Natural Hazards Mitigation Planning Committee will also provide direction and oversight and otherwise assist with the annual plan evaluation process.*

### **Input from Stakeholders and Citizens**

In order to facilitate better coordination and communication between the Natural Hazards Mitigation Planning Committee as well as stakeholders and citizens of the community, “**The Jefferson-Peninsula Regional Emergency Planning Committee (JPREP)**” which provides for inter-agency and inter-jurisdictional communication and coordination, was used as a larger planning group and served as an Extended Natural Hazards Mitigation Planning Committee. Information was gathered from these stakeholders and citizens via a series of public and JPREP meetings beginning in September 2015 and concluding in December 2016. Because of poor attendance at previous hazard mitigation meetings, city council, county commissioner, and special district board meetings were used as venues to draw public comment. These met all the legal requirements for notification, and did not waste time, which was limited in spite of having funding available from a planning grant.

Because of our poor experience with public response in prior plan development efforts, we also expanded our solicitation of input to the city website and to the one hundred twenty-three Neighborhood Emergency Groups that have developed since the last plan was created. By “preaching to the choir”, we hoped to draw more interest and more responsiveness.

Additionally, an online presence was created at [www.jpopenhazmitplan.org](http://www.jpopenhazmitplan.org) to allow individuals to view the 2009 Plan and the 2016 Draft Plan as it was developed. Site visitors were encouraged to make comments and suggestions as the Plan was developed.

## **Natural Hazards Mitigation Advisory Committee**

### **Stakeholders**

Information regarding hazard identification, vulnerability assessment, and mitigation strategies for inclusion in this plan was also requested from the following agencies and organizations:

All Jefferson County Drainage Districts	Parks & Recreation District No. 1
All Jefferson County Fire Districts	Port of Port Townsend
All Jefferson County Hospital Districts	Port Townsend School District
All Jefferson County Sewer Districts	Port Townsend Library District
All Jefferson County Water Districts	Public Utility District No. 1 of Jefferson County
Housing Authority of Jefferson County	Port Townsend Police Department
Jefferson County Library District	Port Townsend Finance Department
Jefferson Transit Authority	Water Districts 1, 2, and 3
Jefferson County Sheriff's Office	JC Department of Community Development
Jefferson County Assessor	PT Business & Community Development Dept
Jefferson County Central Services	Jefferson County Public Works
JeffCom 911	Port Townsend Public Works

Appendix C, ***PARTICIPANTS & CONTACTS***, contains the names and roles of each of the individual participants from the above organizations and citizenry. It is divided into the Steering Committee, Advisory Committee, Reviewers, and other citizens who have made a significant contribution to the effort to produce the Plan. **Over 200 people from 19 jurisdictions and special districts contributed to the building of this Plan.**

In addition, the following jurisdictions are recognized in the process of developing the Natural Hazards Mitigation Plan through the provision of information, and a commitment to coordinate efforts in the future. These entities were selected because Jefferson County does not have jurisdiction over them, yet the mitigation plans of these jurisdictions impact Jefferson County in terms of its needs to place mitigation resources, and in some cases, for the purposes of the "All Hazards" plan, actually create the type of hazard that Jefferson County needs to anticipate. Private partnerships have been encouraged with businesses and individuals that could be anticipated to have to have a material impact on planning issues, mitigation efforts, and fast recovery during a natural disaster.

Clallam County Emergency Operations Center	Sequim School District No. 323
Clallam Fire Protection District No. 1 (Clallam/Jefferson)	U.S. Coast Guard
Clallam Fire Protection District No. 3 (Clallam/Jefferson)	U.S. Forest Service – Olympic National Park
Clallam County PUD	U.S. Naval Magazine – Indian Island
Fort Worden State Park	Washington Department of Ecology
The Hoh Tribe of Indians	Washington Department of Fish & Wildlife
KROH – FM 91.9	Washington Department of Natural Resources
KPTZ – FM 91.1	Washington Department of Transportation
Neighborhood Emergency Preparedness Groups (NPREP)	Wa Military Dept – Emergency Management Division
Port Townsend Paper	Washington State Patrol
Propane Providers	U.S. Forest Service – Olympic National Park

In addition, the following citizens participated in the public process to develop the 2016 Plan or have contributions remaining from previous Plans. These citizens became involved because of their specific knowledge of certain natural hazards and past historical events as well as local land use plans and codes and recent planning decisions.

Robert Bindschadler (NASA Emeritus Scientist) (2016)	Sue Horvath (2016)
Tom Camfield	Pete Hubbard (2016)
Pam Clise	Rita Kepner (2016)
Dennis Crawford	Cindy Jayne (2016)
Linda Davis, Solstice Farm (2016)	Deborah Stinson
Jeffery Hartman	Mike Zimmerman (2016)

**Hazard specific research**

The Natural Hazards Mitigation Planning Committee, in close cooperation with the Jefferson County Department of Emergency Management, compiled information and collected data for thirteen natural hazards that coincided with the County's Hazard Identification and Vulnerability Analysis: avalanche, damaging winds, drought, earthquake, flood, heat wave, land movement, public health emergencies, tornado, tsunami / seiche, volcanic activity, wildland fire, and winter storms. Information was obtained from local historical records, and a wide variety of local, state, and federal agencies as well as the above referenced stakeholder interviews and public workshops. In addition, a great deal of information was obtained from existing plans, studies, reports and numerous sources via the Internet. See Appendix E for a list of resources used.

Note: In 2009, we expanded the number of natural hazards by splitting “severe storms” into “wind storms” and “winter storms” and by adding “Heat Wave” and “Public Health Incidents” and tornados, even though these are rare. Similarly, the man-made hazards were expanded to include a break-out of transportation issues, particularly “military ordnance incidents” and “maritime incidents”.

In 2016, a section on “Climate Change” was added to each of the appropriate hazards. In addition, the draft version of updated FEMA FIRMS was available along with the risk assessments done to develop the new FIRMS. These, also, were used with their appropriate hazards.

**Plan Development Process**

**The Disaster Mitigation Act of 2000**

In the past, federal legislation has provided funding for disaster relief, recovery, and hazard mitigation planning. The Disaster Mitigation Act of 2000 is the latest legislation to improve this planning process and was put into motion on October 10, 2000, when the President of the United States signed the Act (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

Mitigate: to cause to become less harsh or hostile; to make less severe or painful.

Planning: the act or process of making or carrying out plans; the establishment of goals, policies, and procedures for a

social or economic unit.

**Hazard Mitigation** (as defined by the Disaster Mitigation Act of 2000): any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.

The Disaster Mitigation Act of 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state predisaster planning and promotes sustainability as a strategy for disaster resistance.

To implement the new Disaster Mitigation Act of 2000 requirements, The Federal Emergency Management Agency (FEMA) prepared an Interim Final Rule, published in the Federal Registry on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for state and local governments.

The primary purpose of hazard mitigation is to identify community policies, actions, and tools for implementation over the long term that will result in a reduction in risk and potential for future losses community-wide. This is accomplished by using a systematic process of learning about the hazards that can affect the community, setting clear goals, identifying appropriate actions, following through with an effective mitigation strategy, and keeping the plan current.

### **Local Involvement:**

Almost all of the jurisdictions in the Plan contributed to the development of the plan through the dedication of staff time to oversee the development of the plan, assist in writing the plan, and/or compile jurisdiction-specific information contained in the plan.

Key contributors in this process were:

Bob Hamlin, Director, Jefferson County Department of Emergency Management  
 Ken Horvath, Project Coordinator  
 Doug Noltemeier, Jefferson County GIS  
 Tyler Johnson, City of Port Townsend GIS

This Plan is the result of a focused effort on the part of local municipalities, jurisdictions, special purpose districts, agencies, and citizen involvement. The writing and organizing of the Plan was performed by Jefferson County Department of Emergency Management and by City of Port Townsend staff with a great deal of assistance provided by members of the Natural Hazards Mitigation Steering Committee.

Appendix C, *Participants & Contacts*, contains a table of the names and roles of each of the individual participants from all of the jurisdictions, districts, and citizenry. **Over 200 people from 19 participating jurisdictions and special districts, and coordinating entities who contributed to the building of this Plan are listed.**

The table is divided into the Steering Committee, Advisory Committee, Reviewers, and other citizens who have made a significant contribution to the effort to produce the Plan.

All jurisdictions and special districts having elected governing bodies were contacted and asked if they would participate in the development of the overall Natural Hazard Mitigation Plan for the County. Given the resources available to each jurisdiction, they participated as best they could. In the case of school districts, for example, all districts were currently working on an Emergency Response Plan, which included a section on Hazard Mitigation. Thus, they were able to provide a subset of their Emergency Response Plan as input into the Natural Hazard Mitigation Plan.

All participants fell into one or more of the following categories:

**Steering Committee** – Provided leadership in getting resources to compile and write the Plan, in providing guidance in the strategic development of the Plan, and in getting adoption in the key jurisdictions.

**Advisory Committee** – Provided local champions to gather and assemble hazard mitigation source material and to assess the local hazard needs. This group also committed to being the ongoing contacts for the annual review and update of the Plan.

**Stakeholders** – Stakeholders are local champions who provided significant input into the development of the Plan through the gathering of their district’s mitigation needs, and who reviewed the draft versions and provided counsel to improve the Plan. These champions reviewed and recommended the adoption of the Plan to the 24 Boards and Councils that comprised the eligible government entities in Jefferson County. Stakeholders generally have sufficient authority to commit staff resources to implement mitigation activities, and to support the Plan. All Steering Committee and Advisory Committee members are stakeholders.

**Contacts** – Contacts are people, primarily staffers, who made significant contributions, including reviewing the draft Plan, but did not have the leadership role in making the Plan viable in their district.

**Commissioners and Council Members** – Commissioners and Council Members had the legal authority to commit the jurisdiction or special district to participate in and to adopt the Plan as their entity’s official Plan. Generally, the adoption of the Plan was made upon the recommendation of the primary stakeholder reporting the Board, and after a period of “due diligence” in which the Board reviewed the Plan and determined that the commitment asked of their district was acceptable.

**Others** – Other individuals who contributed, but did not fall into one of the above categories are listed. These include staff support, the contributions of interested citizens, and even stakeholders whose analysis eventually led them to determine they should opt out of the Plan.

The table in Appendix C identifies each of the people who contributed and the specific role they had in putting together such a comprehensive work in so short a time.

## **Public Participation Process**

Public participation is a key component to strategic planning processes. Citizen participation offers citizens the chance to voice their ideas, interests, and opinions. Washington’s land use planning system addresses the need for public process and provides the opportunity for citizens to be involved in the planning process. The Federal Emergency Management Agency also requires public input during the development of flood mitigation plans.

The *Jefferson County – City of Port Townsend Hazard Mitigation Plan* integrates a cross-section of citizen input throughout the planning process. The Natural Hazard Mitigation Steering Committee developed a public participation processes encompassing four components: (1) a Hazard Mitigation Advisory Committee comprised of knowledgeable individuals in the community; (2) conducting stakeholder interviews to target the specialized knowledge of individuals working with populations or areas at risk from natural hazards; (3) conducting public meetings to identify common concerns and ideas regarding hazard mitigation and to discuss specific goals and actions of the mitigation plan; and (4) an on-going feedback mechanism that allows public contact with the planning through the internet.

Integrating citizen involvement during the development of the Natural Hazard Mitigation Plan has resulted in increased public awareness, and set the stage for future cooperation from the portion of the public that

has a particular interest in man-made hazards that will be covered in the All Hazard Mitigation Plan to come. This involvement and cooperation assures that the mitigation plan reflects community issues, concerns, and perspectives, and encourages new ideas to be brought forward to benefit the community.

In addition, the one hundred twenty-three neighborhood emergency groups were asked to address hazard mitigation at their regular meetings and provide feedback to the Planning Team, either directly or through the Plan website at [www.jprephazmitplan.org](http://www.jprephazmitplan.org).

## **Public Involvement**

In order to better involve the public in the planning process, the Natural Hazards Mitigation Steering Committee advertised and conducted public meetings as part of the Board and/or council meetings in which resolutions were passed relating to the Plan. All such meetings fall under Washington’s Open Public Meetings Act (RCW 42.30) and thus assure that the appropriate notifications, Agendas, etc. are published. Passing of a resolution or inclusion of the Board minutes provides proof that all legal requirements were met.

We have found that this makes it easier for the public to attend because the facilities and time are generally known, and it is easier for individuals to plan their schedules around these meetings. This effort is in addition to the many public meetings and workshops held by stakeholders to solicit input into the development of their own planning documents, such as Jefferson County’s Comprehensive Plan, which provided much of the material for the overall Plan.

## **Project Webpage**

The second aspect of the public process involved the development of a project website, [www.jprephazmitplan.org](http://www.jprephazmitplan.org), independent of the City of Port Townsend’s website. The working draft was placed on the website created specifically for the public to use to view and comment on the Plan in real-time as it was being developed.

## Plan Participation and Adoption

The Jefferson County Administrator, and City of Port Townsend City Manager agreed to participate in the development of the All Hazards Mitigation Plan on behalf of their governing bodies and agreed to adopt it once FEMA has approved the Plan. In addition, special districts that participated in the development of the *Jefferson County Natural Hazard Mitigation Plan* in prior years did the same. The Summary of Adoption Resolutions, below, details the adoption history, since there have been significant organizational changes over the years that the region has been participating.

The City has benefited greatly from previous Plans and has an interlocal agreement with the county, so that it agreed to fund the writing and publication of the Plan for all participating jurisdictions. This was done by obtaining *Pre-Disaster Mitigation Planning Grant E16-091* and by providing matching funds from inception through approval by FEMA.

<b>Summary of Adoption Resolutions</b>				
<b>Agency/Jurisdiction</b>	<b>2004 Adoption Resolution Number</b>	<b>2009 Adoption Resolution Number</b>	<b>2016 Adoption Resolution Number</b>	<b>2016 Adoption Date</b>
Jefferson County	50-04	21-10	04-17	01/23/2017
City of Port Townsend	04-037	10-013	16-046	11/07/2016
Port Ludlow Drainage District	13	Not Numbered	Opt Out	Opt Out
Jefferson County Fire District 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR)	2004-07	10-06	16-08	09/21/2016
Jefferson County Fire District 2 (JCFD2) dba Quilcene Fire - Rescue	2004-1	2010-03	2016-09	11/14/2016
Jefferson County Fire District 3 (JCFD3) dba Port Ludlow Fire & Rescue (PLFR)	2004-01	2010-004	2016-10	11/08/2016
Jefferson County Fire District 4 (JCFD4) dba Brinnon Fire - Rescue	2004-4	2010-5	2016-5	11/08/2016
Jefferson County Fire District 5 (JCFD5) dba as Discovery Bay Volunteer Fire Dept	01-04	2010-6	2017-01	02/08/2017
Jefferson County Fire District 6 (JCFD6)	282-04	Annexed by JCFD1		
JeffCom 9-1-1	County Dept	County Dept	2017-001	01/26/2017
Public Hospital District No. 1	Opt Out	Opt Out	Opt Out	Opt Out
Public Hospital District No. 2	2004-013	2010-18	2017-05	01/18/2017
Jefferson County Library District	04-02	10-01	16-06	12/14/2016
Port of Port Townsend	426-04	550-10	657-17	01/25/2017
Port Townsend School District No. 50	04-16	10-12	16-16	11/28/2016
Brinnon School District No. 45	Opt Out	207-10	246-16	11/17/2016
Chimacum School District No. 49	2004-13	2010-05	2016-9	12/14/2016
Queets/Clearwater School District No. 20	01-04/05	1040	16-09	11/15/2016
Quilcene School District No. 48	01:04/05	01:10/11	02:16/17	12/14/2016
Quillayute Valley School District No. 402	01-04/05	04-10/11	06-16/17	02/14/2017
Jefferson Transit Authority	04-12	Opt Out	17-3	02/21/2017
Public Utility District No. 1 of Jefferson County	2004-013	2010-007	2016-022	11/15/2016

## Plan Maintenance

### Evaluating and Updating the Plan

The *Jefferson County – City of Port Townsend Hazard Mitigation Plan* will be evaluated on an annual basis to determine the effectiveness of mitigation programs, projects, or other related activities and to reflect changes in land development or programs that may affect mitigation priorities and/or strategies; the plan will be updated every five years. Five-year updates will be delivered to the Washington State Hazard Mitigation Officer for review and forwarding to the Federal Emergency Management Agency, Region X Office.

### Annual Plan Evaluation

In an effort to facilitate the annual plan evaluation process, the Natural Hazards Mitigation Planning Committee will remain a semi-active group following the formal adoption of this plan and shall be charged with the responsibility of conducting an annual plan evaluation each calendar year. The Director of the Jefferson County Department of Community Development or his/her designee will be responsible for contacting the chairperson and members of the Natural Hazards Mitigation Planning Committee and organizing the annual plan evaluation process.

The Natural Hazards Mitigation Planning Committee will review the current natural hazards mitigation strategies to determine their relevance to changing situations within Jefferson County as well as known changes in State or Federal policy, and to insure these mitigation strategies are addressing current and expected conditions.

Jefferson County and the City of Port Townsend address statewide planning goals and legislative requirements through GMA, CRS, and NFIP requirements, capital improvement plans, and building codes. The Plan will provide a series of recommendations that are closely related to the goals and objectives of these existing planning programs. Local plans, such as Emergency Response Plans, that have sections related to Hazard Mitigation will be coordinated with the Plan so that requirements of the Plan are incorporated into local guiding documents and ordinances, and vice versa.

As part of this annual evaluation, those communities that participate in the Community Rating System shall submit a copy of their annual evaluation report to the Chairperson of the Natural Hazards Mitigation Planning Committee no later than September 15<sup>th</sup> of each calendar year. (At this time none of the Jefferson County communities are participating in the CRS.)

Following the annual plan evaluation process, the Chairperson of the Natural Hazards Mitigation Planning Committee, in cooperation with the Jefferson County Department of Community Development, will prepare a written report describing: 1) the plan evaluation process; 2) the status of any current mitigation activities or projects; 3) any deficiencies identified as a result of the plan evaluation. Copies of this report shall be delivered to the City Manager of the City of Port Townsend, the County Administrator and Board of Jefferson County Commissioners, and participating jurisdictions no later than September 30<sup>th</sup> of each calendar year. In addition, a copy of this report will also be mailed to the Washington State Hazard Mitigation Officer no later than September 30<sup>th</sup> of each calendar year.

**NOTE:** *This annual plan evaluation and report is for the express purpose of evaluating and reporting the status of the various mitigation strategies and/or projects identified in this plan and to assess the progress of existing mitigation activities.*



*Those jurisdictions that participate in the Community Rating System are responsible for evaluating, maintaining, and updating their Community Rating System Program as well as submitting written reports in accordance with current Community Rating System requirements.*

**Five-Year Plan Update**

The Plan must be updated annually and resubmitted to the Washington State Emergency Management Department and to FEMA every 5 years for approval in order to maintain eligibility for mitigation grants.

Updates to the Plan shall be conducted on a five-year cycle and shall commence at the direction of the Director of the Jefferson County Department of Community Development no later than March First of the scheduled update year. Upon such direction, staff from the Jefferson County Department of Community Development, in cooperation with the chairperson of the Natural Hazards Mitigation Planning Committee, will begin the process of updating the plan.

The City Council of the City of Port Townsend, and the Jefferson County Board of County Commissioners shall approve the updated plan and a copy of the updated plan shall be submitted to the Washington State Hazard Mitigation Officer no later than September 30<sup>th</sup> of the update year.

***Assuming the approval of this Plan in 2017, the following schedule will be in effect:***

<b>PLAN EVALUATION AND UPDATE SCHEDULE 2017 – 2021</b>	
<b>Date</b>	<b>Required Action to be Taken</b>
July-September 2018	Conduct plan evaluation and public meeting
September 2018	Submit written report to Washington State Emergency Management Department
July - September 2019	Conduct plan evaluation and public meeting
September 2019	Submit written report to Washington State Emergency Management Department
July-September 2020	Conduct plan evaluation and public meeting
September 2020	Submit written report to Washington State Emergency Management Department
July-September 2021	Conduct plan evaluation and public meeting
September 2021 February 2022	Submit written report to Washington State Emergency Management Department. Director of the Jefferson County Department of Emergency Management directs Plan to be updated
March 2022  March 2021 - June 2022	Natural Hazards Mitigation Planning Committee Chairperson and Department of Emergency Management staff will begin 5-year plan update process; request a report of all mitigation activities and/or projects from all participating jurisdictions. Update plan in cooperation with Natural Hazards Mitigation Planning Committee Chairperson and others as may be necessary
July & August 2022	Conduct at least one public meeting regarding the plan update; receive comments from Planning Committee Members, stakeholders, and the public; make revisions as may be necessary
September 2022	Updated plan approved by all participating entities
October 2022	Submit updated Plan to Washington State Emergency Management Department and to FEMA for re-approval.

It should be noted that the 2009 Plan included a schedule that was to be completed by June of 2015 – prior to expiration of the 2004 Plan. Personnel cuts due to the “Great Recession” along with an increase in emergencies that created a back-log of work for FEMA delayed the start of the main part of this effort until November 2015, when the grant contract with FEMA to fund the writing was finally signed. Hopefully, this will not recur.

## Continued Public Involvement

All participating entities are dedicated to the continued involvement of the public in the Natural Hazards Mitigation process.

Copies of the Plan will be kept and made available for public review at the following locations:

- Jefferson County Department of Emergency Management
- Jefferson County Department of Public Works
- Jefferson County Department of Community Development (DCD)
- Jefferson County Public Library
- City of Port Townsend Developmental Services Department (DSD)
- City of Port Townsend Library
- City of Port Townsend Administration Department
- City of Port Townsend Public Works

A notice regarding the existence and location of these copies of the Plan will be publicized annually during the month of September in the Port Townsend Leader, the local weekly newspaper that serves Jefferson County.

The Jefferson County Department of Community Development shall be responsible for receiving, tracking, and filing public comments regarding the Natural Hazards Mitigation Plan. Contact information for the Jefferson County Department of Community Development is included in the Point Of Contact information on page iii.

A public meeting will be held as a part of the annual plan evaluation process as well as the five-year plan update. Additional meetings may also be held as deemed necessary by the Chairperson of the Natural Hazards Mitigation Planning Committee. The purpose of these meetings is to provide a public forum so that citizens can express concerns, opinions, or ideas about the Plan.

The Jefferson County Public Information Officer shall be responsible for utilizing Jefferson County resources to publicize annual public meetings in order to facilitate continued public involvement in the natural hazards mitigation process within Jefferson County and the City of Port Townsend.

# **SECTION II**

## **MULTI-JURISDICTIONAL HAZARD IDENTIFICATION**

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# Multi-Jurisdictional Community Profile

## INTRODUCTION

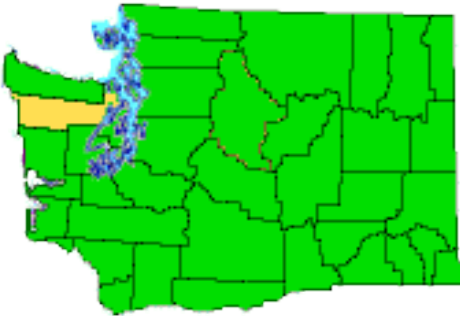
The research and preparation of the Multi-Jurisdictional Hazard Identification is an outgrowth of *The Jefferson County Hazard Identification and Risk Analysis (THIRA)* which was completed in January 2016.<sup>1</sup> It also contains data extracted from the *Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe.*<sup>2</sup> The purpose of these analyses is to provide information on potential large-scale hazards that could impact Jefferson County. It is intended to provide a basis for awareness and planning to support county-wide emergency management programs.

The hazards discussed in this section are not the only ones that may threaten the people or the properties of the County. Conditions may change and new information may become available that could necessitate modifications. Data contained in this Analysis has been extracted from various publications, maps, and internet websites. This section is not intended to be a detailed study of each hazard, but rather a general overview of hazards and vulnerabilities to those hazards as pertains to Jefferson County.

## JEFFERSON COUNTY PROFILE

### GEOGRAPHY

Jefferson County, the 18<sup>th</sup> largest county in Washington, is situated in the upper half of the Olympic Peninsula in Northwest Washington.<sup>3</sup> Mountains, rolling timbered hills and lowlands comprise the topography. Mountains comprise approximately 75% of the county's landmass and fall within the boundaries of the Olympic National Park and the Olympic National Forest. The county is bounded by the Pacific Ocean on its western edge. Beach areas on the Pacific are also part of the Olympic National Park. (See Figure J-1 Jefferson County.)



According to the Washington Data Book, the county has a total area of 5,655 km<sup>2</sup> (2,184 mi<sup>2</sup>). 4,699 km<sup>2</sup> (1,814 mi<sup>2</sup>) of it is land and 956 km<sup>2</sup> (369 mi<sup>2</sup>) of it (16.91%) is water.

The county is split in three parts by its landforms:

Eastern Jefferson County along the Strait of Juan de Fuca, Admiralty Inlet, and Puget Sound; Central Jefferson County, which is uninhabited and lies in the Olympic Mountains within Olympic National Park and Olympic National Forest and Western Jefferson County, along the Pacific Ocean. Because of the mountainous barrier, there is no road lying entirely within Jefferson County that connects the eastern and western parts. The most direct land route between the two ends of the county involves a drive of approximately 100 miles along U.S. Route 101 through neighboring

Clallam County. The mountains also block the damp Chinook winds, which make the climate very much wetter in the West than the so-called Eastern "banana belt" in the rain shadow.<sup>4</sup> The original formation of Jefferson County during a time when the Oregon Territory was poorly explored is now generally recognized as a geographical error, but an error which cannot be conveniently rectified. The Strait of Juan de Fuca separates Vancouver Island of British Columbia from the Olympic Peninsula of Washington state.

The western and eastern areas of the county are separated by the Olympic National Park and Olympic National Forest properties. The mountain areas of the Park include mountains up to nearly 8,000 feet. These National Park and National Forest areas are among the most scenic areas of the state if not the entire country. The lower half of the eastern shoreline of Hood Canal is also part of the Olympic National Forest. The upper half of the eastern shoreline is an area of rich valleys leading to the foothills of the Olympic Mountains. Steep and rocky cliffs give way to low beaches and wetlands. The upper half of the eastern section of the county is where most of the population resides.

Eastern Jefferson County consists of low rolling hills leading to moderately steep, glacial terraces and long narrow valleys in the northern and northeaster sections. The southeastern section consists primarily of moderately steep, to steep glacial terraces and very steep, rough mountain foothills.

In Western Jefferson County, the 30-mile long coastal area includes many beaches and rocky cliffs. The broad valleys of several large rivers traverse from the mountains in the central part of the county to the western beaches. The coastal area consists of gentle rolling to moderately steep glacial terraced uplands interspersed with numerous swampy depressions. Several mountainous spur ridges up to 1,500 feet tall are part of this coastal area. From the coastal area to the Olympic Park boundary, the topography rises abruptly to 3,400 feet to become part of the steep western flanks of the Olympic Mountains. (See Figure J-2 Geology)

## CLIMATE

**WEST OLYMPIC-COASTAL (West Jefferson County)** – This area includes the coastal plains and western slope of the Coastal Range from the Columbia River to the Strait of Juan de Fuca. The Olympic Mountains, located on the northern section of the Olympic Peninsula, tower to nearly 8,000 feet deeply carved by rivers. The Willapa Hills, elevation 1,000 to 3,000 feet, form a continuous ridge from the Chehalis River valley to the Columbia River. This area receives the full force of storms moving inland from over the ocean, thus heavy precipitation and winds of gale force occur frequently during the winter season. Wind velocities in the lower elevations can be expected to reach 90 to 100 mph. once in 100 years. Wind data from a well-exposed site on a ridge near the ocean, elevation 2,000 feet, indicates that wind velocities in excess of 100 mph occur in the higher elevations almost every winter.

The "rainforest" area along the southwestern and western slopes of the Olympic Mountains receives the heaviest precipitation in the continental United States. Annual precipitation ranges from 70 to 100 inches over the Coastal Plains to 150 inches or more along the windward slopes of the mountains. The greatest annual precipitation recorded in the "rainforest" area is 184 inches at Wynoochee Oxbow, elevation 600 feet. The heaviest rainfall during a single storm was 12 inches in 24 hours; 23.5 inches in 48 hours; 28.6 inches in 72 hours; and 35 inches in four days recorded at Quinault Ranger Station, January 21-24, 1935. On Blue Glacier, elevation 6,900 feet and near the summit of Mt. Olympus, 149 inches of precipitation were recorded between August 1957 and

July 1958. The total snowfall for this period was 542 inches. During the same period, precipitation at lower elevation stations was approximately 15 percent below normal.

Winter season snowfall ranges from 10 to 30 inches in the lower elevations and between 250 to 500 inches in the higher mountains. In the lower elevations, snow melts rather quickly and depths seldom exceed six to 15 inches. In midwinter, the snowline in the Olympic Mountains and the Willapa Hills is between 1,500 and 3,000 feet above sea level. The higher ridges are covered with snow from November until June. The average maximum temperature in July is near 70° F along the coast and 75° F in the foothills, and minimum temperatures are near 50° F. In winter, the warmer areas are near the coast. In January, maximum temperatures range from 43° to 48° and minimum temperatures from 32° to 38° F.

**NORTHEAST OLYMPIC-SAN JUAN (Includes East Jefferson County and the City of Port Townsend)** – This area includes the lower elevations along the northeastern slope of the Olympic Mountains extending eastward along the Strait of Juan de Fuca from near Port Angeles to Whidbey Island and then northward into the San Juan Islands. The Olympic Mountains and the extension of the Coastal Range on Vancouver Island shield this area from winter storms moving inland from over the ocean. This belt in the “rain shadow” of the Olympic Mountains is the driest area in western Washington. The average annual precipitation ranges from about 18 inches near Sequim, Port Townsend and Coupeville to between 25 and 30 inches in the vicinity of Everett on the east, Port Angeles on the west and Olga in the San Juan Islands on the north. Measurable precipitation is recorded on three to five days each month in summer and on 17 to 22 days in winter.

Another factor which distinguishes this belt from other localities in the Puget Sound region is the rate of rainfall. This area frequently receives drizzle or light rain while other localities are experiencing light to moderate rainfall. Snowfall is light in the lower elevations adjacent to the water, increasing with distance from the water and rise in terrain. This area is considered to receive slightly more sunshine and have less cloudiness than other localities in Puget Sound; however, the difference is not in proportion to the decrease in precipitation. During the latter half of the summer and early fall, fog banks from over the ocean and Strait of Juan de Fuca result in considerable fog and morning cloudiness in the lower elevations.

The average July maximum temperature ranges from 65° F near the water to 70° or 75° F inland, and the minimum temperature is near 50° F. Maximum temperatures seldom exceed 90° F. In January, maximum temperatures are in the 40's and minimums in the lower 30's. Minimum temperatures between -5° and -8° F have been recorded; however, the minimum temperature seldom drops below 15° to 20° F. The coldest weather is usually associated with an outbreak of cold air from the interior of Canada. The average date of the last freezing temperature in the spring ranges from the latter half of March near the water to the last of April in agricultural areas 100 to 300 feet above sea level and a few miles inland. The first freezing temperature in the fall is about the first of November.

## **DEMOGRAPHICS**

The county seat, Port Townsend, hosts nearly one third (8,334) of the total population of the county. The total land area of Jefferson County is 1,144,330 acres or 1814 square miles. (See Figure J-3 Taxing Districts.)

The population has grown at an increasing rate. Jefferson County is one of the fastest growing counties in the state. From 1990 to 2000, the population of the county grew 27.2% and projections indicate that growth will continue. (See Figure J-4 Population Trend Maps.)

The county attracts many tourists during the summer months. On weekends during special events, the population of Port Townsend is estimated to double. Surrounding communities also experience significant increased traffic and visitors. During the summer tourist season, for example, the population of the west end of Jefferson County can increase from 900 to 10,000.

## **Population Trend**

Over two decades there has been a discernible shift in the age make-up of the population from the age group 25-40 towards the age group 65+. That shift is expected to continue in the decades from now until 2030, when the largest age group in the county will be the over-65 population. The overall trend is often described as the "graying" of the population.

## **Changing Age Mix in Total Washington State Population**

The figure J-4 graphs show how Washington's population is getting older. The majority of the population for all years shown is in the 25 - 44 age group. However, while Washington's population grows, the percentage of people 45 and older gets larger and the percentage of people 44 and under gets smaller.

## **POPULATION CENTERS**

The county's population centers are primarily based in the northeast corner of the county with Port Townsend having the highest density. Other communities including Port Ludlow, Port Hadlock, Chimacum, and Quilcene have experienced growth over the past several years and are expected to continue in this pattern. (See Figure J-5 Population Density.)

Communities in the "West End" of the county are the most sparsely permanently populated areas in the county. During the summer months, the "vacation population" in the West End almost doubles the area's total population. Popular destinations include the Hoh Rainforest and Kalaloch Ocean Beach located in the Olympic National Park. Hikers, campers, and visitors to lodges come from around the world to visit the Olympic Peninsula.

## **ECONOMY**

Personal income includes earned income, investment income, and government payments such as Social Security and Veterans Benefits. Investment income includes income imputed from pension funds and from owning a home. Per capita personal income equals total personal income divided by the resident population.

Per capita personal income in Jefferson County in 2013 was \$47,111 compared to \$47,717 for the state and \$44,765 for the nation. Jefferson County ranked third in the state in 2013 in per capita income. It ranked third in 2007 and 2008 and fourth in 2004, 2005, 2006 and 2012.

Given its rural classification, it is not too surprising that Jefferson County has a slightly higher poverty rate than that of the state. According to the U.S. Census QuickFacts, 14.1 percent of those in the county were living below the poverty level compared to 13.2 percent of the state population



and 14.8 percent of the U.S. population in the period 2010 through 2014. The state and national rates are not directly comparable to the county rate because they each use different data sources.<sup>5</sup> See Figure J-6 for Land Use Distribution.

**Major Industries included:** Pulp and Paper; Marine Trades/Boatbuilding; Wood Products/Logging; Diversified Manufacturing; Tourism; and Health Care.

## **SIGNIFICANT HISTORICAL DISASTER EVENTS<sup>6</sup>**

Jefferson County has recorded 18 major Presidential Declared Disasters since 1956, not counting those state-wide declarations that included it. It should be noted, that the criteria for qualification for disaster declaration has been modified over the years. In addition, as the population has grown, the impacts on people and property have also increased.

Table J-1 below shows the Federal Disaster Declarations for Washington State for the last 45 years. Declarations that directly affected Jefferson County are highlighted in **RED**, while declarations that affected adjacent counties are highlighted in **Blue**. Jefferson County is impacted by disasters in neighboring counties in two ways:

1. It has mutual aid agreements with adjacent counties, so wildfires, windstorms, and landslides, for example, can and do result in Jefferson County resources being expended; and
2. Since Jefferson County is on a peninsula, strategically occurring disasters in neighboring counties can disrupt deliveries of food and fuel to Jefferson County just when it is needed most. An earthquake or storm that takes out the Hood Canal Bridge, for example, will cause major economic damage to Jefferson County.

Table J-1 - Major Disaster Declarations for Washington 1956-2016

EVENT DATE	EVENT	COUNTIES / RECIPIENTS
February 1956	Maj. #50 - Flooding	Adams, Benton, Franklin
March 1957	Maj. #70 - Flooding	Douglas, Grant, Lincoln
October 1962	Maj. #137 - Columbus Day Wind Storm	Clark, Cowlitz, Grays Harbor, <b>Jefferson</b> , <b>Kitsap</b> , Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom
March 1963	Maj. #146 - Flooding	Columbia, Garfield, Grant, Whitman, City of Spokane
December 1964	Maj. #185 - Heavy rains / flooding	Asotin, Benton, Clark, Columbia, Cowlitz, Garfield, Grays Harbor, King, Kittitas, Klickitat, Lewis, <b>Mason</b> , Pacific, Pierce, Skamania, Snohomish, Wahkiakum, Walla Walla, Whitman, Yakima
May 1965	Maj. #196 - Earthquake	King, <b>Kitsap</b> , <b>Mason</b> , Pierce, Snohomish, Thurston
July 1970	FS #2002 – Forest /grass land fire Okanogan County	Department of Natural Resources
January 1971	Maj. #300 - Heavy rains /melting snow /flooding	Columbia, Garfield, <b>Grays Harbor</b> , Lewis, Skagit, Whatcom, Yakima
January 1972	Maj. #322 - Severe storms / flooding	Asotin, Cowlitz, <b>Grays Harbor</b> , Lewis, Pacific, Skamania, Thurston, Wahkiakum, Whitman
February 1972	Maj. #328 - Heavy rains / flooding	King, Pierce, Thurston
May 1972	Maj. #334 - Severe storms / flooding	Chelan, Douglas, Okanogan
January 1974	Maj. #414 - Severe storms / snowmelt / flooding	Asotin, Benton, Columbia, Ferry, <b>Kitsap</b> , Klickitat, Lewis, <b>Mason</b> , Pend Oreille, Stevens, Thurston, Whitman, Yakima
December 1975	Maj. #492 - Severe storms / flooding	Benton, Cowlitz, <b>Grays Harbor</b> , King, Kittitas, Lewis, <b>Mason</b> , Pierce, Skagit, Snohomish, Thurston, Whatcom, Yakima
March 1977	Emerg. #3037 - Drought	Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, Yakima
December 1977	Maj. #545 - Severe storms / mudslides / flooding	Benton, Clark, Cowlitz, Garfield, <b>Grays Harbor</b> , King, Kittitas, Klickitat, Lewis, Pacific, Pierce, Snohomish, Thurston, Wahkiakum, Whitman, Yakima
March 1979	Emerg. #3070 - Flash flood	Town of Mesa, Franklin County
July 1979	FS #2033 - Salmon Creek Fire (Okanogan County)	Department of Natural Resources
December 1979	Maj. #612 – Storms / high tides / mudslides / flooding	<b>Clallam</b> , <b>Grays Harbor</b> , <b>Jefferson</b> , King, <b>Mason</b> , Skagit, Snohomish, Whatcom
May 1980	Maj. #623 - Mt. St. Helens eruption	<b>All 39 counties</b>
August 1982	Emerg. #3086 - Threat of Spirit Lake flooding	Skamania, Cowlitz, US Army Corps of Engineers, National Weather Service, US Geological Survey
December 1982	Maj. #676 - Severe storm/high tide/ flooding	Whatcom

EVENT DATE	EVENT	COUNTIES / RECIPIENTS
September 1985	FS #2058 - Barker Mt. fire (Okanogan County)	Department of Natural Resources
January 1986	Maj. #757 - Severe storms/flooding	<b>Clallam, Jefferson</b> , King
February 1986	Maj. #762 - Heavy rain/slides/ flooding	Cowlitz
May 1986	Maj. #769 - Severe storm/dam failure	Spokane
November 1986	Maj. #784 - Severe storms/flooding	Cowlitz, King, Lewis, Pacific, Snohomish, Wahkiakum
September 1988	FS #2070 - Dinkleman Fire (Chelan County)	Department of Natural Resources
March 1989	Maj. #822 - Heavy rains/sheet flooding	Douglas, Okanogan, Stevens, Whitman
January 1990	Maj. #852 - Severe storms/flooding	Benton, <b>Grays Harbor</b> , King, Lewis, Pierce, Thurston, Wahkiakum
November 1990	Maj. #883 - Severe storms/flooding	Chelan, <b>Clallam, Grays Harbor</b> , Island, <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom, Yakima
December 1990	Maj. #896 - Storms/high wind/ flooding	Island, <b>Jefferson</b> , King, <b>Kitsap</b> , Lewis, Pierce, San Juan, Skagit, Snohomish, Whatcom
October 1991	Maj. #922 - Firestorm '91" and wind	Pend Oreille, Spokane, Stevens, Whitman, Department of Natural Resources
August 1992	FS #2085 - Skookum Fire (Klickitat County)	Department of Natural Resources
January 1993	Maj. #981 - Inaugural Day Windstorm	King, Lewis, <b>Mason</b> , Pierce, Snohomish, Thurston, Wahkiakum
July 1994	FS 2103 - Tye Fire (Chelan County)	Department of Natural Resources, Military Department
July 1994	FS 2104 - Hatchery Creek Fire (Chelan County)	Department of Natural Resources, Military Department
August 1994	Major #1037 - El Nino - Salmon	<b>Clallam, Grays Harbor, Jefferson</b> , Pacific, Wahkiakum, Whatcom
November 1995	Major #1079 - Flooding and Wind (Nov - Dec 95) Declared Jan 3, 1996	Chelan, <b>Clallam</b> , Clark, Cowlitz, Grays Harbor, Island, <b>Jefferson</b> , King, Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom, Yakima
February 1996	Major #1100 - Flooding Declared February 9, 1996	Adams, Asotin, Benton, Clark, Columbia, Cowlitz, Garfield, <b>Grays Harbor</b> , King, <b>Kitsap</b> , Kittitas, Klickitat, Lewis, Lincoln, Pierce, Skagit, Skamania, Snohomish, Spokane, Thurston, Wahkiakum, Walla Walla, Whitman, Yakima, and Yakima Indian Reservation
August 1996	FS 2186 - Bowie Road Fire	Department of Natural Resources, Military Department
November 1996	Major #1152 - Ice Storm Declared January 7, 1997	Klickitat, Pend Oreille and Spokane
December 1996	Major #1159 - Winter Storm	Adams, Asotin, Benton, Chelan, <b>Clallam</b> , Clark, Columbia, Cowlitz, Douglas, Ferry, Franklin, Garfield, Grant, <b>Grays</b>

EVENT DATE	EVENT	COUNTIES / RECIPIENTS
	(Ice, snow, flooding) Declared January 17, 1997	<b>Harbor</b> , Island, <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Klickitat, Lewis, Lincoln, <b>Mason</b> , Okanogan, Pacific, Pend Oreille, Pierce, San Juan, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Walla Walla, Whatcom, Yakima
March 1997	Major #1172 - Flooding Declared April 2, 1997	<b>Grays Harbor</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Lincoln, <b>Mason</b> , Pacific, Pierce, Pend Oreille, Stevens
April 1997	Major #1182 - Flooding Declared July 21, 1997	Pend Oreille
July 1997	FS 2192 - Benton City Fire (Benton County)	Department of Natural Resources
August 1997	FS 2193 - Newkirk/Red Lake Fire (Spokane/Stevens County)	Department of Natural Resources
August 1997	FS 2194 - Olympia Command Fire (Benton County)	Department of Natural Resources
Mar - Nov 1998	Major 1255 - Landslide Declared October 16, 1998	Cowlitz County (Kelso)
May 1998	Major 1252 - Flooding Declared October 5, 1998	Ferry and Stevens Counties
July 1998	FS 2225 - Cleveland Complex Fire	Klickitat County
August 1998	FS 2237 - Ballpark Fire	Cowlitz County
September 1998	FS 2248 - Toucannen Fire	Columbia County
June 2000	FS 2311 - 24 Command Fire	Benton County (Hanford Area)
July 2000	FS 2313 - Rocky Hull Fire	Okanogan County
August 2000	FS 2323 - Mule Dry Fire	Benton & Yakima Counties
February 2001	DR-1361 - Nisqually Earthquake Declared March 1, 2001	Benton, Chelan, <b>Clallam</b> , Clark, Cowlitz, Douglas, <b>Grays Harbor</b> , Island, <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, Walla Walla, Whatcom, Yakima
October 2003	DR 1499	<b>Clallam</b> , <b>Jefferson</b> , <b>Grays Harbor</b> , <b>Mason</b> , Snohomish, Skagit, Whatcom
January 27 to February 4, 2006	DR 1641 Severe Storms, Flooding, Tidal Surge, Landslides, and Mudslides	<b>Clallam</b> , <b>Grays Harbor</b> , Island, <b>Jefferson</b> , <b>Kitsap</b> , <b>Mason</b> , Pacific, Pend Oreille, San Juan, Snohomish, and Wahkiakum Counties
November 2-11, 2006	DR 1671 Severe Storms, Flooding, Landslides, and Mudslides	All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program.

EVENT DATE	EVENT	COUNTIES / RECIPIENTS
December 14-15, 2006	DR 1682 Severe Winter Storm, Landslides, and Mudslides	All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program
December 1 - 17, 2007	DR 1743 Severe Storms and Flooding	<b>Clallam Grays Harbor, Jefferson,</b> King, <b>Kitsap,</b> Lewis, <b>Mason,</b> Pacific, Skagit, Snohomish, Thurston and Wahkiakum Counties.
December 2008 / January 2009	DR 1817 Severe Winter Storm, Landslides, Mudslides, and Flooding	Adams, Asotin, Benton, Chelan, <b>Clallam,</b> Columbia, Cowlitz, Franklin, <b>Grays Harbor, Jefferson,</b> King, Kittitas, Klickitat, Lewis, <b>Mason,</b> Pacific, Pierce, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Wahkiakum, Walla Walla, Whatcom, Whitman, and Yakima counties.
March 2009	DR 1825 Severe Winter Storm and Record and Near Record Snow	<b>Clallam,</b> Clark, Columbia, Cowlitz, Garfield, <b>Grays Harbor,</b> Island, <b>Jefferson,</b> King, Klickitat, Lewis, Lincoln, <b>Mason,</b> Pacific, Pend Oreille, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Wahkiakum, Walla Walla, and Whatcom counties
March 2011	DR 1963 Severe Winter Storm, Flooding, Landslides, and Mudslides	King, Kittitas, Klickitat, Lewis, Skagit, Skamania, and Wahkiakum.
March 2012	DR 4056 Severe Winter Storm, Flooding, Landslides, and Mudslides	<b>Clallam, Grays Harbor,</b> King, Klickitat, Lewis, <b>Mason,</b> Pierce, Skamania, Snohomish, Thurston, and Wahkiakum
September 2012	DR 4083 Severe Storm, Straight-line Winds, and Flooding	Ferry and Okanogan counties and the Confederated Tribes of the Colville Reservation
March 2014	ED 3370 Flooding and Mudslides	<b>State of Washington</b>
April 2014	DR 4168 Flooding and Mudslides	Snohomish County, including the lands associated with the Sauk-Suiattle, Stillaguamish, and Tulalip Tribes
August 2014	DR 4188 Wildfires	Kittitas County, Okanogan County and the Confederated Tribes of the Colville Reservation
August 2015	ED 3372 Wildfires	Asotin, Chelan, Douglas, Ferry, Klickitat, Okanogan, Pend Oreille, Skamania, Spokane, Stevens, and Yakima and the Confederated Tribes of the Colville Reservation, the Kalispel Tribe of Indians, the Spokane Tribe of Indians, and the Confederated Tribes and Bands of the Yakama Nation
October 2015	DR 4242 Severe Windstorm	<b>Clallam, Grays Harbor,</b> Island, <b>Jefferson,</b> Snohomish and Whatcom counties
October 2015	DR 4243 Wildfires and Mudslides	Chelan, Ferry, Lincoln, Okanogan, Pend Oreille, Stevens, Whatcom and Yakima; as well as the Confederated Tribes of the Colville Reservation
January 2016	DR 4249 Severe Storms, Straight-line Winds, Flooding, Landslides, and Mudslides	Chelan, <b>Clallam,</b> Garfield, Island, <b>Jefferson,</b> Kittitas, Lewis, Lincoln, <b>Mason,</b> Pend Oreille, Skamania, Snohomish, Spokane, Stevens, Wahkiakum, and Whitman counties
February 2016	DR 4253 Severe Winter Storm, Straight-Line Winds, Flooding, Landslides, Mudslides, and a Tornado	<b>Clallam,</b> Clark, Cowlitz, <b>Grays Harbor, Jefferson,</b> Lewis, <b>Mason,</b> Pacific, Skamania, and Wahkiakum counties

Table J-2 below shows a sampling of significant disaster events that have impacted Port Townsend. Many happened before there were such things as “Disaster Declarations”, and show that the Jefferson County area has always had its share of disaster events, even though there may not have been formal recognition at the time.

**Table J-2 - Representative Port Townsend Disasters**

NO	DATE	LOCATION	DESCRIPTION
1	Dec 27, 1866	Downtown Port Townsend	Flood Tide inundated all of downtown. Water was reported as being up to the armpits of a man at the current location of the Bishop Hotel. <sup>7</sup>
2	Jan 6, 1880	Port Townsend	Major Snow Storm; 4 feet of snow; drifts up to 10 feet high. <sup>8</sup> Snow in Quilcene lasted until March 20 <sup>th</sup> . <sup>9</sup>
3	Jan 1893	Port Townsend	Major Snow Storm <sup>10</sup>
4	Feb 3, 1916	Port Townsend	Major Snow Storm; Reported as 30.5 inches in 24 hours. <sup>11</sup>
5	Dec 25, 1919	Port Townsend	Major Snow Storm <sup>12</sup>
6	Dec 22, 1955	Port Townsend	Major Snow Storm <sup>13</sup>
7	Oct 12, 1962	Region	Columbus Day Storm; Blew roof off of building that currently houses PTPD. Many trees down. Much damage. <sup>14</sup>
8	Dec 28-29 1968	Port Townsend	Ice Storm <sup>15</sup>
9	2002	Port Townsend	Prolonged Drought. Port Townsend Paper lays off workers and shuts down production to conserve Port Townsend’s water supply. <sup>16</sup>
10	Sept 20 – 22, 2016	Port Townsend	City Water Supply tested positive for toxins. Preparations were made to issue boil water orders and deliver bottled water, but subsequent testing showed the water to be okay.
11	November 6, 2016	Port Townsend	Landslide six hundred feet from the ferry dock closes State Highway 20 for three hours in downtown Port Townsend.

# MULTI-JURISDICTIONAL HAZARD IDENTIFICATION

## Table of Figures

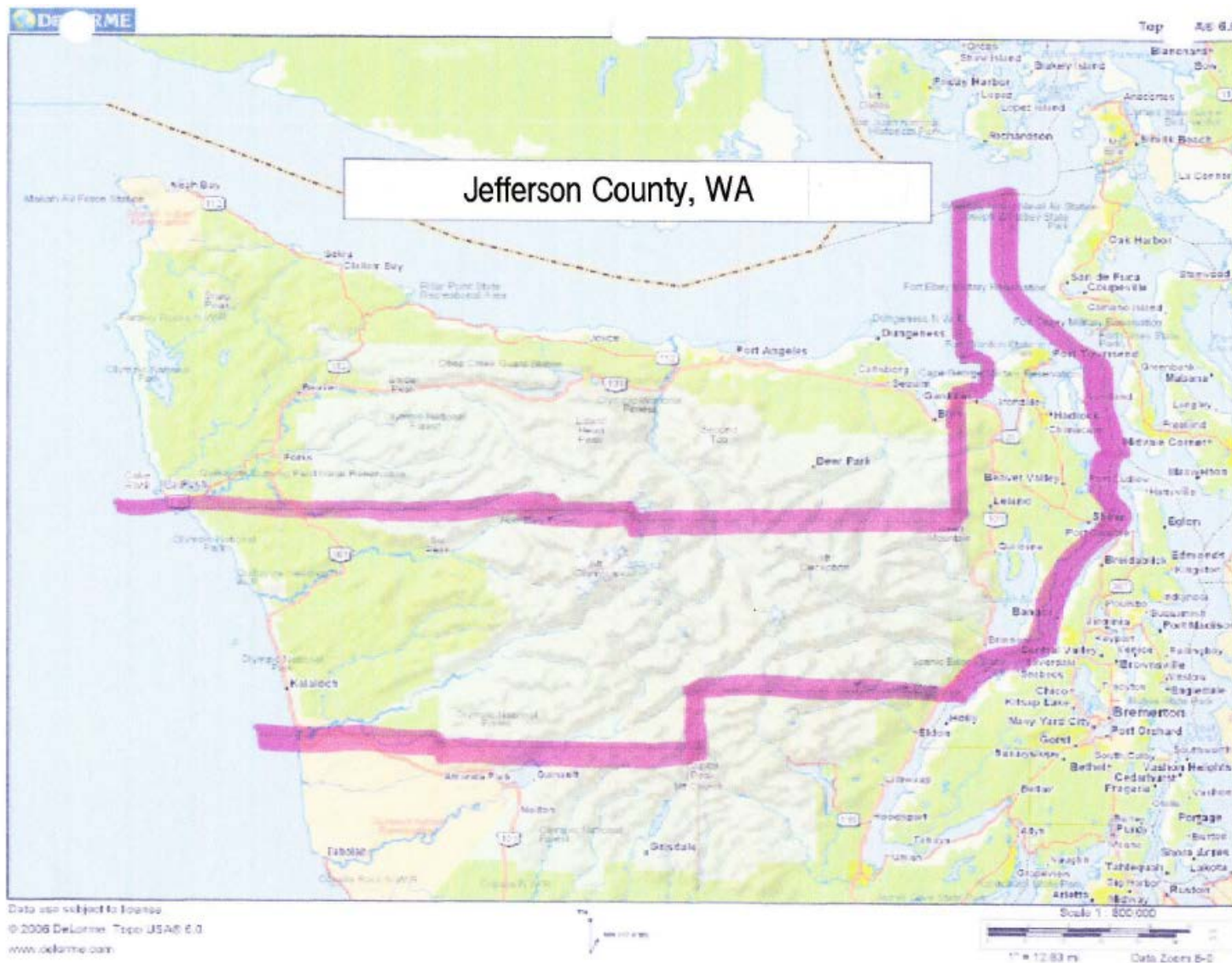
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- J-1 Map of Jefferson County, Washington; Source: Jefferson County Department of Emergency Management
- J-2 Jefferson County & Vicinity Geology, Source: derived from the Geologic Map of Washington, Washington Division of Geology and Earth Resources, 2013
- J-3 Jefferson County Taxing Districts, GIS Department, Jefferson County Washington
- J-4 Population Trend Maps, Source: U.S. Census Bureau
- J-5 Jefferson County Population Density, Source: GIS Department, Jefferson County Washington
- J-6 Jefferson County Land Use Distribution, GIS Department, Jefferson County Washington, August 2012

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Figure J-1 – Jefferson County Washington



**Figure J-2 - Jefferson County & Vicinity Geology**  
(Derived from Geologic Map of Washington<sup>17</sup>)

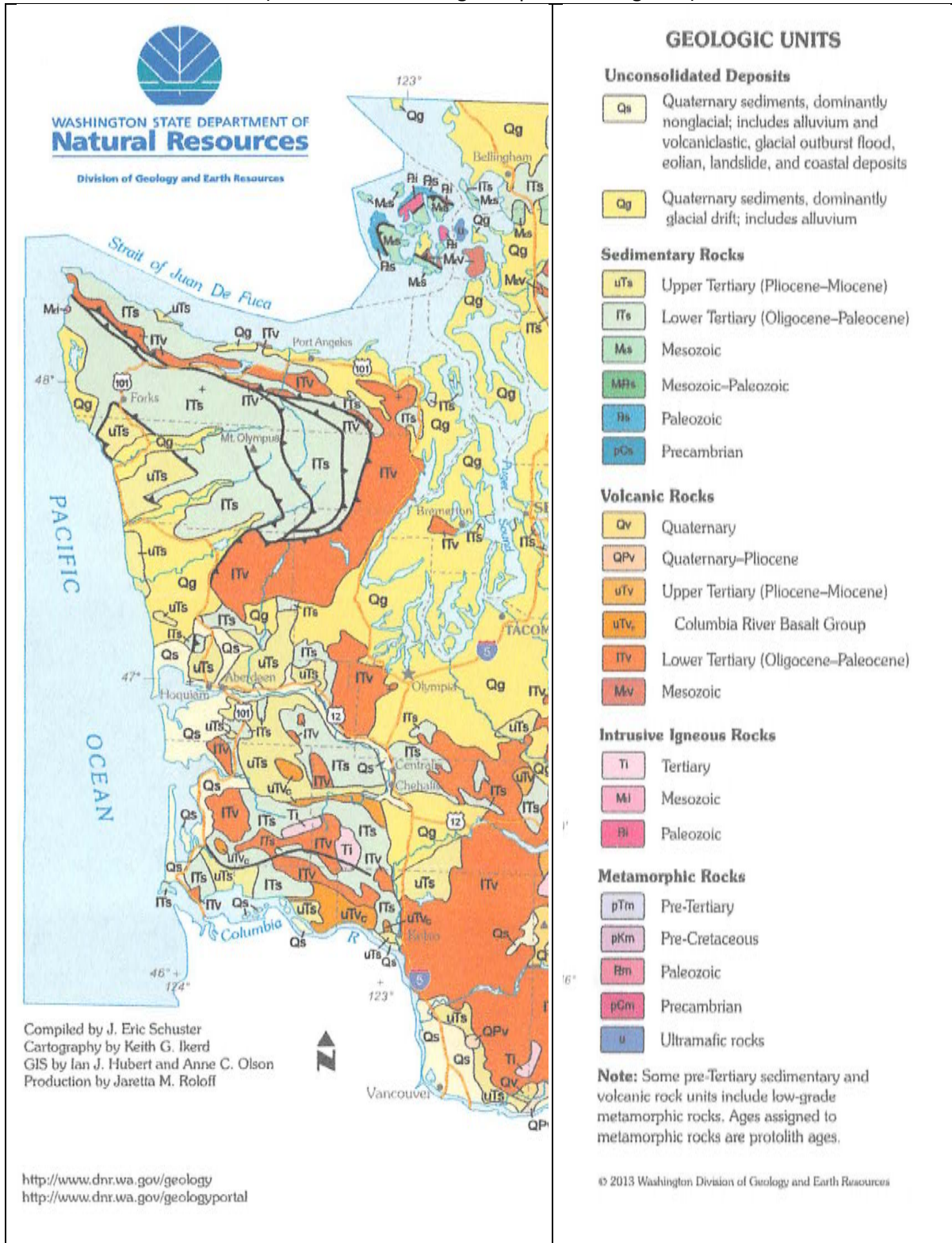
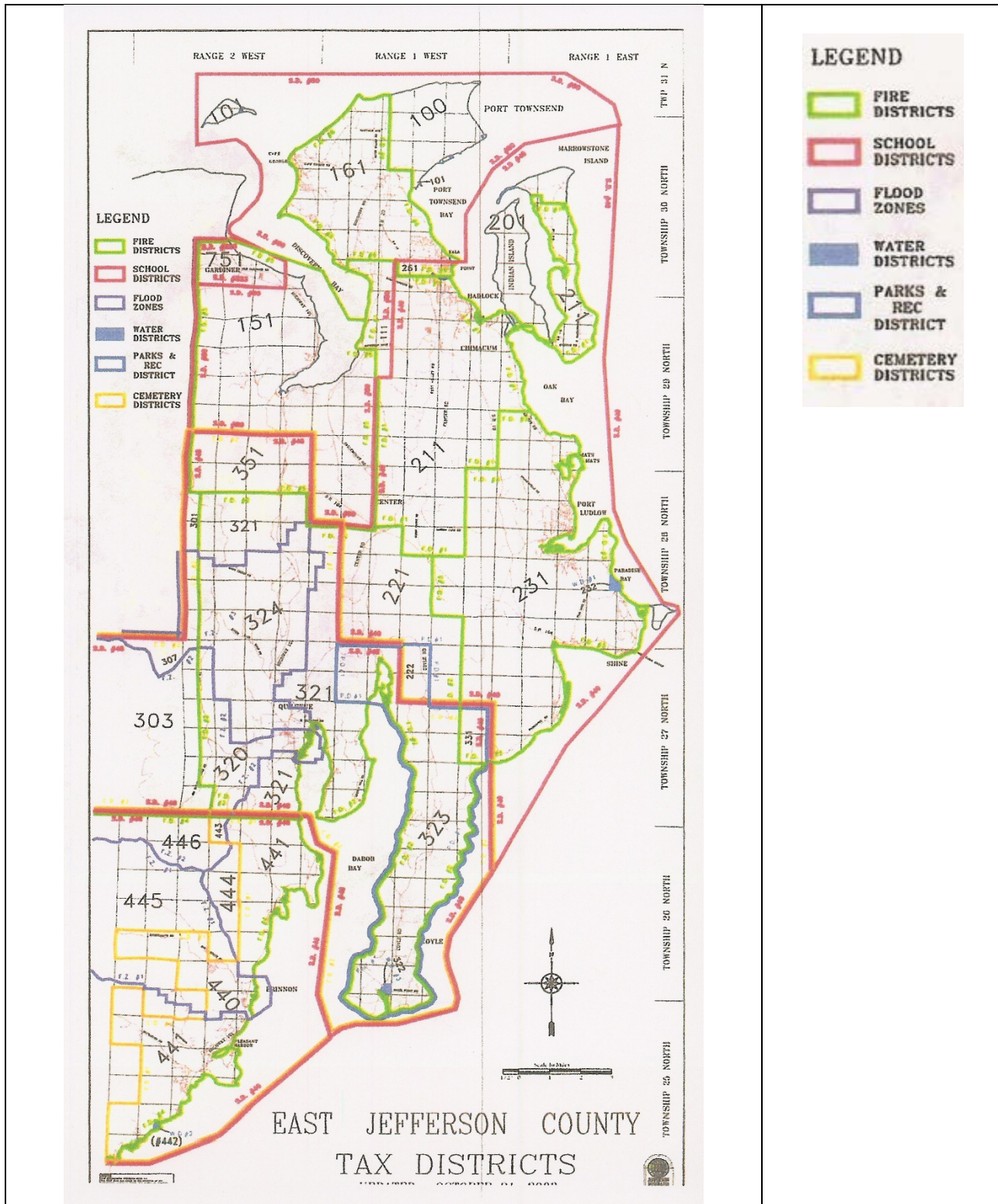




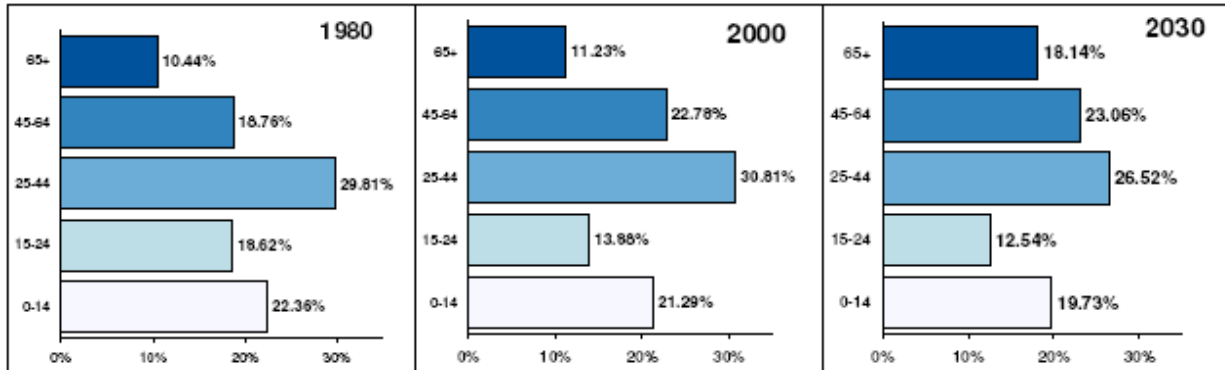
Figure J-3 East Jefferson County Taxing Districts



### Figure J-4 - Population Trend Maps

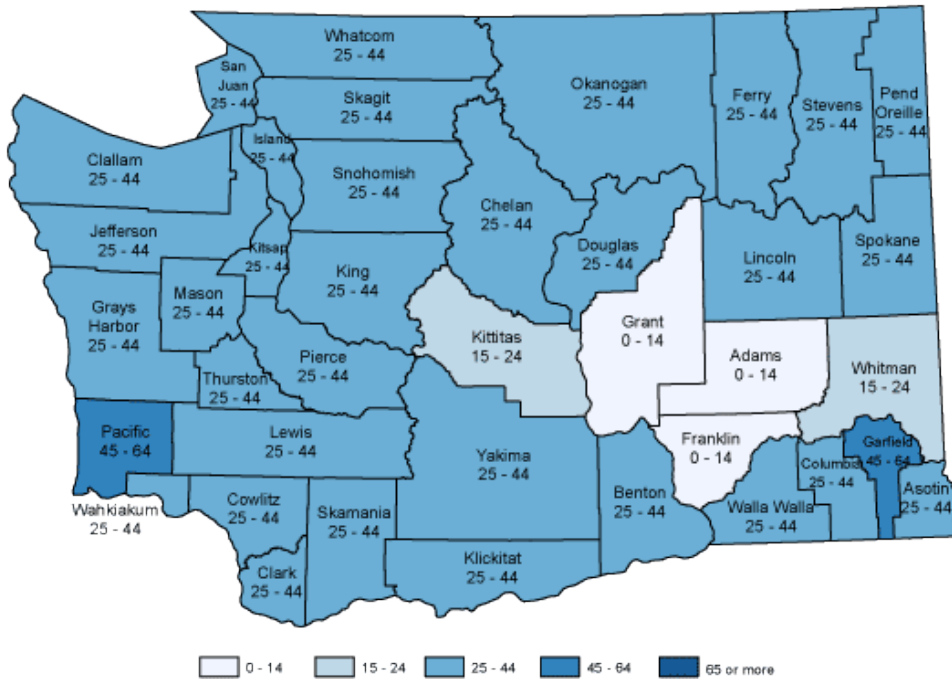
Over two decades there has been a discernible shift in the age make-up of the population. That shift is expected to continue in the decades reaching 2030. The overall trend is often described as the "graying" of the population.

#### Changing Age Mix in Total Washington State Population<sup>18</sup>



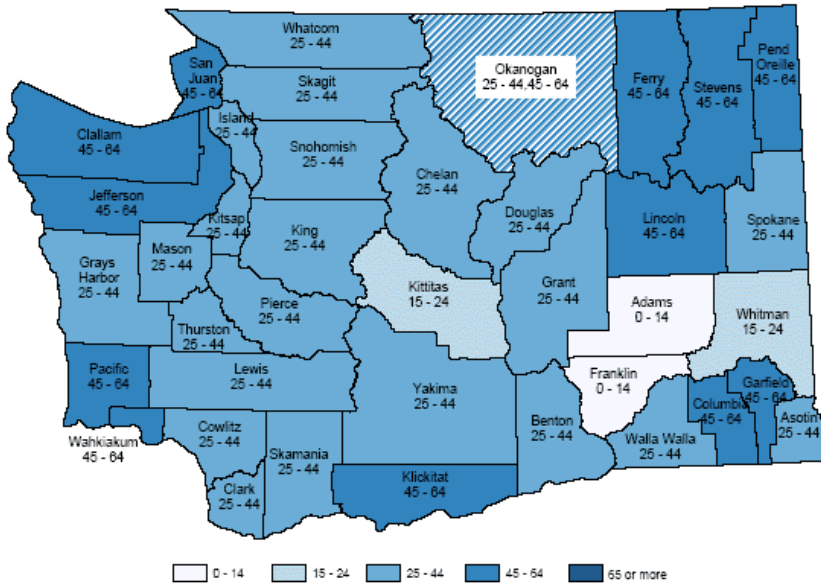
The above graphs show how Washington's population is getting older. The majority of the population for all years shown is in the 25 - 44 age group. However, while Washington's population grows, the percentage of people 45 and older gets larger, while the percentage of people 44 and under gets smaller. The changing age mix is shown in the maps below. **Note:** Counties with more than one most represented age group are given a hashed pattern with the colors from both age groups.

### Most Represented Age Group by County in 1980



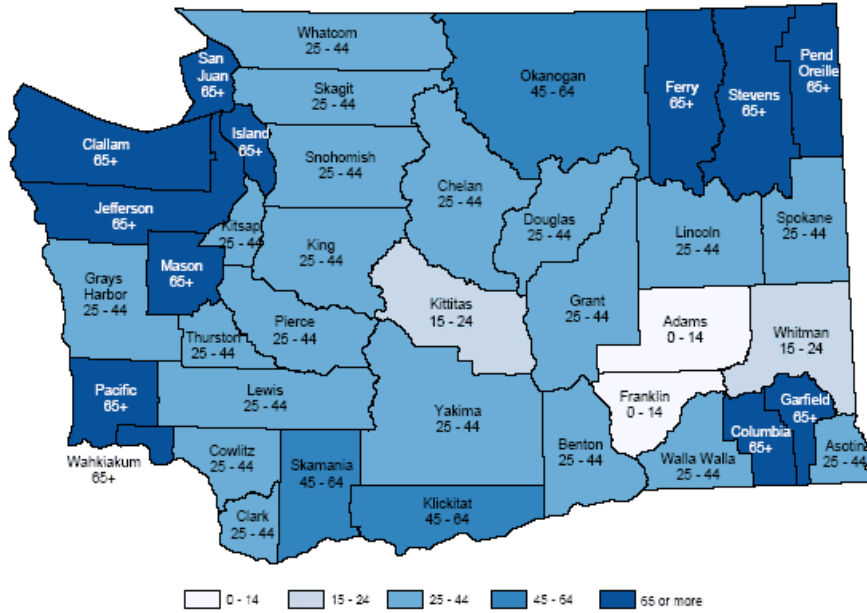
Source: WA Office of Financial Management  
<http://www.ofm.wa.gov/pop/coagemf/EST80-1989.xls>

### Most Represented Age Group by County in 2000



Source: US Census Bureau 2000 SF3, P008  
<http://www.census.gov/>

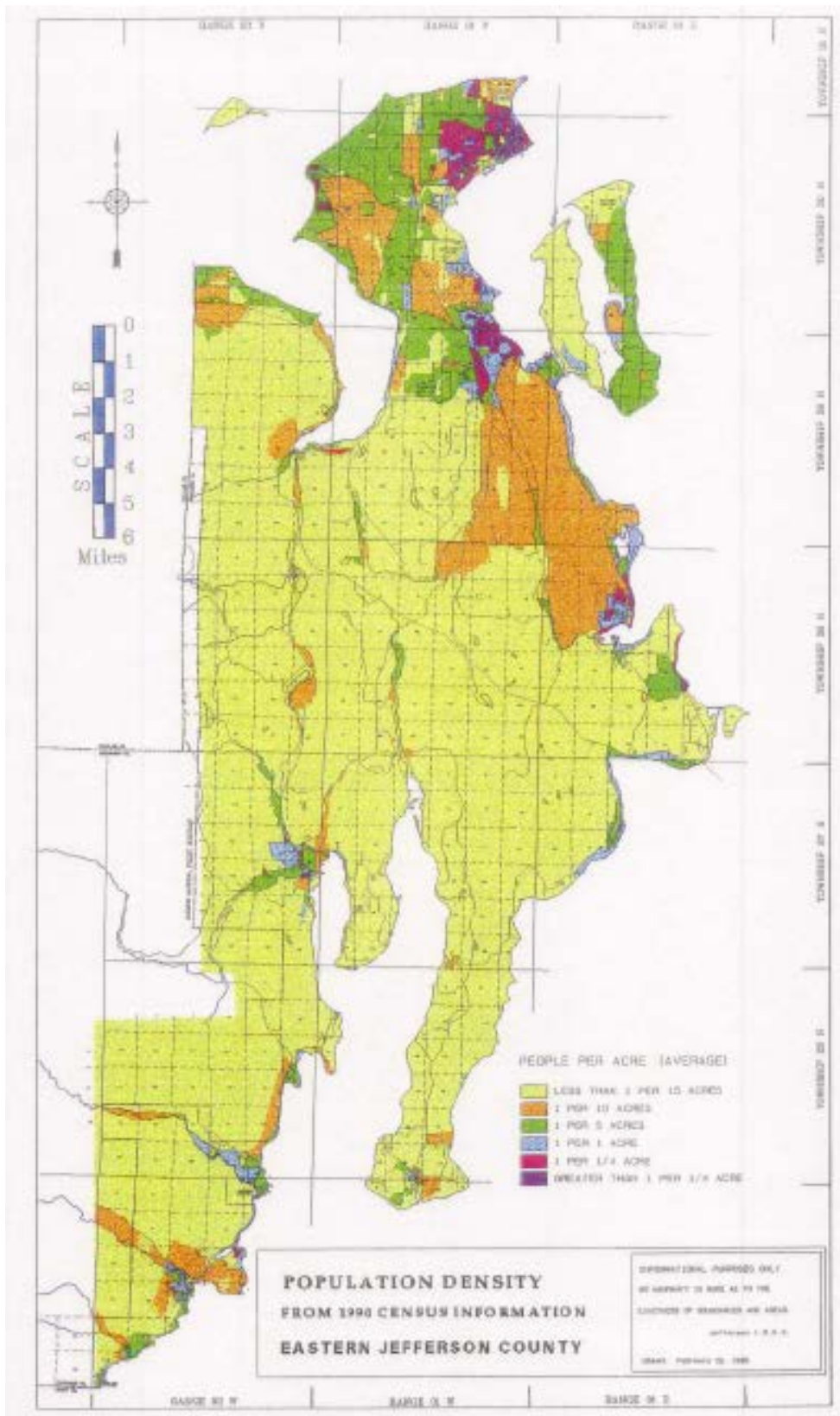
### Most Represented Age Group by County in 2030



Source: WA Office of Financial Management  
[http://www.ofm.wa.gov/pop/gma/county\\_age.xls](http://www.ofm.wa.gov/pop/gma/county_age.xls)



Figure J-5 – Population Density







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8. Ibid., 441
9. *Port Townsend The City that Whiskey Built*, Thomas W. Camfield, Ah Tom Publishing Inc., 2002, p. 256.
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11. Ibid.
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15. Ibid., 436.
16. “*Rain would ease drought conditions*”, By Philip L. Watness, Port Townsend Leader, November 6, 2002.
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18. *Changing Age Mix in Total Washington State Population*, Washington Office of Financial Management, 2009

## Tables

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- J-1 Major Disaster Declarations for Washington 1956-2016
- J-2 Representative Port Townsend Disasters

## Figures

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- J-1 Map of Jefferson County, Washington; Source: Jefferson County Department of Emergency Management
- J-2 Jefferson County & Vicinity Geology, Source: derived from the Geologic Map of Washington, Washington Division of Geology and Earth Resources, 2013
- J-3 Jefferson County Taxing Districts, GIS Department, Jefferson County Washington
- J-4 Population Trend Maps, Source: U.S. Census Bureau
- J-5 Jefferson County Population Density, Source: GIS Department, Jefferson County Washington
- J-6 Jefferson County Land Use Distribution, GIS Department, Jefferson County Washington, August 2012

# Climate Change

## Climate Change and Resiliency Considerations

*FEMA recognizes challenges posed by climate change, including more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels. These phenomena may have impacts on mitigation, preparedness, response, and recovery operations as well as the resiliency of critical infrastructure and various emergency assets. FEMA encourages Recipients and subrecipients to consider climate change adaptation and resiliency in their planning and scoping efforts<sup>1</sup>.*

FEMA recognizes that it is prudent for jurisdictions to be aware of and plan for more severe climatic events in the future, regardless of what they may be. In its 2011 *FEMA Climate Change Adaptation Policy Statement*, paragraph IV.A.5 states, “The current standards and guidance, based on today’s climate, may not anticipate the risks structures will face as the climate changes. Therefore, it is important to review guidance and standards to determine the feasibility of incorporating future climate change considerations, and encourage the integration of adaptation measures into local planning and development practices<sup>2</sup>.”

**The implications to participants of the Plan are that in the future:**

- 1. FEMA will require updated plans to address climate change in its planning, and**
- 2. Climate change factors will be included in Benefit / Cost Analysis for projects.**

Jefferson County and the City of Port Townsend are already proceeding down those lines as steadily as economic feasibility allows. In 2007, they issued a Joint Resolution (County Resolution 44-07<sup>3</sup>, City Resolution 07-022<sup>4</sup>), committing to reducing greenhouse gas emissions and empowering a joint City/County citizen’s committee to develop a Local Climate Action Plan.

In 2008, the County and the City issues a Joint Resolution (County Resolution 02-08<sup>5</sup>, City Resolution 08-001<sup>6</sup>) *Providing Composition Terms of Office and Procedural Rules for the Climate Action Committee* to create a Climate Action Plan (CAP) for the county.

This was followed in January, 2009 with a Joint Resolution (County Resolution 06-09<sup>7</sup>, City Resolution 09-002<sup>8</sup>) adopting an *Inventory of Energy Usage and Associated Greenhouse Gas Emissions, Backcasts, Forecasts, and Interim Targets & Approving Climate Change Committee Workplan*.<sup>9</sup>

In November, 2011, the County and the City adopted the *Climate Action Plan*<sup>10</sup> created by the Climate Action Committee, and proceeded to implement it. The policies and goals of the Climate Action Plan parallel that of the Federal and State governments and will show up in this and future hazard mitigation plans as policy changes and strategic development to enhance the resilience of the area.

## Climate Change Definition

The most general definition of *climate change* is a change in the statistical properties (principally its mean and spread) of the climate system when considered over long periods of time, regardless of cause. *Accordingly, fluctuations over periods shorter than a few decades, such as El Niño, do not represent climate change.*<sup>11</sup>

“The term sometimes is used to refer specifically to climate change caused by human activity, as opposed to changes in climate that may have resulted as part of Earth's natural processes.<sup>12</sup> In this sense, especially in the context of environmental policy, the term *climate change* has become synonymous with *anthropogenic global warming*. Within scientific journals, *global warming* refers to surface temperature increases while *climate change* includes global warming and everything else that increasing greenhouse gas levels affect.<sup>13</sup>”

**For the purposes of the *Jefferson County – City of Port Townsend Hazard Mitigation Plan (Plan)*, we will use the first definition rather than narrow our focus to only global warming.**

**It is not the purpose of this Plan to advocate a particular solution for global warming. Rather, it is the purpose of this Plan to identify the range of possibilities that can affect the natural hazards in Jefferson County and call those out so that the participants in the Plan can look at the issues that uniquely affect them and decide what is a reasonable adaptation to mitigate future harm to their jurisdiction.**

The conundrum that we face in evaluating climate change for the purposes of hazard mitigation is to first find rational predictors of the mean and spread of conditions or events that presage disaster conditions. That is a significant purpose of this document – to provide a summary of the best available science – and some outliers – that provide the reader with the possibilities and probabilities of the hazards identified as threatening Jefferson County jurisdictions.

Where possible, we will use estimates and probabilities relating to the local area. Our primary sources for this will be:

1. *Climate Action Plan for Port Townsend / Jefferson County Washington*, Adopted November 14, 2011
2. *Climate Change Preparedness Plan for the North Olympic Peninsula*, September 2015
3. *Best Available Science Report*, Jefferson County Critical Areas Ordinance Update, December 15, 2015
4. *Risk Report for Jefferson County including the City of Port Townsend and the Hoh Tribe*, January, 2016.

If we find other credible sources in addition to the above, we will use them too. Our goal is to present the range of possibilities for the next five years, so that participants in the Plan can update their strategies and implement them as quickly as economically feasible.

## Summary of Predictions

“It is increasingly apparent that the global climate is rapidly changing and that these changes will affect the people, ecosystems, economy, and culture of the North Olympic Peninsula. The most noticeable impacts will likely include:

- A diminishing snowpack lowering the region’s summer river flow and extending the summer drought season;
- Shifts in the timing and type of precipitation, creating rain on snow events and unseasonably high stream flows that scour river bottoms and flood low-land areas;
- Ongoing sea level rise driving coastal flooding, saltwater inundation, and enhanced shoreline erosion;
- Extended warm temperatures which result in increased river water temperatures, enhanced wildfire risk, decreased soil moisture, and stressed forests through disease and insect outbreaks; and
- Increasingly corrosive ocean waters (i.e. ocean acidification) from the ongoing absorption of human emissions of CO<sub>2</sub>.<sup>14</sup>

Table CC-1 presents a summary of the climate change predictions developed for the *Climate Change Preparedness Plan for the North Olympic Peninsula*.<sup>15</sup>

Table CC-1 - Climate Change Predictions for the North Olympic Peninsula <sup>15</sup>			
Climate Changes <sup>1</sup>	Observed Changes		Future Projections
<b>Temperature Averages</b> <i>(for Pacific Northwest)</i>	Warmed 1.3°F (1895-2011)		By 2050’s – between 4.3°-5.8°F average increase in all seasons.
<b>Temperature Extremes</b>	Increase in nighttime heat events.		Slight increase in days over 90°F (+8 days) for the Pacific Northwest (PNW), with limited increase in days over 95°F on the Olympic Peninsula <sup>2</sup> . Longer frost-free season (+35 days) across PNW.
<b>Precipitation Averages</b> <i>(for Pacific Northwest)</i>	No significant change in amount; region wide decrease in snowpack and glaciers.		Little average annual change – with drier summers (-6% to -8% average decrease). Continued declining snowpack with a significant loss of snowpack in Olympics by 2080 <sup>3</sup> .
<b>Precipitation Extremes</b>	Ambiguous		More heavy rainfall events: 13% (±7%) increase in days with >1 inch of rain.
<b>Future Sea Level Rise<sup>4</sup></b> <i>(probability that mean sea level will reach or exceed ____ feet at a given year)</i>	Neah Bay	50% chance of ≥ 0.3 feet (2050) and ≥ 1.3 feet (2100) 5% chance of ≥ 0.7 feet (2050) and ≥ 2.7 feet (2100)	
	Clallam Bay/Seki	50% chance of ≥ 0.3 feet (2050) and ≥ 1.3 feet (2100) 5% chance of ≥ 0.7 feet (2050) and ≥ 2.7 feet (2100)	
	Port Angeles	50% chance of ≥ 0.6 feet (2050) and ≥ 1.9 feet (2100) 5% chance of ≥ 0.9 feet (2050) and ≥ 3.3 feet (2100)	
	Port Townsend	50% chance of ≥ 0.9 feet (2050) and ≥ 2.4 feet (2100) 5% chance of ≥ 1.2 feet (2050) and ≥ 3.9 feet (2100)	
<b>Future Annual Coastal Flood Elevation<sup>5</sup></b> <i>(probability that mean sea level will reach or exceed ____ feet in a given year)</i>	Neah Bay	50% chance of ≥ 3.5 feet (2050) and ≥ 4.5 feet (2100) 5% chance of ≥ 4.4 feet (2050) and ≥ 6.2 feet (2100)	
	Clallam Bay/Seki	50% chance of ≥ 3.5 feet (2050) and ≥ 4.5 feet (2100) 5% chance of ≥ 4.4 feet (2050) and ≥ 6.2 feet (2100)	
	Port Angeles	50% chance of ≥ 2.6 feet (2050) and ≥ 3.9 feet (2100) 5% chance of ≥ 3.5 feet (2050) and ≥ 5.5 feet (2100)	
	Port Townsend	50% chance of ≥ 2.9 feet (2050) and ≥ 4.5 feet (2100) 5% chance of ≥ 3.8 feet (2050) and ≥ 6.1 feet (2100)	

Table CC-1 References
<p>1 Unless otherwise noted, climate observations and projections in this table are from; University of Washington, Climate Impacts Group, 2013. Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers. <a href="http://cses.washington.edu/cig/reports.shtml">http://cses.washington.edu/cig/reports.shtml</a></p> <p>2 Kunkel, K., Stevens, L., Stevens, S., Liqueang, S., Janssen, E., Wuebbles, D., Redmond, R., Dobson, J.G., 2013 Regional Climate Trends and Scenarios for the U.S. national Climate Assessment, NOAA Technical Report NESDIS142-6.</p> <p>3 Mantua, N., Tohver, I., Hamlet, A., 2009. The Washington Climate Change Impacts Assessment: Impacts of Climate Change on Key Aspects of Freshwater Salmon Habitat in Washington State. In The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate, Climate Impacts Group, University of Washington, Seattle, Washington. Available: <a href="http://cses.washington.edu/db/pdf/wacciach6salmon649.pdf">http://cses.washington.edu/db/pdf/wacciach6salmon649.pdf</a></p> <p>4 See section I.E. of this report, and Appendix C &amp; D, for more information on this Sea Level Rise modeling methodology and outcomes.</p> <p>5 Ibid. Source: Petersen, S., Bell, J., Miller, I., Jayne, C., Dean, K., Fougerat, M., 2015. Climate Change Preparedness Plan for the North Olympic Peninsula. A Project of the North Olympic Peninsula Resource Conservation &amp; Development Council and the Washington Department of Commerce, funded by the Environmental Protection Agency. Available: <a href="http://www.noprpd.org">www.noprpd.org</a></p>

The extensive effort to predict the natural and human influences on future changes in climate has been focused on how a number of the indicative climate variables (e.g., surface, air and ocean temperatures and precipitation) will change. Complex models of climate, validated by comparison with past observations, are driven by estimates of future societal energy use and variable natural inputs, such as solar radiation. No such model is perfect, so predictions from a number of models are combined to produce a best estimate and spread of how these climate variables will change in the future. Most hazards are rare events (low probability, high impact) and, thus not directly addressed by this type of model-ensemble prediction. Nevertheless, some trends predicted with great confidence by climate models do alter the likelihood of some hazards, such as the prediction of more frequent, more intense rainstorms increasing the probability of flooding, and drier summers increasing wildfire risk.

It is unfortunate that future climate change is sometimes labeled "global warming" because, although the most direct impact of increased greenhouse gas concentration in the atmosphere is warming of the globally averaged temperature, one of the most important consequences is an increase in weather variability. This is particularly relevant when considering hazard occurrence. As an example, increased storminess during the winter will cause more severe snowstorms and likely raise the danger of avalanches.

A final cautionary note is that while human-driven climate change is upon us and will continue, there are natural factors that can forestall, and even temporarily reverse, some of the eventual changes. Volcanoes are the most often cited example. Particles ejected into the upper atmosphere by volcanoes have repeatedly caused sufficient reductions in solar insolation to cool the planet. The cooling effect is temporary, typically lasting 3 years, but because the scope of this report is not much longer, the possibility of such cooling events cannot be ignored.

## Integration of Climate Change into Jurisdictional Planning

**The implications of current FEMA thinking to participants of the Plan are that in the near future:**

- 1. FEMA will require updated plans to address climate change in its planning; and**
- 2. Climate change factors will be mandatory in Benefit / Cost Analysis for projects.**

A reasonable approach needs to be to make rational choices based on each jurisdiction's needs and economic strength, and based on the best science available – but maintaining flexibility in case things change. Appendix A of the NOP R&CD report presents 30 pages of adaptive solutions that can be used to enhance strategic planning.<sup>16</sup> Figure CC-1 provides excerpts from the DRAFT *Port of Port Townsend Capital Repair & Replacement Plan (2016-2021)* as an illustration of how it can be worked into a jurisdiction's planning.<sup>17</sup>

**Figure CC-1 – Excerpts from DRAFT Port of Port Townsend Capital Plan (2016-2021)<sup>17</sup>**

### **A Note of Caution: Port Facilities & Climate Change Vulnerabilities**

The Port of Port Townsend, and the businesses that benefit from the infrastructure provided by the Port, substantially contribute to the economy of Jefferson County. However, with the exception of the Jefferson County International Airport, nearly all of the Port's facilities and infrastructure lies adjacent to the inland marine waters of Puget Sound. Consequently, most Port properties are highly vulnerable to future sea level rise (SLR) and increased storm intensity occasioned by man-made ("anthropogenic") climate change. Much is at stake, as some 150 businesses and nearly 500 jobs in Jefferson County depend upon Port land and infrastructure.

The best available science suggests that recurrent storm surge damage and inundation due to sea level rise (SLR), will likely degrade, severely compromise, or even destroy significant components of low-lying Port infrastructure over the coming century. Moreover, a recent study prepared as part of the North Olympic Peninsula Resource

Conservation and Development Council's project, "*Planning for Climate Change on the North Olympic Peninsula*" (September 2015), concluded that many Port facilities may be threatened by annual coastal flooding events by as soon as 2030. See Figures #5 and #6, on the following pages.<sup>4</sup> By mid-century, many Port facilities are likely to suffer from periodic inundation due to SLR coupled with storm surge and coastal flooding. By century's end (a mere 85 years in future), some Port properties are likely to be permanently inundated.



Although the precise timing of the arrival of severe impacts is difficult to predict, anthropogenic climate change will threaten the financial viability of the Port over the coming decades. In time, it will severely undermine our community's natural environment, public health, and economic wellbeing. Over coming decades, SLR and storm-related flooding will undoubtedly result in the closure of a number of businesses and key components of Port infrastructure (e.g., Boat Haven Storm Water System), either permanently or for significant periods of time.

Moreover, anticipated effects upon ecosystems will also impact Port tenants and facility users. These include: changes in ocean chemistry likely to affect Coast Seafoods in Quilcene, as well as the health of the Alaska fishery that indirectly contributes to businesses located at the Boat Haven Shipyard. Over the coming decades these changes may negatively impact Port leaseholders, as well as the Port's anticipated future revenue streams and financial health.

Although recovery from a single storm surge event may be possible and within the Port's financial capabilities, the longer-term concern is that the mounting costs of repairing and recovering from repeated storm surge events that inundate low lying areas could rapidly exhaust the Port's financial ability to mount an effective and coherent response. Longer-term, the questions are as follows:

- *At what point do the costs of repairing Port infrastructure after such shocks outweigh the benefits derived from such expenditures?*
- *At what point is it most prudent to turn away from "sunk" infrastructure costs and entirely re-imagine and reshape the nature, character, and level of complexity of Port operations?*

In sum, inevitable future physical changes suggest that continuing to "double" down on current facilities and infrastructure may be unwise in the coming years, and that the Port should begin to anticipate and prepare for the impacts of the environmental and economic damage expected from climate change.

The Port would benefit greatly from the development and consistent use of an analytical decision-making framework for climate change adaptation. This decision-making methodology would factor risks based on the best available science, and provide a quantitative cost-benefit analysis structure to support future capital expenditures. Development and use of such a tool would help the Commission and public to quantify and evaluate the estimated magnitude of costs, versus benefits, likely to be derived from repairing and rebuilding existing infrastructure, versus retreating.

Source: Port of Port Townsend <http://portofpt.com/planning/>

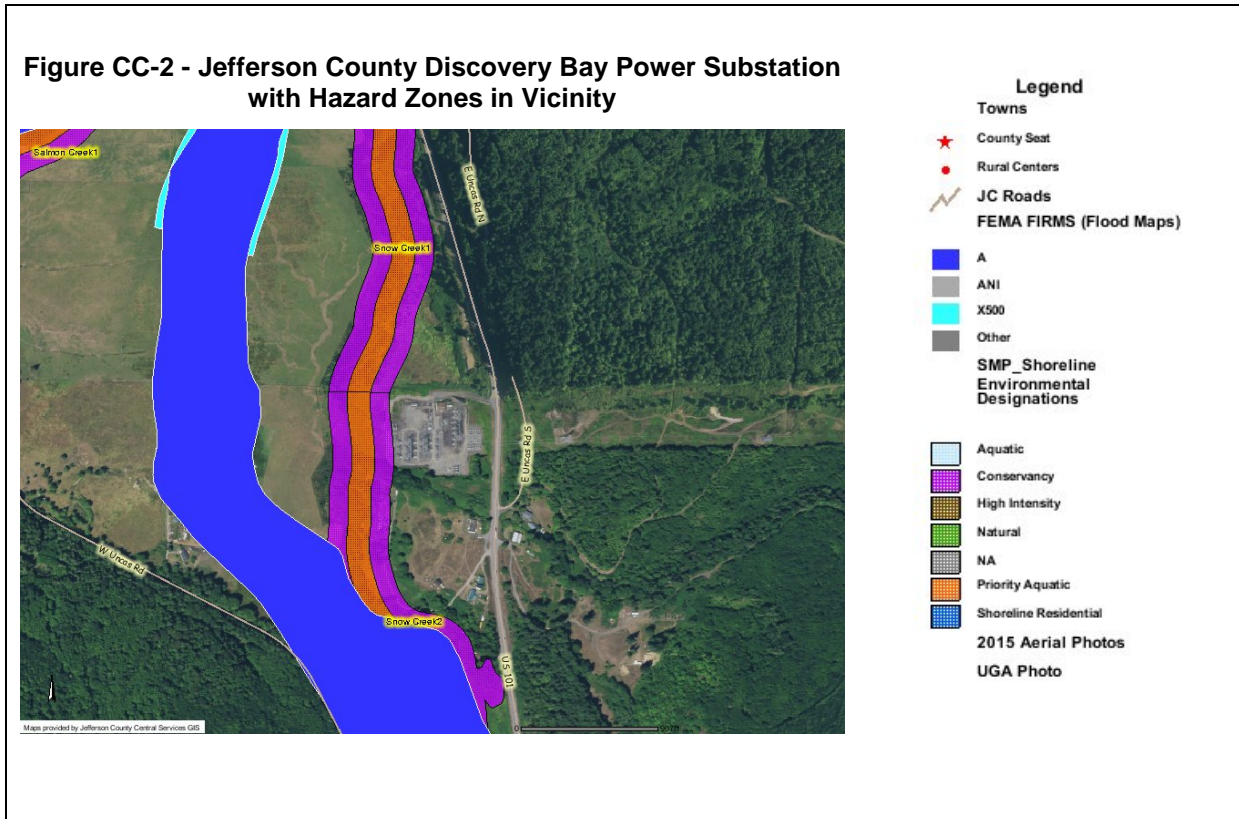
## How this document deals with climate change.

For each hazard, as appropriate, we added a "climate change" subsection that addresses what types of change may occur and how it can change the character of that hazard for our participants. Recommendations on how to deal with the climate change, whether from ad hoc reports or direct public input will be included in *Stakeholder/Citizen Suggested Mitigation Strategies and Projects* in **Section III, Multi-Jurisdiction / Multi-Hazard Mitigation**.



It is noteworthy that this Plan is an All-Hazards Plan and that the impact of some kinds of climate change will seriously affect what we have called “Man-made Hazards.” What happens, for example, when a tsunami or flood takes out the power sub-station at the bottom of Discovery Bay?

The FEMA Firm shown in Figure CC-2 below is from 1982; Preliminary Revised FIRMs released in February, 2016 show the A-zone to be right against the PUD substation, where the conservancy is marked in the 1982 FIRMs. The county does not have the new FIRMs in their database yet because the FIRMs are still going through the vetting process (September 2016).



***In the end, it will be up to each jurisdiction to decide what it can and can't do – and to prepare accordingly.***

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## Tables

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CC-1 Climate Change Predictions for the North Olympic Peninsula

## Figures

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CC-1 Excerpt from Port of Port Townsend Capital Plan (2015-2022)

CC-2 Jefferson County Power Substation with Hazard Zones in Vicinity

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# NATURAL HAZARD IDENTIFICATION

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# AVALANCHE<sup>1</sup>

## SUMMARY

**The Hazard:** An avalanche is a mass of sliding snow, ice, earth, and rock that grows and collects additional material as it descends.

**Previous Occurrences:** Records searches have revealed that there have been no recorded deaths from avalanches in the mountain areas of the county. There has, however, been minor avalanche damage to mountain roads.

**Probability of Future Events:** Low increasing to Medium - Avalanche fatalities in Washington are a function of resort activity. The increase of visitors to Wilderness areas of the Olympic national forest creates more opportunity for events to happen.

**NATURAL HAZARD RISK RATING:** The average natural hazard risk rating for avalanches for all districts in Jefferson County was estimated at 1.57, which would be considered extremely low.

## HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT

The Olympic Mountains receive extensive snow due to their size and orientation to the Pacific marine airflow. During seasons of heavy snow, some of the deepest recorded snow packs in the United States can be found in the Olympics. Beginning in November and lasting until the last remnants of snow have melted in early summer, the danger of avalanche is present. In the highest alpine areas of the Olympics, the avalanche season continues year around.

There are no developed ski areas in Jefferson County that would be endangered by avalanches; however back-packing, cross-country skiing and snowmobiling are widely practiced in the mountains of Jefferson County.

During fair spring weather the avalanche danger is generally lowest during the night and early morning hours when the surface snow freezes due to heat loss to the surrounding atmosphere. During the day, sun effects and warm air temperatures can rapidly melt and weaken surface snow layers and produce an increasing avalanche danger during the late morning and afternoon. Loose wet avalanche activity generally starts on east and southeast facing slopes receiving morning sunshine and progresses to the west and southwest facing slopes during the afternoon. Therefore, the safest time to cross potential avalanche terrain is during early morning hours before the surface snow begins to warm and weaken.<sup>2</sup>

During the period from 2010 thru 2015, tourist volume to the Olympic National Park increased from 2.8 million to 3.2 million per year.<sup>3</sup> As more people access these mountainous areas, the potential for injury and deaths increases. Losses are also potential for the timber industry as avalanches damage forests and higher-level mountain logging roads.

## CLIMATE CHANGE EFFECTS

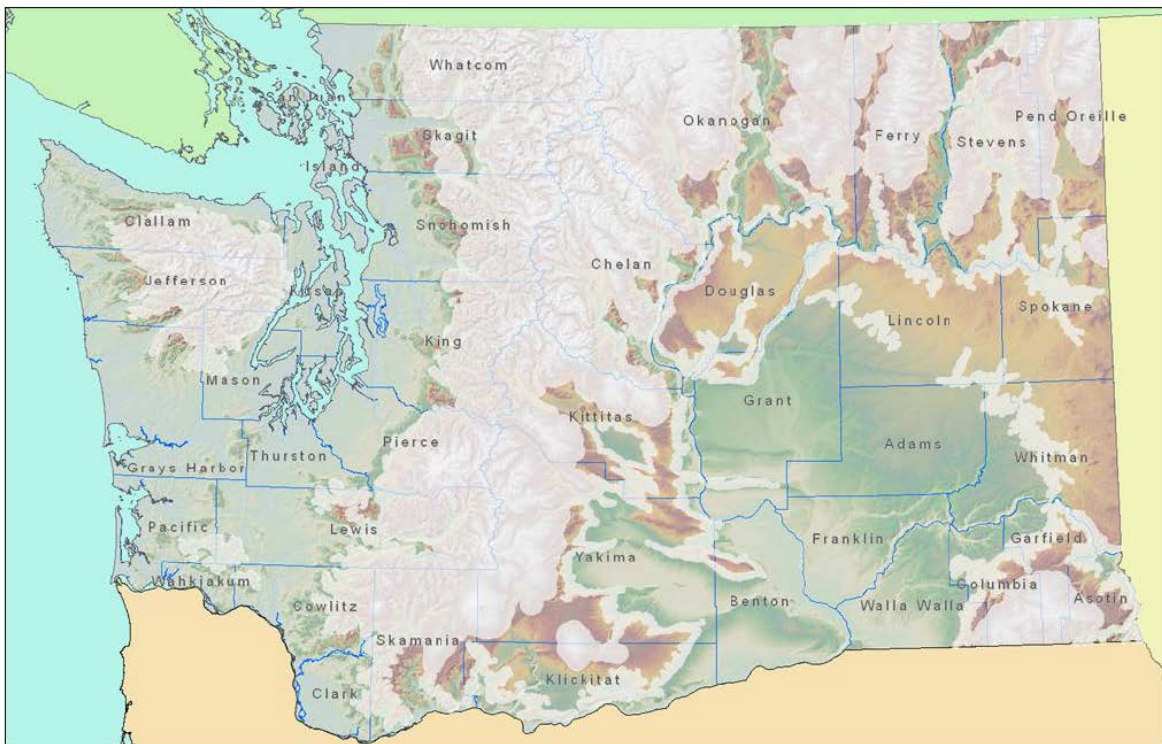
If the region sees a warming trend, there will more rain and less snow across mountainous regions, which will reduce the already low probability of avalanches in the Olympic Mountains that are part of Jefferson County.<sup>4</sup> This may also impact the economy regionally as reduced snowpack discourages winter sports enthusiasts from visiting Hurricane Ridge in the Olympic National Park.

If, within the next six years (from 2016), there are colder winters, the snow level could drop below 2000 feet for a longer portion of the year, encouraging greater winter tourism and creating more opportunities for avalanches within the Olympic mountains. Relative to other areas of the state that have a robust ski industry, the probability of deadly avalanches would increase but remain small.

## CONCLUSION

Jefferson County does not currently have significant transportation routes or recreation areas at risk and subsequently presents a very low probability associated with avalanches in Jefferson County at the current time. Figure AV-1 shows the current avalanche risk areas in the state in white.<sup>5</sup> Figure AV-2 enhances the avalanche risk areas by adding resort locations and highways at risk to the map.<sup>6</sup>

**Figure AV-1: Washington State Avalanche Hazard Areas<sup>5</sup>**



**Washington State Avalanche Hazard Areas:** White areas on the map indicate that those areas are at least 2,000 feet in elevation and most likely to be prone to avalanches. Avalanches can and do occur outside of these areas during unusual conditions.



**Figure AV-2: Washington State Areas Vulnerable to Avalanche with Resorts and Highways<sup>6</sup>**



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2. “*2016 Spring Avalanche Statement for the Olympic*”, by Kenny Kramer, Northwest Avalanche Center, April 2016
3. Olympic National Park, Annual\_Park\_Recreation\_Visitation (1904 – Last Calendar Year), United States Forest Service (USFS). Available at: [https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20\(1904%20-%20Last%20Calendar%20Year\)](https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year))
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5. *Washington State Avalanche Areas*, Source: Washington State Enhanced Mitigation Plan, 2013, Tab 5.2, “Avalanche Profile”, p.2
6. *Washington State Areas Vulnerable to Avalanches with Resorts and Highways*, Source: Washington State Enhanced Mitigation Plan, 2013, Tab 5.2, “Avalanche Profile”, p.14

## Figures - Avalanche

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- AV-1 *Washington State Avalanche Areas*, Source: Washington State Enhanced Mitigation Plan, 2013, Tab 5.2, “Avalanches”, p.2
- AV-2 *Washington State Areas Vulnerable to Avalanches with Resorts and Highways*, Source: Washington State Enhanced Mitigation Plan, 2013, Tab 5.2, “Avalanche Profile”, p.14

## DAMAGING WINDS

### SUMMARY

**The Hazard:** Damaging winds are a result of an atmospheric disturbance manifested in strong winds, tornadoes, rain, snow, or other precipitation, and often accompanied by thunder or lightning. The National Weather Service defines high winds as sustained winds of 40 mph or gusts of 58 mph or greater, not caused by thunderstorms, expected to last for an hour or more.<sup>1</sup> Areas most vulnerable to high winds are those affected by a strong pressure difference from deep storms originating over the Pacific Ocean; an outbreak of very cold, Arctic air originating over Canada.

**Previous Occurrences:** The worst damaging winds on record occurred in the 1962 Columbus Day Storm in which winds of hurricane force hit the Northwest, and resulted in damage to the Hood Canal Bridge.<sup>2</sup> Peak gusts of 160 mph hit the Washington coast, and 138 mph hit Corvallis, Oregon. In February, 1979, sustained winds of 80 mph with gusts up to 120 mph caused the Hood Canal Bridge to collapse.<sup>3</sup> Storms have been so severe in recent years that Presidential Disaster Declarations have been issued in 2007, 2008, 2009 (2), 2015 and 2016(2).



Hood Canal Bridge in a Windstorm. Unknown Date



Hood Canal Bridge – February 13, 1979 (WSDOT)

**Probability of Future Events:** High - Jefferson County experiences damaging winds every year during the storm season from October to April. The average hazard rating developed by Jefferson County jurisdictions is 31.26, which is the highest of all the hazards surveyed, thus showing that damaging winds are a regular and significant concern.

### HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT

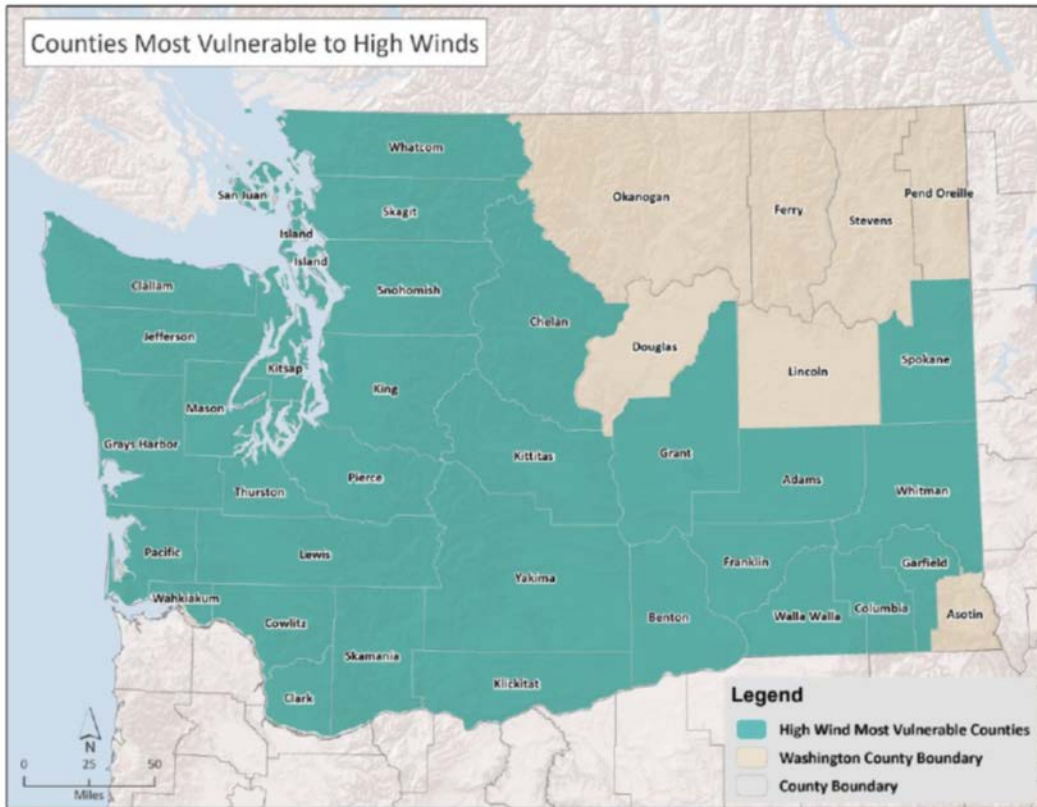
Most storms move into Washington from the Pacific Ocean with a southwest to northeast airflow. Maritime air reaching the Olympic Mountains rises upwards and cools. As this airflow reaches higher elevations and cools, there is less ability to hold moisture and precipitation occurs. Impacts and effects include loss of life damage to homes, businesses and critical transportation infrastructure; loss of timber resources; delays in emergency responses; damage or loss of recreation facilities; disruption of utilities; loss of jobs due to damaged equipment and facilities; school closures and business closures resulting in economic impacts.

Jefferson County is subject to several severe local storms each year. As shown in Figure DW-1, Jefferson County is one of the most vulnerable counties in the state when it comes to damaging windstorms.<sup>4</sup> These storms have included high wind, snow, ice, rain, and hail. Snowstorms or blizzards are the most likely and potentially devastating phenomena, with the ability to isolate people from emergency services and to interrupt utility services and other lifelines. In 1996-1997,

snowstorms were also associated with other natural hazards such as flooding and landslides.

In 2013, the Public Utility District No. 1 of Jefferson County (JPUD) purchased the assets of Puget Sound Energy in Jefferson County, thus entering into the business of providing electricity to the majority of Jefferson County. Since 2015, JPUD has had a volunteer liaison on the Jefferson County Incident Management Team who is present at all activations of the Jefferson County Emergency Operations Center. This has greatly improved coordination among agencies dealing with storm damage and live wires.

**Figure DW-1: Wind Storm Risk in Washington State<sup>4</sup>**



**CLIMATE CHANGE EFFECTS**

As global temperatures rise, the oceans heat up and expand. This provides fuel to increase the power of storms. The northern hemisphere will get more storms and more super storms because of changes in heat transport due to fresh water melt impeding the Thermohaline Circulation (THC).<sup>5</sup> The focus has been on Atlantic storms because the fresh water melt from Greenland glaciers have been well-studied, but the potential for Pacific storms to become more powerful is present, too.

Currently, there is too much natural variability in wind speeds and storm events to be able to make specific projections of future changes to the direction, intensity, or patterns of winds in the region.<sup>6</sup>

## **Conclusion**

Damaging windstorms are a fact of life in Jefferson County, which experiences multiple severe storms every year. The Department of Emergency Management meets with JPUD, and the city and county public works departments for pre-storm season planning and coordination. JPUD has a liaison on the county's Incident Management Team.

The civilian population should be encouraged to have a "storm kit" to be able to sustain themselves for multiple days without power for heating and cooking in the event a severe storm causes power outages.

## References – Damaging Winds

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## Figures – Damaging Winds

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DW-1 *Wind Storm Risk in Washington State*

# Drought

## SUMMARY

**The Hazard:** Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems.

The National Weather Service defines drought as a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area.<sup>1</sup>

**Impacts and Effects:** In the event of a drought year, the adverse impacts to the local economy can present a broad array of effects to include the following: adverse impact on agriculture, especially dry land farms and grazing lands, increased danger of fires, loss of timber resources and resulting unemployment, serious impacts to recreation areas, soil erosion resulting in heavy silting of streams resulting in damage to salmon and other fishing, shortages of hydroelectric power resulting in higher prices, imposition of water conservation measures, curtailment of industries using large quantities of water causing unemployment, shortages of water for firefighting, increased prices for local produce.

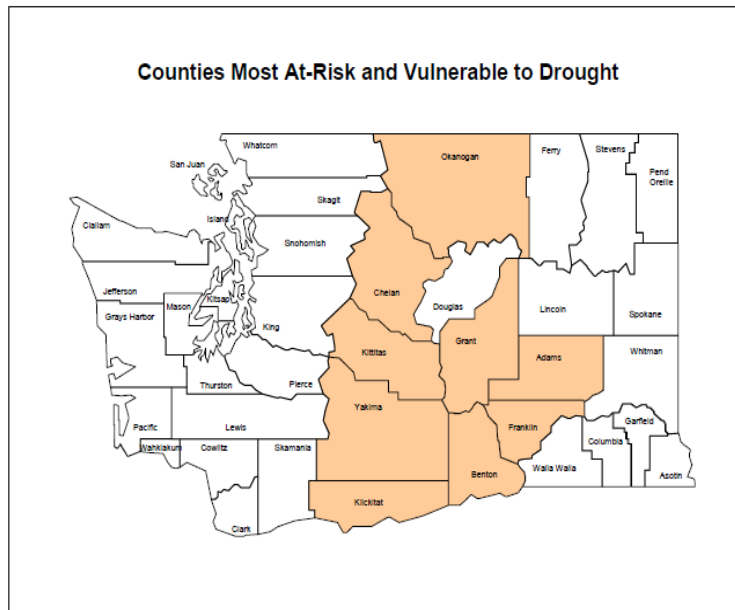
**Previous Occurrences:** The last significant occurrence in Jefferson County was in 2002 through 2003. Two of the driest summers on record—one of five driest winters in past 100 years. Port Townsend Paper Corporation curtailed some operations, and fishing was halted on rivers on the Olympic Peninsula. In 2014 and 2015, drought conditions caused the City of Port Townsend to limit the watering of lawns, but conditions never reached the threshold at which the paper mill would have had to curtail operations.

**Probability of Future Events:** Moderate - Climatic changes may be impacting the frequency and duration of drought conditions on the Olympic Peninsula.

**Natural Hazard Risk Rating:** The average natural hazard risk rating for drought for all districts in Jefferson County was estimated at 9.8, which would be considered low to medium-low. Figure DR-1, below, shows that Jefferson County is not among those Washington counties that are most at-risk and vulnerable to drought.<sup>2</sup> It used to be a joke among Jefferson County fire districts that the Olympic Peninsula was nicknamed “the silicon forest”, not because of high tech companies, but rather because it would never burn during fire season.



**Figure DR-1 Counties Most At-Risk and Vulnerable to Drought<sup>2</sup>**



**Definition:**

Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems. The severity of drought is measured by the Palmer Index in a range of 4 (extremely wet) to -4 (extremely dry). The Palmer Index incorporates temperature, precipitation, evaporation and transpiration, runoff and soil moisture when designating the degree of drought.<sup>3</sup>

In the most general sense, drought originates from a deficiency of precipitation over an extended period, resulting in a water shortage for some activity, group, or environmental sector.

Unlike most states though, **Washington has a statutory definition of drought (Revised Code of Washington Chapter 43.83B.400).**<sup>4</sup> According to state law, an area is in a drought condition when the water supply for the area is below 75 percent of normal, and water uses and users in the area will likely incur undue hardships because of the water shortage.

Drought affects water levels for use by industry, agriculture, individual consumers, and recreation areas. Water shortages affect fire-fighting capabilities through reduced flows and pressures. Drought also affects power production; much of Jefferson County’s power is produced by hydroelectric dams. When water levels drop, electric companies cannot produce enough power to meet demand and are forced to buy electricity from other sources and higher costs are passed to all consumers.

**History of Drought in Jefferson County**

Drought has not been a serious and frequent hazard for Jefferson County. There have indeed been years that have been exceptionally dry; however there has not been any recent history of several consecutive years where rainfall has been non-existent. Table DR-1 below, lists the most significant droughts affecting the State of Washington, including Jefferson County, since 1930.



<b>Table DR-1: Significant Droughts in Jefferson County and Washington State Since 1900<sup>5</sup></b>	
<b>Date</b>	<b>Occurrence</b>
July-Aug 1901	No measurable rainfall in western Washington from July 23 to August 25.
August 1919	Occurred primarily in Western Washington
July – August 1921	Drought occurred in all agricultural sectors.
June – August 1922	From June 10 to August 10, the statewide precipitation average was only .10 inch.
March – Mid-August 1924	There was a total of 1,532 fires, causing 322,691 acres to burn and destroying 25.3 million board feet of timber.
July 1925	1,275 fires burned 142,355 acres which destroyed 69 million board feet of timber. Wheat and oat crop production was 73 percent and 81 percent of normal, respectively.
June 21 – August 25, 1926	Little or no rainfall reported. 1553 fires burned 375,010 acres. Fire costs greater than any other year.
August 1928 – March 1929	Drought unusually long and severe. Most stations reported less than 60% of normal rainfall for the entire period.
July-Aug 1930	Drought affected the entire state. Most weather stations averaged 10 percent or less of normal precipitation.
April 1934-March 1937	The longest drought in the region's history - the driest periods were April-August 1934, September-December 1935, and July-January 1936-1937
May-Sept 1938	Driest growing season in Western Washington.
1952	Every month was below normal precipitation except June. The hardest hit areas were Puget Sound and the central Cascades.
Jan-May 1964	Drought covered the southwestern part of the state. Precipitation less than 40
Spring, 1966	The entire state was dry.
June-August 1967	Drought occurred in Washington.
Oct 1976- Sept 1977	Worst drought in Pacific Northwest history. Below normal precipitation in Olympia, Seattle, and Yakima. Puget Sound precipitation levels averaged between 30 and 70% of normal, temperatures were higher than normal which resulted in algae growth and fish kills.
Oct 1991-Sept 1994	Stream flows were between 30 and 60% of normal. Agriculture products suffered greatly.
2001	On March 14, 2001, Gov. Gary Locke authorized the Department of Ecology to declare a statewide drought emergency; Washington was the first Northwest state to make such a declaration, which remained in effect until December 31,
2002-2003	Two of the driest summers on record—one of five driest winters in past 100 years. Port Townsend Paper Corporation curtailed some operations, and fishing was halted on rivers on the Olympic Peninsula
2009	One of the driest summers on record failed to adequately recharge Port Townsend's reservoir - City Lake. The city was within days of invoking drought procedures that would have stopped operations at the Port Townsend Paper Corporation (PTPC). In 2009, PTPC was so frail that any stoppage could have been the tipping point to force it into bankruptcy again.

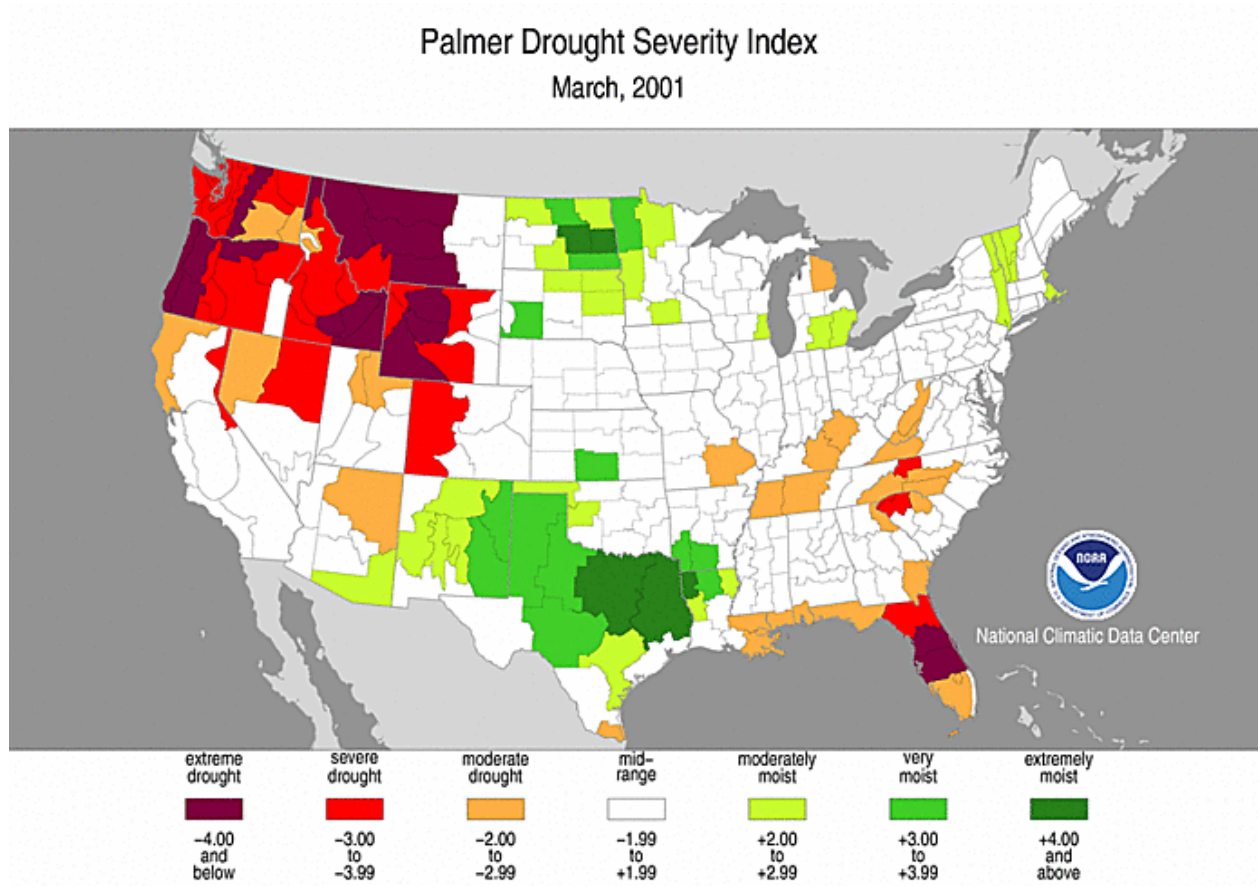
<b>Table DR-1: Significant Droughts in Jefferson County and Washington State Since 1900<sup>5</sup></b>	
<b>Date</b>	<b>Occurrence</b>
2014-2015	Characterized as a “snowpack drought”, Governor Inslee declares drought on March 13, 2015 in nine water resource inventory areas (WRIA). Each of WRIA 17, WRIA 20 and WRIA 2 include portions of Jefferson County.

**2001 Drought Emergency**

On March 14, 2001, Gov. Gary Locke authorized the Department of Ecology to declare a statewide drought emergency; Washington was the first Northwest state to make such a declaration, which remained in effect until December 31, 2001.

The central part of the state, from the crest of the Cascade Mountains to the east banks of the Okanogan and Columbia Rivers, suffered the most from water shortages.

The Palmer Drought Index for March 2001 (Figure DR-2) graphically displays the height of drought conditions in Western Washington.<sup>6</sup> These maps provide a comparison of drought conditions in Washington with those in the rest of the lower 48 states at the time.



**Figure DR-2 Palmer Drought Index – March 2001**

The scale used for the Palmer Drought Index characterizes severe drought as having likely crop or pasture losses, very high fire risk, water shortages common with water restrictions imposed. An extreme drought has major crop and pasture losses, extreme fire danger, and widespread water shortages or restrictions.

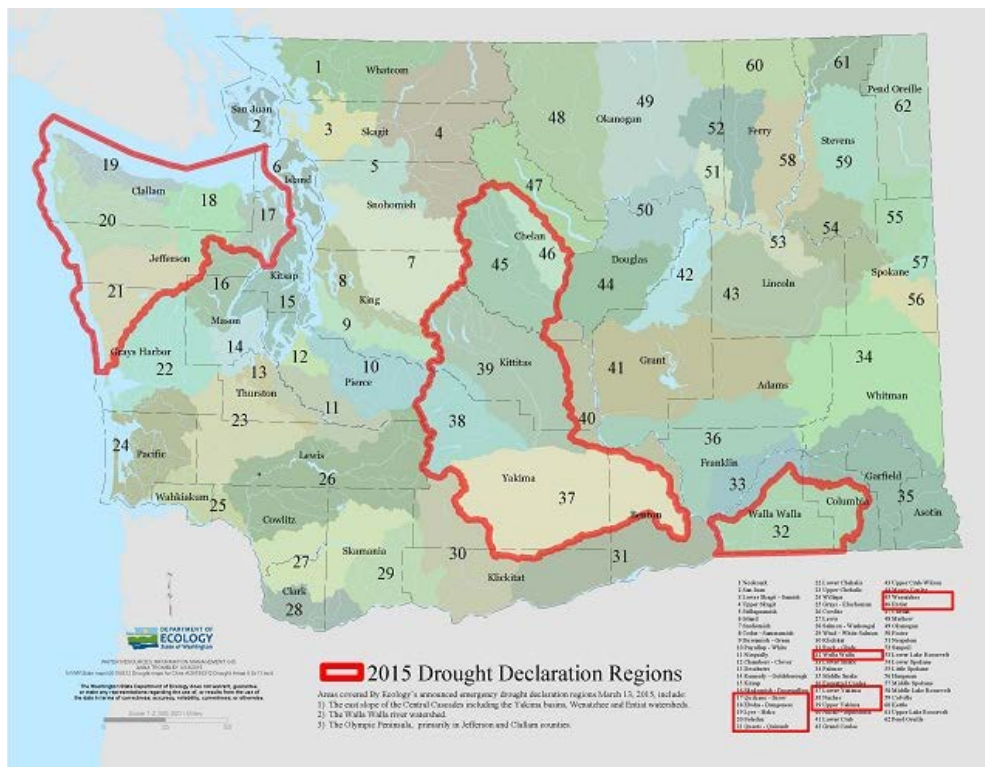
During this period the Port Townsend Paper Mill shut down to conserve the community's water supplies, thus electing to trade the stress of a short unemployment period for the overall community's need for water.

**2014-2015 Drought Emergency**

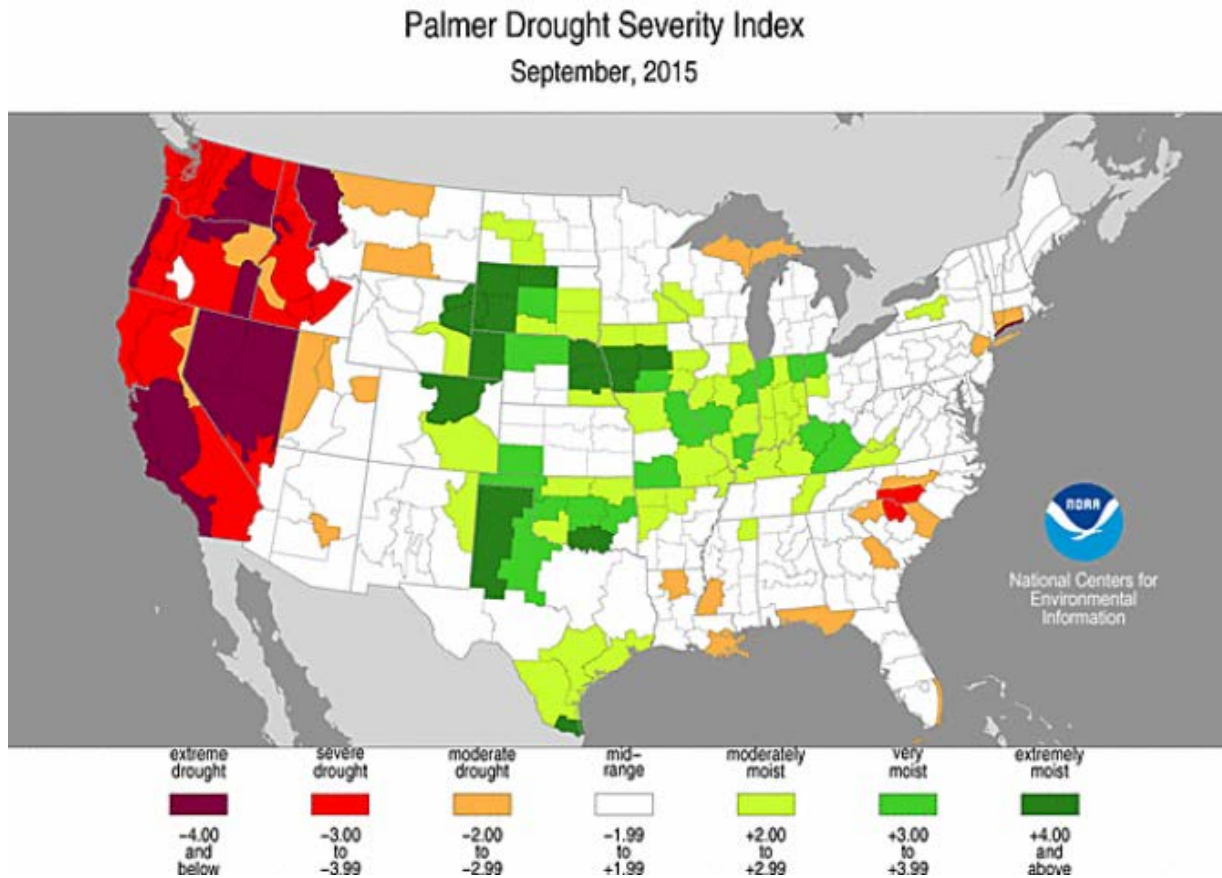
A warm winter in 2014 gave indications that 2015 would be a poor water supply year. By February of 2015, it was clear that the snowpack would not rebound sufficiently. Based on April – September forecasts, the Washington State Association of Counties (WSAC) identified three areas in Washington, including the Olympic Peninsula that would meet the statutory definition of a drought. Based on recommendations, Governor Inslee directed Ecology to declare a drought for the three areas, the East Slope of the Central Cascades, The Olympic Peninsula, and the Walla Walla Basin. Figure DR-3, below, shows the areas of the drought declaration.<sup>7</sup> Figure DR-4 shows the Palmer Drought Index at the peak of the drought for Jefferson County.

Considered full at 40 feet, the Lords Lake Reservoir, water supply for Port Townsend, dropped precipitously. In July the city declared a Stage 1 drought emergency, which required conservation by citizens. By November, 2015, Lords Lake had dropped to 8' 5", and was approaching the level at which the City would activate agreements with Port Townsend Paper to curtail operations. Port Townsend uses approximately one million gallons of water per day; Port Townsend Paper uses 10 million gallons per day from the same sources. Fortunately, heavy rains in December, January and February 2016, broke the drought and brought the reservoir back up to full.

**Figure DR-3 - 2015 Drought Declaration Regions<sup>7</sup>**



**Figure DR-4 – Palmer Drought Index for September 2015<sup>8</sup>**



### Hazard Assessment and Vulnerability Assessment

The most direct impact of drought is economic rather than loss of life or immediate destruction of property. Droughts impact individuals, the agricultural industry, and other related sectors including fishing and recreation.

There is increased danger of wildland fires associated with droughts. Low stream levels have affected reservoirs and hydroelectric power resources, bringing less inexpensive electricity from dams and potentially higher electric bills. Water intensive industries such as Port Townsend’s pulp and paper mill may be forced to curtail some operations in times of severe drought as they did in the drought of 2002.

Oftentimes drought is accompanied by extreme heat. Low stream flows combined with high temperatures, oxygen depletion, disease and lack of spawning areas have severely impacted fish resources within the county.

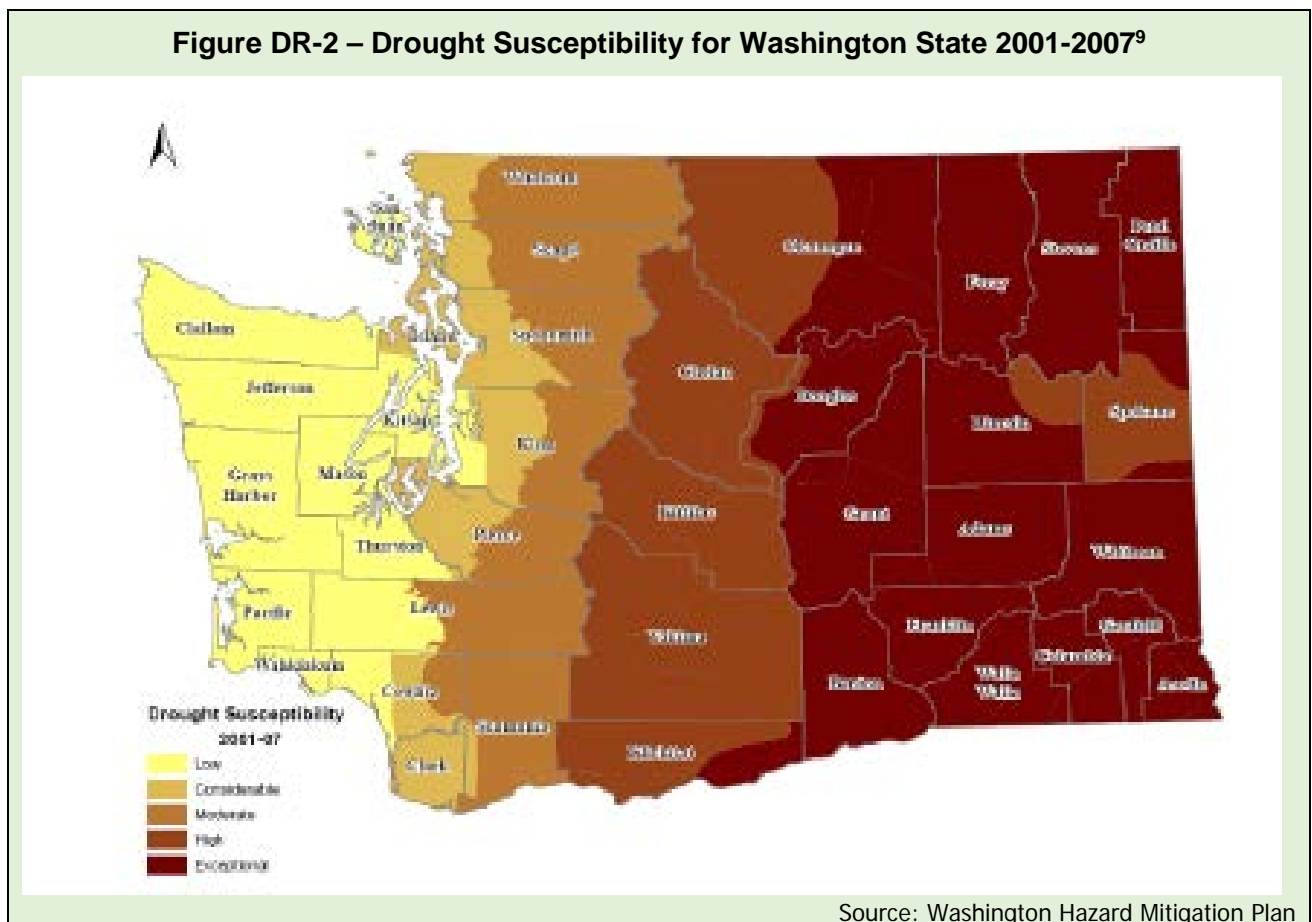
Problems of domestic/municipal water supplies have been historically corrected by the addition of a reservoir, a larger pipeline, a new well, or some other facility. Short-term measures including water conservation practices and using large capacity water tankers to supply domestic potable water have been used. Forest fires, erosion, crop loss, price increases, low water level contamination in shallow wells, power outages, dry pastures, logging shutdowns, and fish kills have been experienced in Jefferson County during times of drought.

All of the above effects result in economic and revenue losses for county residents, and the state.

## Climate Change

Little average annual change – with dryer summers (-6% to -8%) average decrease. Continued declining snowpack with significant loss of snowpack in Olympics by 2080<sup>10</sup>. This has the potential to damage the local economy. The City of Port Townsend and Port Townsend Paper Mill, together, use 11 million gallons of water per day taken from Lords Lake and the Big Quilcene River. The WRIA that recharges the rivers in the summer is dependent on a good snowpack during the winter. If the snowpack is small, there is a possibility for drought conditions to occur in the summer until the rainy season restarts. The City has an agreement that if Lords Lake drops to a minimum depth, the mill curtails operations until the water level comes back. This has the potential to cause the mill, the county's largest private employer, significant economic stress.

As Figure DR-2 shows, the Quimper Peninsula in Jefferson County has considerable susceptibility for drought.



## Conclusion

The Washington Hazard Mitigation Plan identifies the counties most at-risk and vulnerable to drought as those with a significant agriculture base. Accordingly, Jefferson County's risk and vulnerability are low to moderate, depending on the economic climate for paper and wood products at the time.



## References – Drought

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2. “*Counties Most At-Risk and Vulnerable to Drought*”, Washington State Enhanced Mitigation Plan, October 2012, Tab 5.3, “Drought Profile”, p.11
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10. Washington State Department of Transportation (WSDOT), 2011. *Climate Impacts Vulnerability Assessment*. PAGE 8 <http://www.wsdot.wa.gov/NR/rdonlyres/B290651B-24FD-40EC-BEC3-EE5097ED0618/0/WSDOTClimateImpactsVulnerabilityAssessmentforFHWAFinal.pdf>

## Figures – Drought

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- DR-1 “*Counties Most At-Risk and Vulnerable to Drought*”, Washington State Enhanced Mitigation Plan, October 2012, Tab 5.3, “Drought Profile”, p.11
- DR-2 “*Palmer Drought Index – March 2001*”, National Climatic Data Center – National Oceanic and Atmospheric Administration, August 2016. Available at: <http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/200103-200103>
- DR-3 “*2015 Drought Declaration Regions*”, 2015 Wa Drought Map Gov Declaration.png.
- DR-4 “*Palmer Drought Index – September 2015*”, National Climatic Data Center – National Oceanic and Atmospheric Administration, August 2016. Available at: <http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers/psi/201509-201509>

## Tables – Drought

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DR-1 “*Significant Droughts in Jefferson County and Washington State since 1900*”, Jefferson County Department of Emergency Management, 2016.

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## EARTHQUAKES<sup>1</sup>

### IMPACTS & EFFECTS

- *Loss of life*
- *Loss of property*
- *Injuries resulting in long term disabilities*
- *Loss of jobs due to damaged equipment and facilities*
- *Landslides and debris avalanches*
- *Disruption of utilities*
- *Disrupted functionality of critical facilities including hospitals, fire stations, schools, power, communications, fuel delivery, and transportation*
- *Disruption of the local economy and government*
- *Disruption of water and food lifelines*

### Definition

An earthquake is ground shaking caused primarily by an abrupt shift along a fracture in the earth, called a fault. The earth's crust is divided into eight major pieces (or plates) and many minor plates. These plates are constantly moving, very slowly, over the surface of the globe. As these plates move, stresses are built up in areas where the plates come into contact with each other. Within seconds, an earthquake releases stresses that have slowly accumulated within the rock, in some instances over hundreds of years. Sometimes the release occurs near the surface, and sometimes it comes from deeper faults.

Although earthquakes are caused mostly by rupture of geological faults, they can also be caused by other events such as volcanic activity, landslides, mine blasts, and nuclear tests. An earthquake's point of initial rupture is called its focus or hypocenter. The epicenter is the point at ground level directly above the hypocenter<sup>2</sup>.

“The severity of an earthquake is described by both *magnitude* and *intensity*. These two frequently confused terms refer to different, but related, expressions. *Magnitude*, usually expressed as an Arabic numeral characterizes the size of an earthquake by measuring indirectly the energy released. By contrast, *intensity* indicates the local effects and potential for damage produced by an earthquake on the Earth's surface as it affects humans, animals, structures, and natural objects such as bodies of water. Intensities are usually expressed in Roman numerals, and represent the severity of the shaking resulting from an earthquake. Ideally, any given earthquake can be described by only one *magnitude*, but many *intensities* since the earthquake effects vary with circumstances such as distance from the epicenter and local soil conditions<sup>3</sup>.”

Charles Richter, the creator of the Richter magnitude scale, distinguished *intensity* and *magnitude* as follows: "I like to use the analogy with radio transmissions. ... Magnitude can be compared to the power output in kilowatts of a broadcasting station. Local intensity on the Mercalli scale is then comparable to the signal strength on a receiver at a given locality; in effect, the quality of the signal. Intensity, like signal strength, will generally fall off with distance from the source, although it also depends on the local conditions and the pathway from the source to the point."<sup>4</sup>

**Figure EQ-1 - Earthquake Measurement Systems**



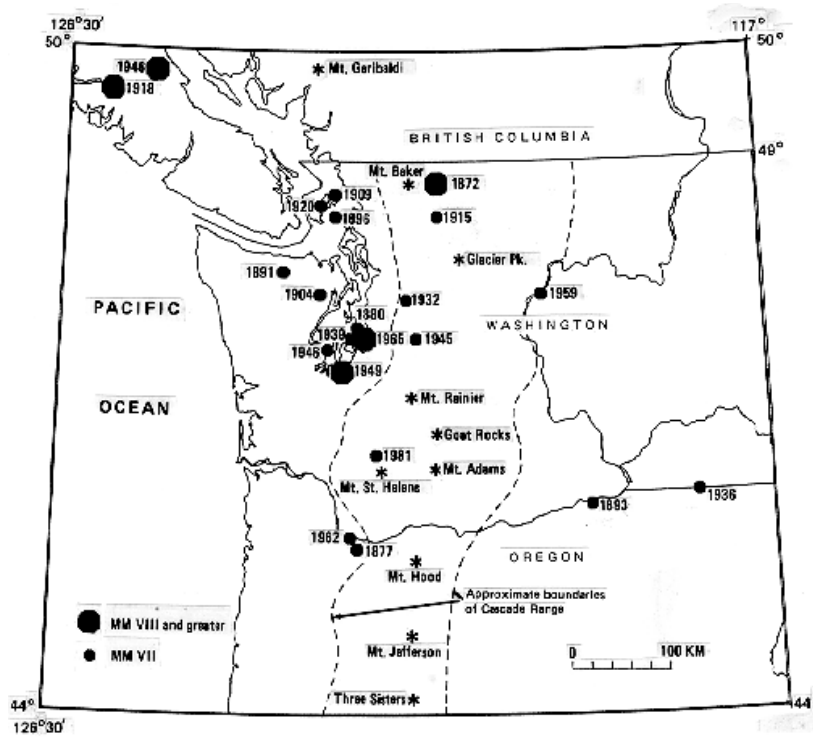



Figure EQ-2 Large Earthquakes in the Northwest<sup>2</sup>

## History of Earthquakes affecting Jefferson County & the Puget Sound Region

Washington State, especially the Puget Sound basin, has a history of frequent earthquakes. More than 1,000 earthquakes are recorded in the state annually. Large earthquakes in 1949, 1965 and 2001 caused over \$1 billion in damages throughout Puget Sound. The most recent large earthquake, the “Nisqually Earthquake” on February 28, 2001, was a 6.8 magnitude earthquake located 17.6 kilometers northeast of Olympia. All of the state, and the Puget Sound Basin area in particular, have a history of frequent earthquake activity.

The **2001 Nisqually earthquake** (“The Ash Wednesday earthquake”) occurred at 10:54:32 local time on February 28. It had a moment magnitude of 6.8 and a maximum Mercalli intensity of VIII (*Severe*). The epicenter was in the southern Puget Sound, northeast of Olympia, but the shock was felt in Oregon, Canada, eastern Washington, and Idaho. This was one of several large earthquakes that occurred in the Puget sound region in the prior 52 years and caused property damage valued at between one and four billion dollars. One person died of a heart attack and several hundred were injured.<sup>5</sup>

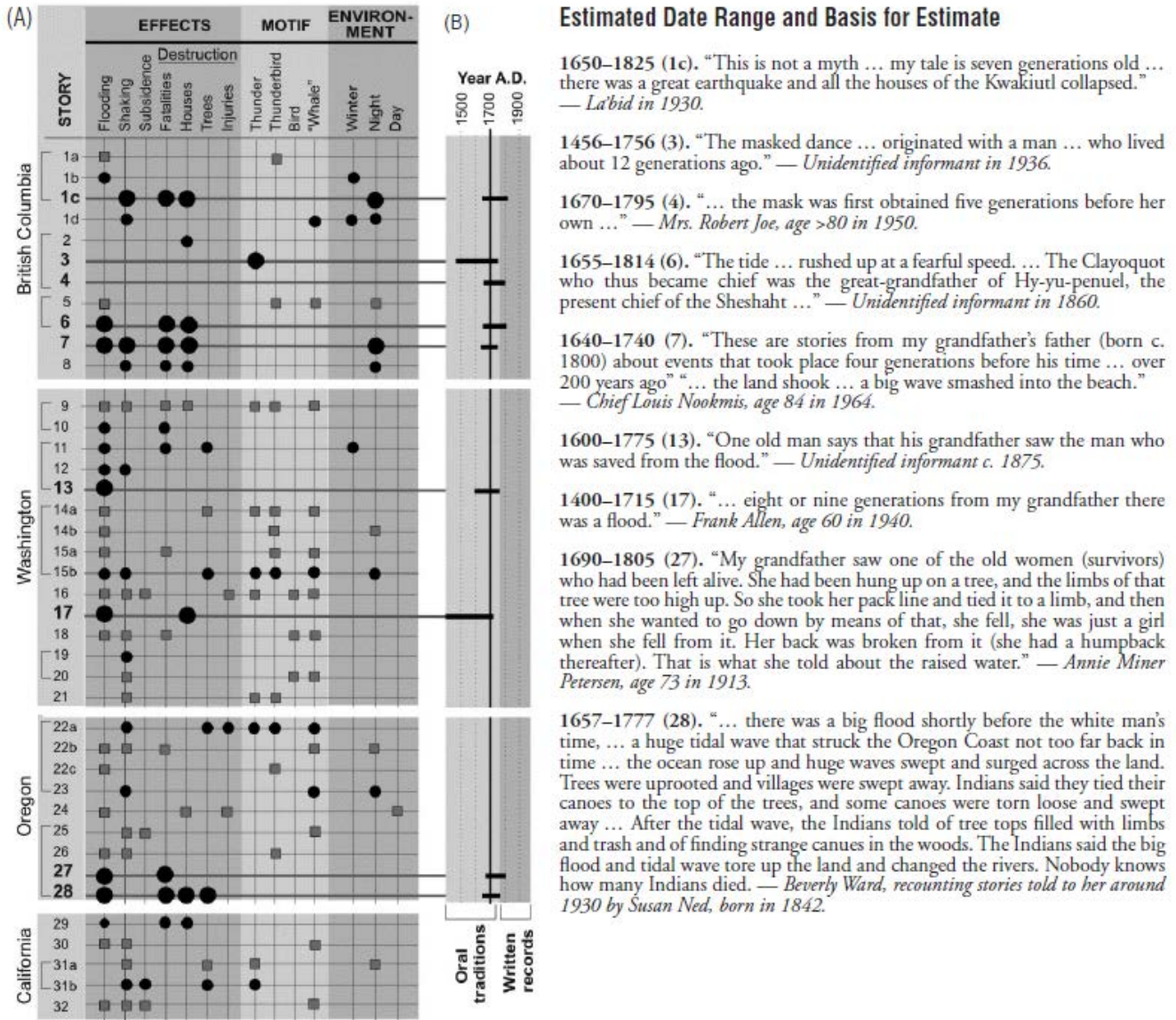
All of East Jefferson County jurisdictions participating in the Hazard Mitigation Plan felt the shaking, and a few incurred substantial damage. The Port Ludlow Main Fire Station and Headquarters building had a wall crack that compromised the building. Fortunately, the firefighters were out on a call at the time, so no one was hurt. A replacement building was estimated at two million dollars<sup>6</sup>.

 <p><i>The Leaning Tower of Seattle (Photo by Bob Graham)</i></p>	<h3>Earthquake Damage Discovered</h3> <p>Seattle recently discovered new earthquake damage when the Space Needle began to tilt. Engineers state the worst is over and the needle is still intact. On the restaurant floor the manager said he is having trouble keeping dishes on the tables and that the revolving dining room no longer rotates.</p> <p>City officials want to correct the tilt; however, they are receiving opposition from the Merchants' Association who claim the needle is a better tourist attraction now than it was before. They are quick to point out that a city in Italy has a leaning tower that has been good for their tourist business. They want to rename the space needle The Leaning Tower of Seattle. A decision on whether or not to correct the tilt is expected on <b>Sunday, April 1</b>.</p> <p>Source: The [Port Ludlow] Village Voice, April 1, 2001</p>
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The most infamous large earthquake to affect the area is the “Cascadia” earthquake that occurred at 21:00 on January 26, 1700. Its magnitude is estimated at between 8.7 and 9.2. At the time, there was no significant population living in multi-story houses and working in concrete and steel cities, as there are now, but there was a thriving native culture that has handed down stories of the event. Table EQ-1 presents some of the native stories and their characteristics that helped to date the Cascadia Earthquake of 1700.

**Table EQ-1 - Dating the 1700 Cascadia Earthquake from Native Stories<sup>7</sup>**



Damaging levels of shaking have occurred over much of the state since records started being kept in 1790. In addition, geologic evidence also indicates that large, prehistoric earthquakes have occurred in areas prior to the beginning of record keeping.

Recorded damage sustained to date in Jefferson County has been relatively minor and has been restricted to some incidence of cracked foundations, walls, and pictures falling off of the wall. Recent

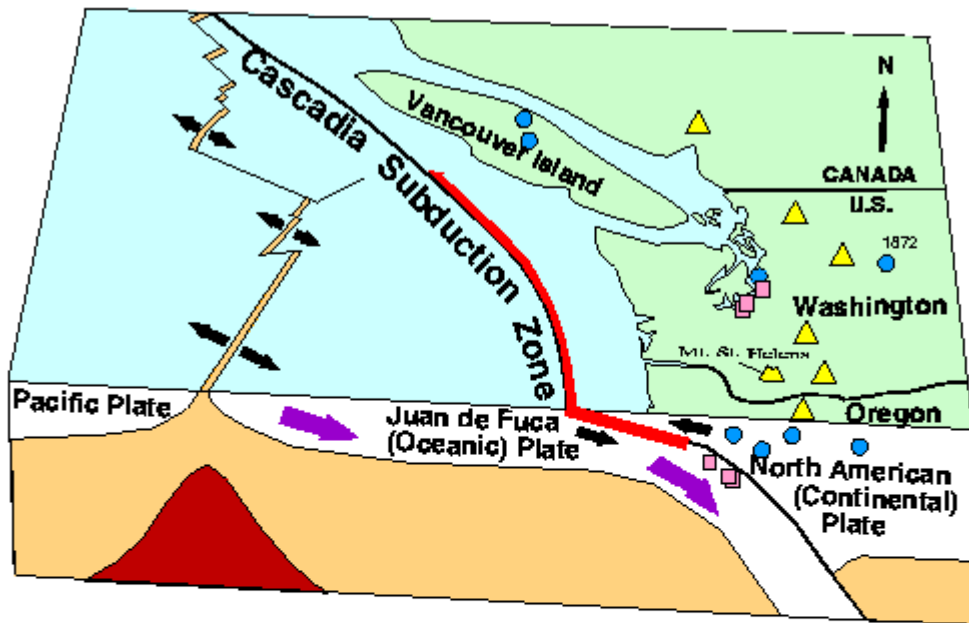
exploration indicates that a prehistoric, sunken forest has been identified off Point Wilson on the line of the South Whidbey Fault. Geologic studies of faults adjacent to the county boundaries suggest that the potential for serious earthquake damage is very real for the county. Table EQ-2 provides a list of some of the most significant earthquakes Washington has felt, but it is very easy to create a much longer list using the tools at the Pacific Northwest Seismic Network website<sup>8,9</sup>.

<b>Table EQ-2 Cascadia Historic Earthquakes<sup>10,11</sup></b>						
<b>Date</b>	<b>Time (PST)</b>	<b>Latitude/ Longitude</b>		<b>Depth (Km)</b>	<b>Mag</b>	<b>Location</b>
January 26, 1700	2100				9.0+	Cascadia Subduction Zone
May 4, 1834	2008					Felt in Port Townsend
April 2, 1859	0230	47°00'	123°00'			Felt in Olympia
December 14, 1872	2140	48°48'	121°24'	shallow	7.4	North Cascades
December 12, 1880	2040	47°30'	122°30'		5.5	Puget Sound
April 30, 1882	2248	47°00'	123°00'	deep	6.0	Olympia area
November 29, 1891	1521	48°00'	123°30'		5.0	Puget Sound
March 6, 1893	1703	45°54'	119°24'	shallow	4.9	Southeast Washington
January 3, 1896	2215	48°30'	122°48'		5.7	Puget Sound
March 16, 1904	2020	47°48'	123°00'		5.3	Olympics eastside
January 11, 1909	1549	48°42'	122°48'	deep	6.0	Puget Sound
August 18, 1915	0605	48°30'	121°24'		5.6	North Cascades
January 23, 1920	2309	48°36'	123°00'		5.5	Puget Sound
July 17, 1932	2201	47°45'	121°50'	shallow	5.2	Central Cascades
July 15, 1936	2308	46°00'	118°18'	shallow	5.7	Southeast Washington
November 12, 1939	2346	47°24'	122°36'	deep	5.7	Puget Sound
April 29, 1945	1216	47°24'	121°42'		5.5	Central Cascades
February 14, 1946	1914	47°18'	122°54'	40	6.3	Puget Sound
April 13, 1949	1155	47°06'	122°42'	54	7.1	Puget Sound
August 5, 1959	1944	47°48'	120°00'	35		Northwest Cascades
April 29, 1965	0728	47°24'	122°24'	63	6.5	Puget Sound
February 13, 1981	2209	46°21'	122°14'	7	5.5	South Cascades
April 13, 1990	2133	48°51'	122°36'	5	5.0	Deming
January 28, 1995	1911	47°23'	122°21'	16	5.0	17.6 km NNE of Tacoma
May 2, 1996	2104	47°46'	121°57'	7	5.3	10.2 km ENE of Duvall
June 23, 1997	1113	47°36'	122°34'	7.4	4.9	5.5 km NE of Bremerton
July 2, 1999	1743	47°05'	123°28'	41	5.1	8.2 km N of Satsop
February 28, 2001	1054	47° 09'	122° 52.4	52.4	6.8	17.6 km NE of Olympia

## Hazard Identification and Vulnerability Assessment

In Western Washington, the primary tectonic plates of interest are the Juan de Fuca and North American plates. The Juan de Fuca plate moves northeastward with respect to the North American plate at a rate of about 4 cm per year. The boundary where these two plates converge, the Cascadia Subduction Zone, lies approximately 50 miles offshore and extends from the middle of Vancouver Island in British Columbia to northern California. As it collides with North America, the Juan de Fuca plate slides (or subducts) beneath the continent and sinks into the earth’s mantle. Jefferson County is vulnerable to the results of this continual movement of the earth’s tectonic plates.

**Earthquake Hazards in Washington and Oregon**



- Deep Earthquakes** (40 miles below the Earth's surface) are within the subducting oceanic plate as it bends beneath the continental plate. The largest deep Northwest earthquakes known were in 1949 (M 7.1), 1965 (M 6.5), and 2001 (M 6.8).
- Shallow earthquakes** (less than 15 miles deep) are caused by faults in the North American Continent. The Seattle fault produced a shallow magnitude 7+ earthquake 1,100 years ago. Other magnitude 7+ earthquakes occurred in 1872, 1918, and 1946.
- Subduction Earthquakes** are huge quakes that result when the boundary between the oceanic and continental plates ruptures. In 1700, the most recent Cascadia Subduction Zone earthquake sent a tsunami as far as Japan.
- Mt. St. Helens/Other Cascade Volcanoes**

<http://www.eqe.com/revamp/wash/index.html> Pacific Northwest Seismograph Network

The collision of the Juan de Fuca and North American plates produces three types of earthquakes, which are designated by their location and origin.

1. **Cascadia Subduction - “Great earthquakes”:** The first type occurs along the Cascadia subduction fault, as a direct result of the convergence of these two plates. Although no large earthquakes have occurred along the offshore Cascadia Subduction Zone since historic records started to be kept, similar subduction zones worldwide do produce “great” earthquakes—magnitude 8 or larger. A subduction earthquake would be centered off the coast of Washington or Oregon where the plates converge. Such earthquakes typically have a minute or more of strong ground shaking and are quickly followed by damaging tsunamis and numerous large aftershocks. Subduction zone earthquakes have left compelling evidence from years past. These earthquakes were of enormous magnitude (8 to 9+) and recurred approximately every 550 years. The recurrence interval, however, has apparently been irregular, with the interval between earthquakes being as short as 100 years and as long as 1,100 years.
2. **Juan de Fuca Plate - “Deep earthquakes”:** The second type of earthquake occurs within the Juan de Fuca plate as it sinks into the mantle. These are primarily deep earthquakes, approximately 25-100 kilometers in depth. Due to their depth, aftershocks are typically not felt in association with these earthquakes. The strongest of these recorded were the 1949 Olympia and the 1965 Sea-Tac earthquakes. Approximate “recurrence intervals” for intraplate earthquakes of various magnitude were estimated to be 35 years for magnitude 6.5 and 100 years for magnitude 7. Since 1870, there have been 7 earthquakes in the Puget Sound basin of magnitudes of 6.0 or larger. Generally, these earthquakes last between 20 – 60 seconds.
3. **North American Plate – “Shallow earthquakes”:** The third type is an incident of shallow earthquakes that occur within the North American plate. Conventional theory indicates that they occur when stress is transmitted from the Cascadia subduction fault into the interior of the North American plate. This type of earthquake has occurred throughout Washington and most parts of Oregon. These earthquakes are primarily shallow with depths of 30 kilometers or less and generally have the magnitude of 5 to 5.5, however the largest recorded earthquake in Washington history was a 7.4 in 1872 and was thought to be shallow.

The majority of earthquakes that occur in the Pacific Northwest region are of the shallow kind occurring in the North America plate. The 1872 North Cascades earthquake, the 1945 earthquake near North Bend, and the 1981 earthquake on the St. Helens seismic zone were all of this type.

New evidence of a fault running east-west through south Seattle (the Seattle Fault) suggests that a major earthquake having a magnitude of 7 or greater affected the Seattle area about 1,000 years ago. Recent studies have found geologic evidence for large shallow earthquakes along the Seattle Fault 1,100 years ago within the central Puget Sound Basin. Massive block landslides into Lake Washington, marsh subsidence and tsunami deposits at West Point in Seattle, tsunami deposits at Cultus Bay on Whidbey Island, and large rock avalanches on the southeastern Olympic Peninsula have all been dated to approximately 1,100 years ago.





Evidence of a fault that runs east-west through Admiralty Inlet (the South Whidbey Island Fault) suggests that a major earthquake affected the Port Townsend/Jefferson County area hundreds of years ago. Two “new” faults were recently discovered running north-south from Whidbey to Vashon Island and possibly as far as Tacoma have the capacity to unleash earthquakes with magnitudes greater than 7.2.

The principal ways that earthquakes cause damage are by:

- strong ground shaking
- landslides,
- liquefaction,
- subsidence,
- tsunamis (seismic ocean waves),
- and seiches (rhythmic movements of inland bodies of water).

The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Most casualties result from falling materials. Severe earthquakes usually disrupt utilities including: power, telephone, gas, sewer, solid waste, and water. Disruption of utilities for a lengthy period of time would have an untold effect on the economics of the county. The effects of an earthquake in Jefferson County are hard to define because of the many unpredictable variables involved.

Soil liquefaction occurs when water saturated sands, silts, or gravels are shaken so violently that the grains rearrange and the sediment loses strength, begins to flow out as sand boils or cause lateral spreading of overlying layers. Liquefaction causes loss of bearing strength under foundations or roadways, can trigger landslides, and can float low-density structures, such as partially empty fuel tanks, furnaces, and pilings. Liquefaction commonly causes ground failures such as ground cracking or lateral spreading above liquefied layers. Lateral spreads are spreads are landslides that can occur on very shallow slopes.

The time of the earthquake has a large impact on the potential for human casualties. The potential for casualties is greatest during the heaviest hours of traffic and when people are concentrated in schools and business areas. Typically, the twelve-hour period from six o'clock in the morning to six o'clock in the evening has the greatest potential for human casualties.

Site conditions and the types of soils or rock also affect the amount of shaking and the potential for damage. Solid rock or bedrock does not increase the shaking. Soft materials, however, such as mud, artificial fill and layers of sand and clay will make the consequences of ground shaking much worse. Jefferson County, particularly in the Port Townsend area that also has the highest concentration of people, has many areas of sand and clay soil. These soil materials serve to increase or amplify the effects of an earthquake. Steep slopes may experience landslides. Floodplains and areas of artificial fill will be prone to liquefaction. This may result in



pockets of local areas experiencing severe damage especially where the ground fails under buildings, water mains, pipelines or bridges.

Building materials will greatly affect the impact of an earthquake on a structure. Unreinforced masonry structures, of which there are several in Port Townsend, are the most vulnerable while wood frame structures typically perform well in earthquakes. Additionally, individual buildings have different natural frequencies of vibration that depend on their height and structural design. Amplification of frequencies may affect some buildings more than others. Strong shaking is a hazard both near the epicenter of an earthquake and in areas where amplification occurs.

The effects of an earthquake could also vary widely by the buildings and infrastructure first damaged. Damage to buildings that house emergency services such as fire stations and hospitals could lessen emergency response capabilities. Damage to roads, fallen trees, and failed bridges can also impair the delivery of emergency services. The majority of the county’s bridges were built prior to 1960 when engineering incorporated improved building practices in the event of an earthquake.

Earthquakes remain as one of the most significant hazard to people and property in Jefferson County.

## The Spaghetti Farm

While most people on the Olympic Peninsula should be aware of the Cascadia Subduction Zone because of proselytization by local emergency managers and neighborhood emergency groups. What many probably do not realize is that they live in a veritable spaghetti farm of earthquake faults. What follows is a step-by-step walk around of the major named Quaternary faults that surround the Olympic Peninsula and have the potential to affect Jefferson County. Quaternary faults are those that have been **recognized at the surface**, which **have moved in the past 1,600,000 years**, a portion of the Quaternary epoch, and **which are capable of a magnitude 6 or greater earthquake**<sup>12</sup>. Table EQ-3 provides a table-of-contents for the next seven figures.

<b>Table EQ-3 – Figures of Earthquake Faults affecting Jefferson County</b>		
<b>Figure ID</b>	<b>Name of Fault Map</b>	<b>Description</b>
EQ-3	Cascadia Subduction Zone <sup>13</sup>	A map of the subduction zone about 60 miles off the Washington’s Pacific coast.
EQ-4	Cascadia Subduction Zone with Coastal Quaternary Faults <sup>14</sup>	A map of the subduction zone with additional quaternary faults along Washington’s coast marked in white.
EQ-5	Copalis Beach Quaternary Fault <sup>15</sup>	Copalis Beach faults start in Grays Harbor county and extend upward just past the boundary with Jefferson County.
EQ-6	Cape Flattery Quaternary Fault <sup>16</sup>	Contains both land faults and a significant number of undersea faults at the mouth of the Strait of Juan de Fuca.
EQ-7	Victoria Quaternary Fault (including Port Townsend, WA) <sup>17</sup>	This Quaternary Zone includes the Southern Whidbey Island fault, which is in the 3-mile wide channel between Port Townsend and Whidbey Island. It is capable of a magnitude 7.2+ tremor.
EQ-8	Seattle Quaternary Fault <sup>18</sup>	The Hood Canal fault zone can impact lower East Jefferson County, but most people worry about the Seattle Fault, which runs under the densely populated city.
EQ-9	Composite map of the Quaternary Faults that affect Jefferson County <sup>19</sup>	Any of these are capable of a 6.0+ earthquake on its own. We have no way of knowing if or how many will be triggered by a Cascadia Subduction Zone event and / or if they will create significant aftershocks from different directions.

Figure EQ-3 – The Cascadia Subduction Zone

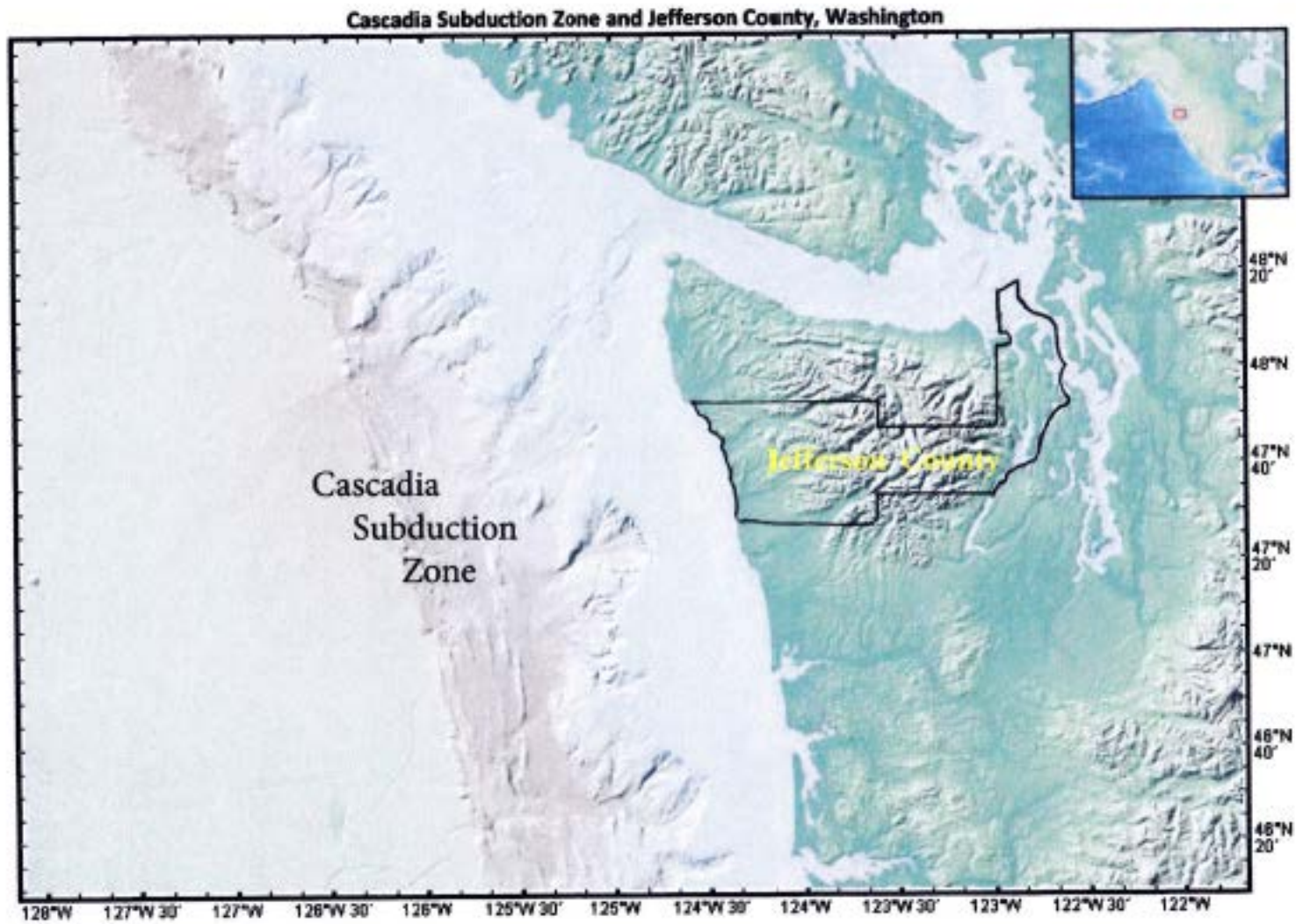


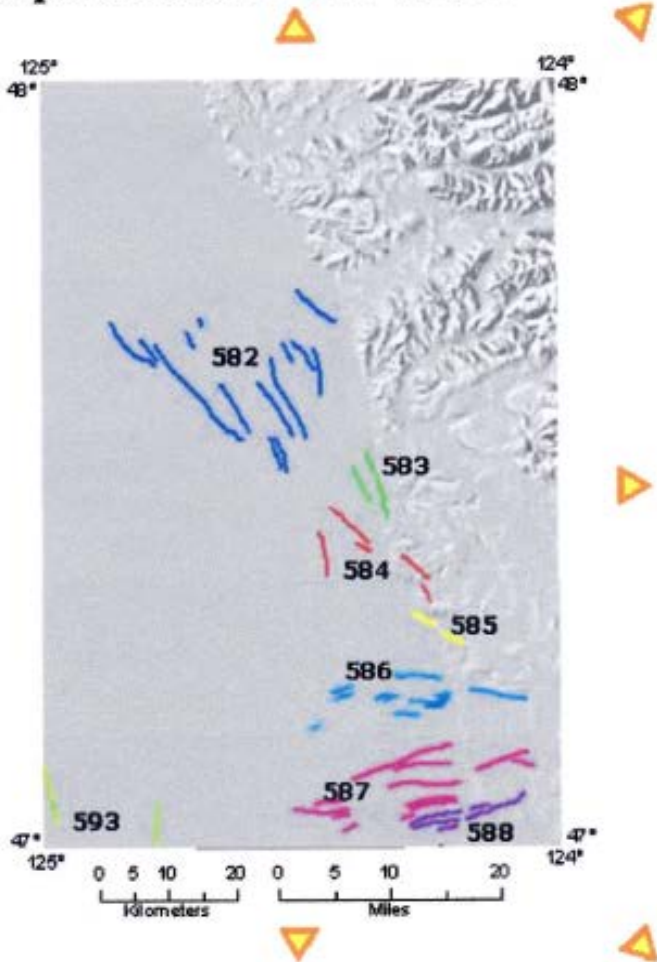
Figure EQ-4 – The Cascadia Subduction Zone with Coastal Faults (in white)





Figure EQ-5 – The Copalis Beach Quaternary Fault Zone

**USGS**  
 Quaternary Fault and Fold Database for the United States  
 Copalis Beach 1° x 2° Sheet



Number	Name
582	Unnamed fault set offshore of Queets River
583	Unnamed fault zone near and offshore of Raft River
584	Unnamed fault set near and offshore of Duck Creek
585	Unnamed fault near Wreck Creek
586	Unnamed fault zone near and offshore of Aloha
587	Unnamed fault zone near and offshore of Langley Hill
588	Saddle Hill fault zone
593	Unnamed offshore fault set near Grays Canyon

Last modified December 19, 2005

URL <http://earthquake.usgs.gov/regional/qfaults/wa/cop.html>

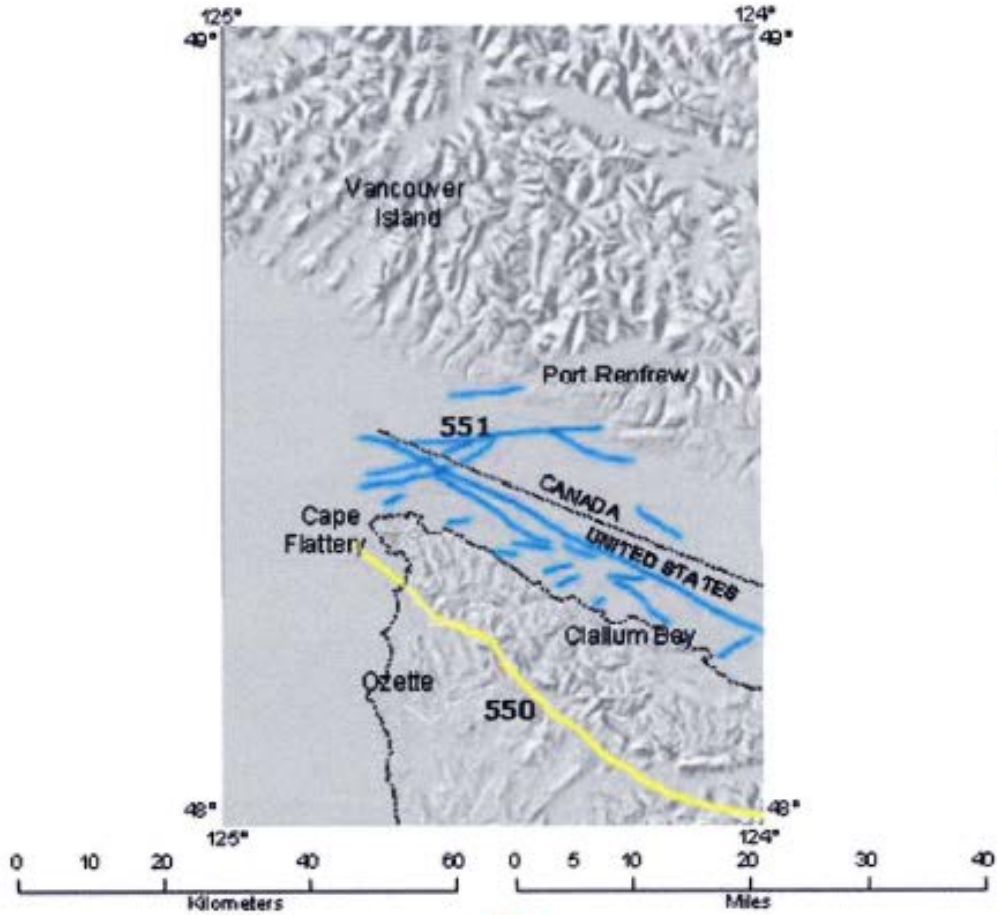
Figure EQ-6 – Cape Flattery Quaternary Fault Zone



Quaternary Fault and Fold Database for the United States

## Cape Flattery 1° x 2° Sheet

[Home](#) > [US Map](#) > [Washington](#)



Number	Name
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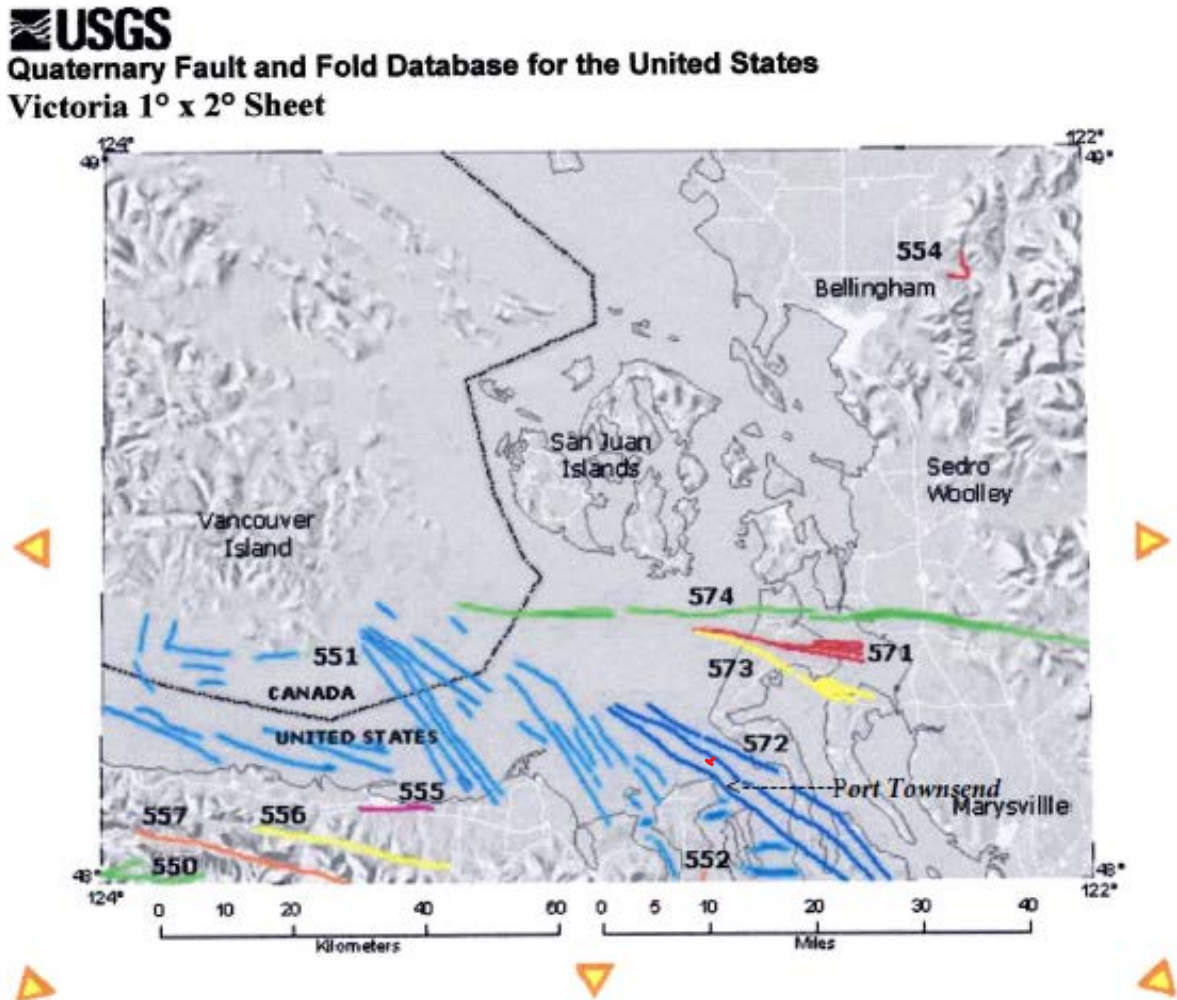
550	Calawah fault
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551	Unnamed faults in Strait of Juan de Fuca and Puget Sound (Class B)
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Last modified March 24, 2004

URL <http://earthquake.usgs.gov/regional/qfaults/wa/cpf.html>

Figure EQ-7 – Victoria Quaternary Fault Zone (including Port Townsend)



Number	Name
550	Calawah fault
551	Unnamed faults in Strait of Juan de Fuca and Puget Sound (Class B)
552	Hood Canal fault zone (Class B)
554	Macaulay Creek fault (Class B)
555	Unnamed fault south of Port Angeles
556	Little River fault
557	Unnamed fault along Barnes Creek (Class B)
571	Strawberry Point fault
572	Southern Whidbey Island fault zone
573	Utsalady Point fault
574	Devils Mountain fault

Last modified January 27, 2006

URL <http://earthquake.usgs.gov/regional/qfaults/wa/vic.html>

Figure EQ-8 – Seattle Quaternary Fault Zone

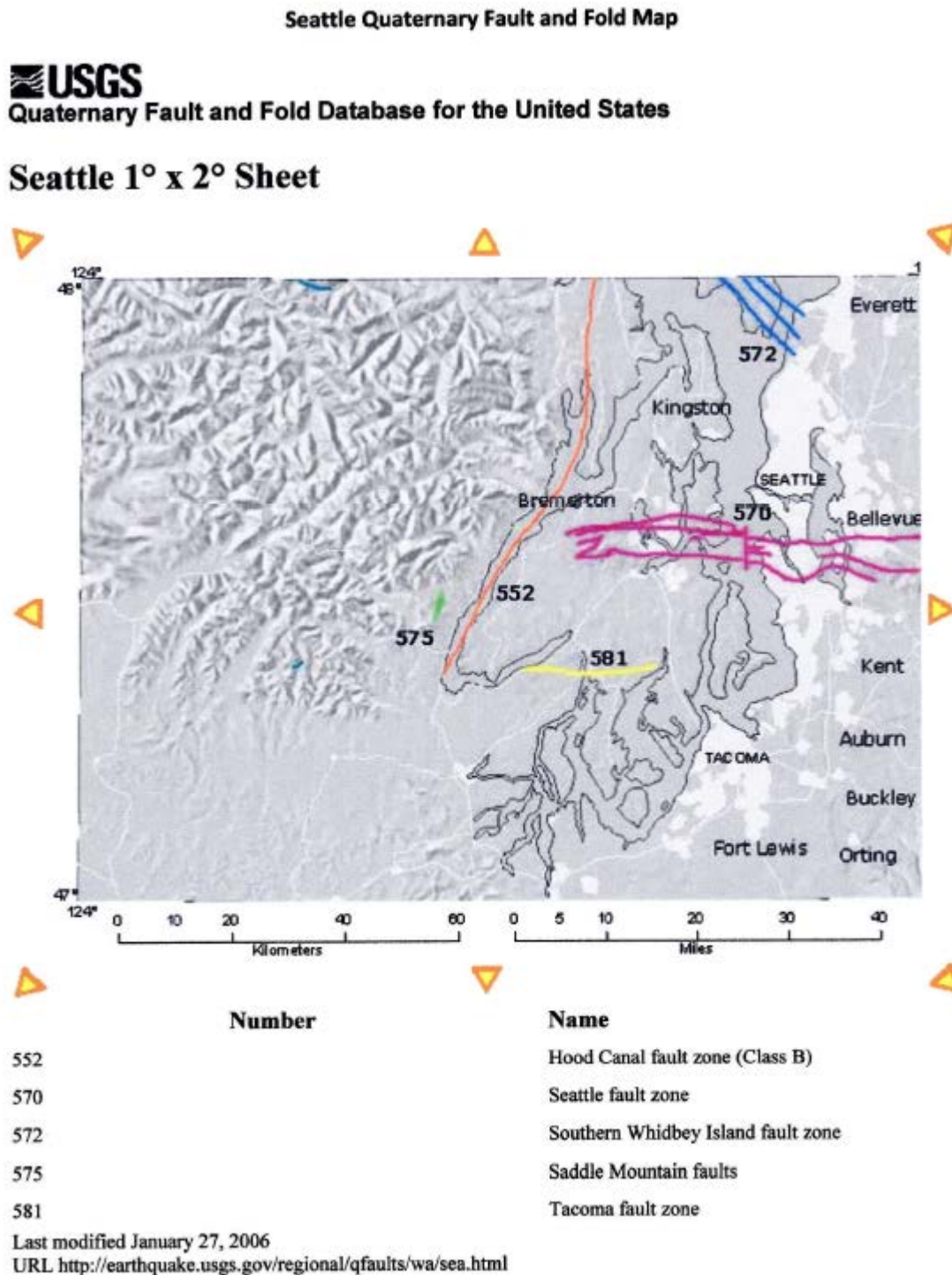
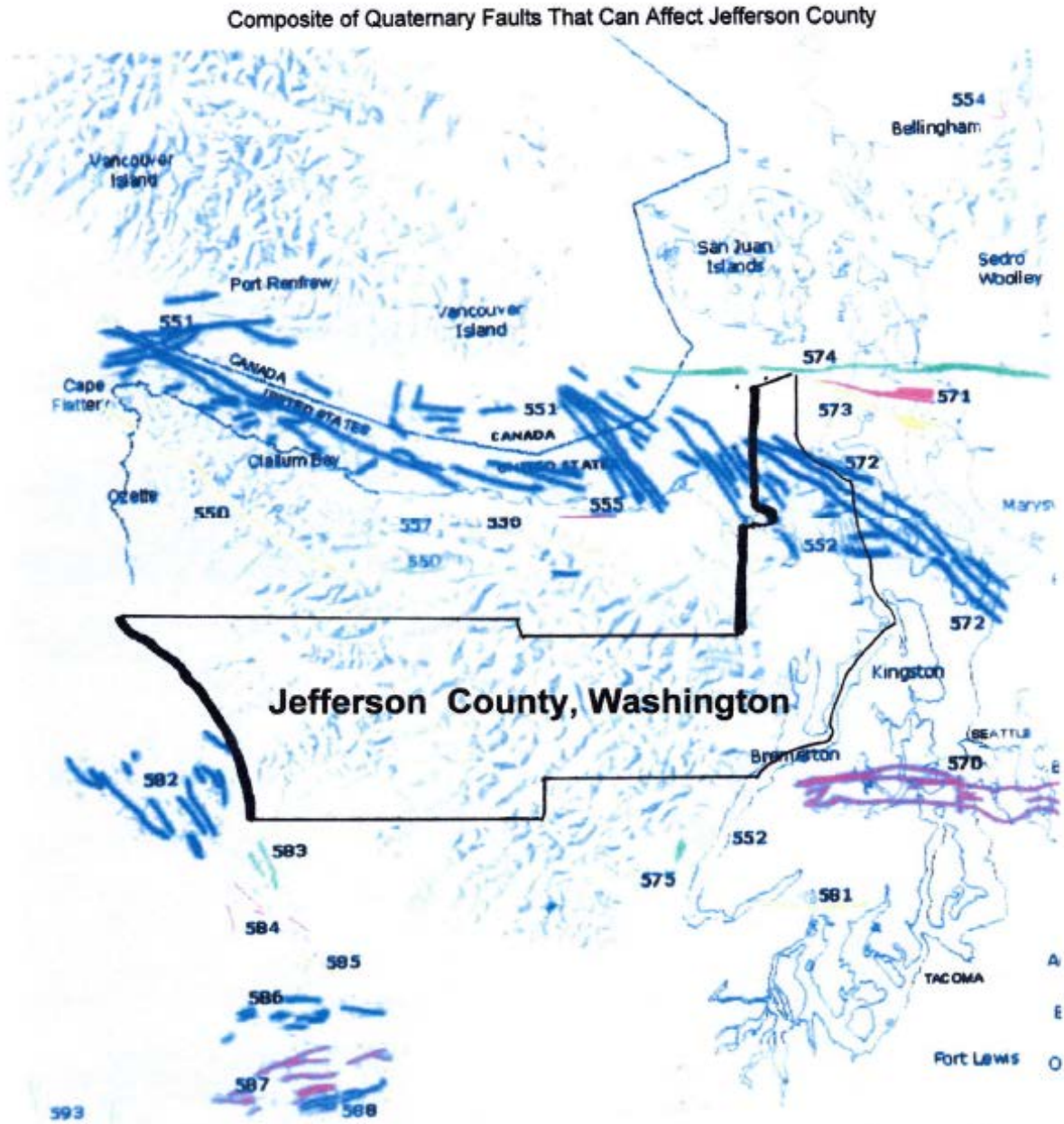




Figure EQ-9 – Composite Map of Quaternary Faults affecting Jefferson County



Quaternary faults are those active faults that have been recognized at the surface and which have evidence of movement in the past 1.6 million years. That is the duration of the Quaternary Period. Source: Wikipedia



As one can see, there are a multitude of opportunities for earthquakes to occur in and around Jefferson County. Many do occur and are unnoticed because they are small and undistinguishable from the vibrations inherent with a mechanized society. During the period from 1638 to 1928, just 2,500 earthquakes were reported in Oregon and Washington; during the period from 1928 to 1985, more than 18,500 events were reported<sup>20</sup>. Typically, each year over 1,000 earthquakes with a magnitude 1.0 or more are recorded in Washington and Oregon<sup>21</sup>.

There are two scenarios, however, that have the potential to severely damage Port Townsend and East Jefferson County: a 9.0+ magnitude rupture of the Cascadia Subduction Zone, and a 7.4+ rupture of the Southern Whidbey Island (SWI) Faults, just one and one half miles from Port Townsend. Because of its proximity, the Hazus simulations show that a Southern Whidbey Island event can do more damage to the urban centers of East Jefferson County than a Cascadia event, even though the Cascadia event could be 1000 times stronger.

Scientists and emergency managers have combined two tools to model likely outcomes from the above occurrences, shakemaps and Hazus simulations. Caveat: These tools are for planning purposes only – and no plan survives its implementation.

*Earthquake Shakemap Scenarios* describe the expected ground motions and effects of specific hypothetical large earthquakes. In planning and coordinating emergency response, utilities, emergency responders, and other agencies are best served by conducting training exercises based on realistic earthquake situations, ones that they are most likely to face<sup>22</sup>.

**Shakemaps** can be developed for both magnitude and intensity. Magnitude is the power of the earthquake, while intensity is the damage that is or can be done at some point distant. Remember the radio broadcast analogy: magnitude is analogous to the output power of a radio transmitter, e.g. 50,000 watts; intensity is how well you can pick up the radio signal at some distance – except, here, we are talking about destruction caused by the earthquake. In the scenarios below, we have shakemaps for both magnitude and intensity.

**Hazus** is a free tool from FEMA that estimates losses to specific buildings for earthquake and flood.

Earthquake building losses were modeled at \$165 million for a Southern Whidbey Island event of magnitude M7.4 and \$104 million for a Cascadia M9.0 event. The losses reported are for building losses only and do not include losses for other infrastructure, such as the roads, ferry system, etc<sup>23</sup>.

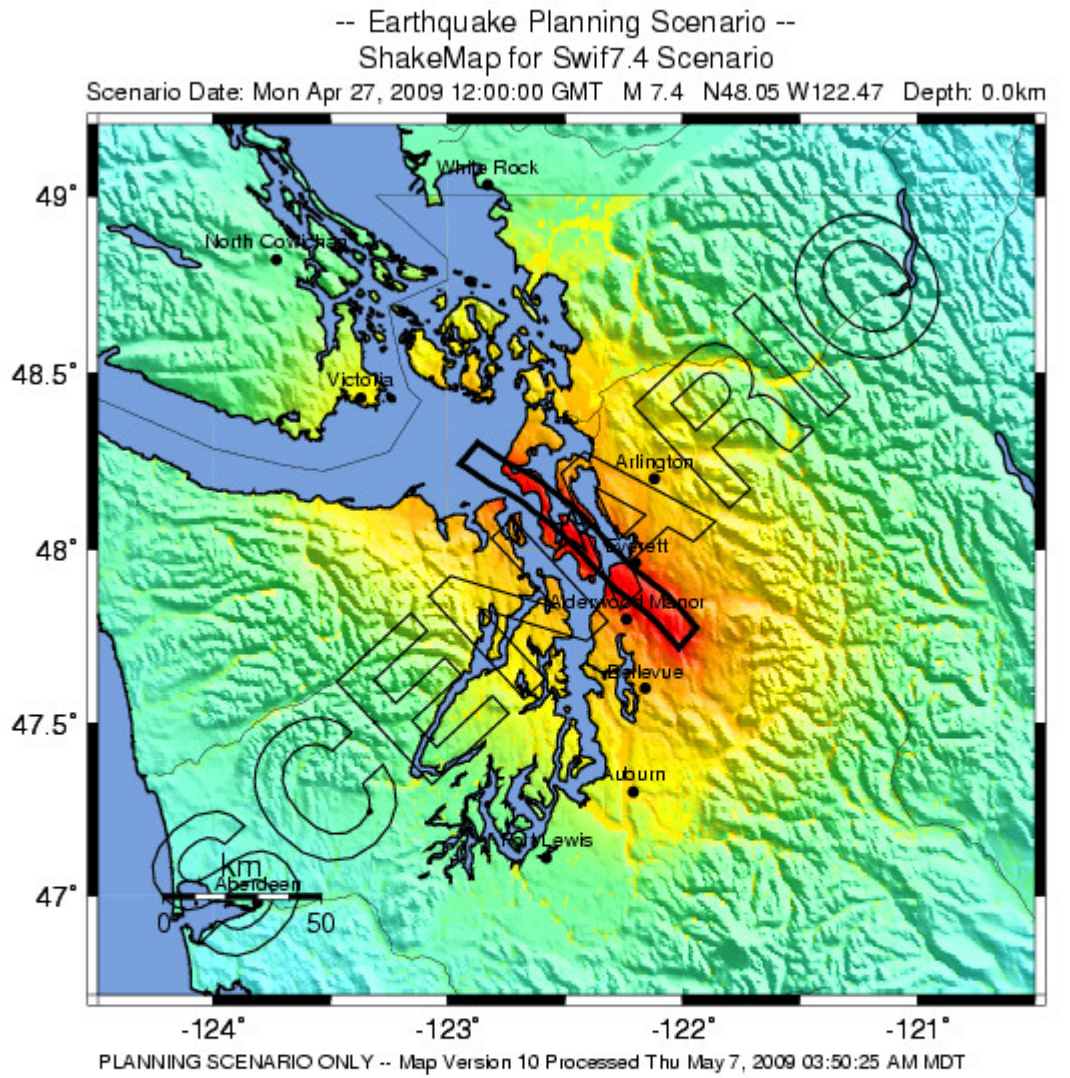
The City of Port Townsend and the unincorporated areas of the county have a large percentage of buildings located in the moderate-high liquefaction zone. The City of Port Townsend will have a substantial impact if the Southern Whidbey Island event were to occur. The Hoh Tribe will experience the greatest impact from a Cascadia event<sup>24</sup>.

## The Southern Whidbey Island Earthquake Scenario

Research has shown that the SWI faults are active and have generated at least four large earthquakes in the last 16,000 years<sup>25</sup>. Figure EQ-10 is a “shakemap scenario” representing a magnitude 7.4+ earthquake on the Southern Whidbey Island (SWI) fault<sup>26</sup>.

In the first SWI Scenario, a magnitude 7.4 earthquake occurs directly between Whidbey Island and Port Townsend. Port Townsend will experience violent to extreme shaking.

**Figure EQ-10 – Southern Whidbey Island M7.4+ Earthquake Scenario**

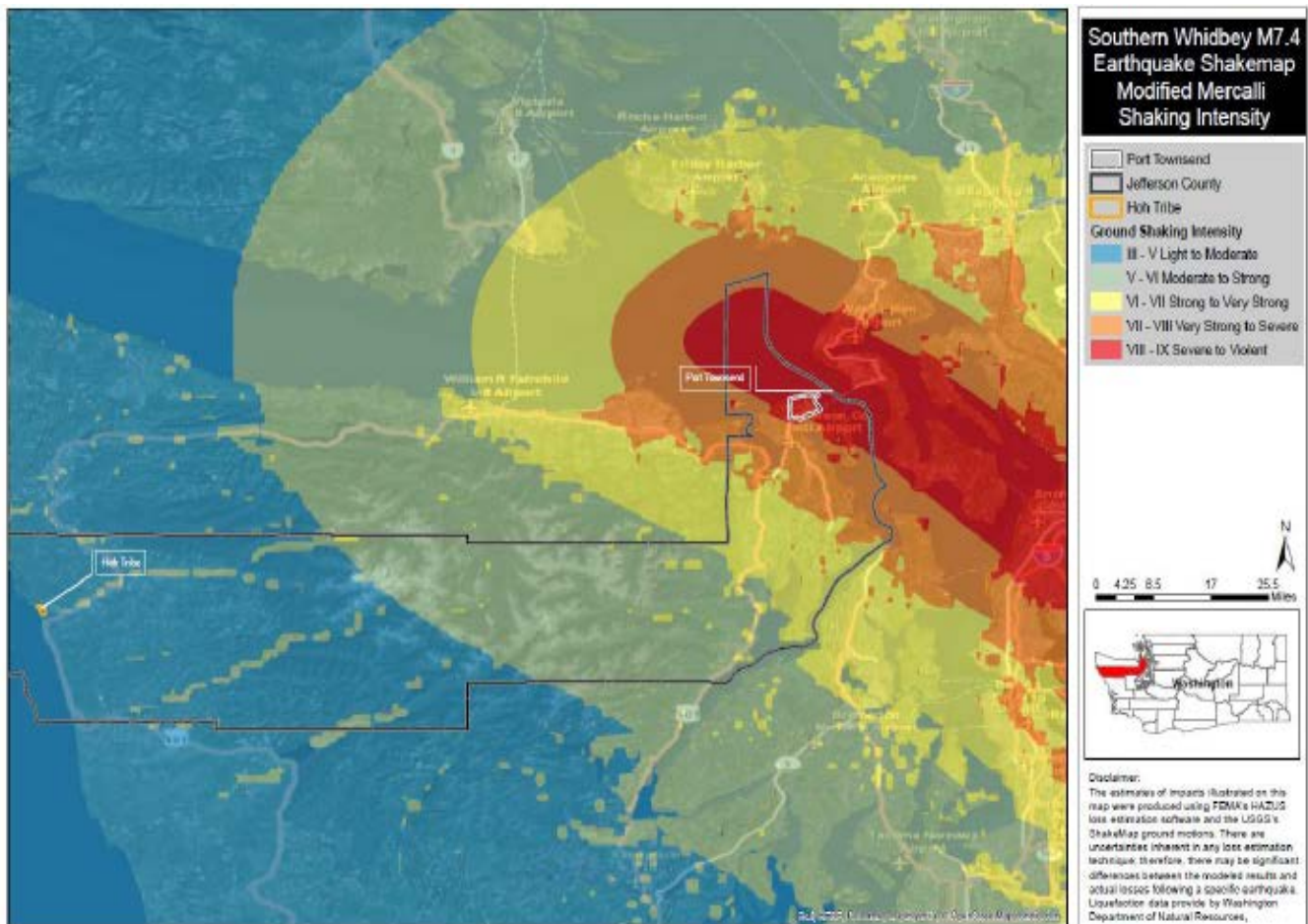


PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC. (%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL. (cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

With the exception of the few public buildings that have been seismically retrofitted, Port Townsend’s Downtown Historic District consists mostly of multi-story unreinforced masonry structures built in the late 1800’s to early 1900’s. While buildings that have been seismically retrofitted may help the survivability of people inside, they are not likely to be functional because of the loss of utilities and infrastructure around them.

Figure EQ-11 is a shakemap, modeled in 2015, using the Modified Mercalli (MM) scale to estimate damage from a magnitude 7.4+ SWI earthquakes<sup>27</sup>. Note that the damage levels are marked in Roman numerals because this shakemap is modeling the intensity of the earthquake.

**Figure EQ-11 - Southern Whidbey Island M7.4+ Earthquake Scenario**



Regardless of which map is used, it should be clear that Port Townsend is in real trouble if the SWI fault generates a large earthquake. Not only will the downtown area be hit hard, but it is possible for a tsunami to be generated right at the mouth of Port Townsend Bay, giving only minutes between the shaking and a tsunami wave of unknown proportions.



## The Cascadia Subduction Zone (CSZ) Earthquake Scenario

A 1000-kilometer rupture of the Cascadia Subduction Zone is what people are most aware of and most concerned about. Most recently, attention to this possibility was heightened by an article titled “The Really Big One,” penned by Kathryn Schulz in *The New Yorker* (July 2015)<sup>28</sup>. It has also been written about in depth in the book, “Full Rip 9.0” by Sandi Doughton, Science Writer for *the Seattle Times*. This is a good thing in that by incentivizing people to prepare for “The Big One”, they are helping them get ready for a smaller but more devastating event from the SWI fault.

This is not to say that the Cascadia event will not be as bad as people think. We simply are not yet knowledgeable enough to make good predictions. The mantra at the Jefferson County EOC is “Please, Lord, not in my lifetime.”

To try to better prepare for such a catastrophic event, FEMA and State and local agencies in the Cascade region of the country created a functional exercise, called *Cascade Rising (CRX)* to allow emergency management personnel to validate plans and readiness by performing their duties in a simulated operational environment based on the Cascadia event<sup>29</sup>. It took two to three years of preparation for the multi-state, multi-jurisdiction, multi-agency exercise to be planned and then executed over a week-long period in June 2016. Part of the effort to build verisimilitude into the exercise was to collect data on vulnerable structures to create maps and simulated photos of destruction. This helps to understand the impact the Cascadia event will have on the region.

*The Cascadia Region is home to a robust ferry transportation system that will be uniquely impacted by a major CSZ earthquake.*



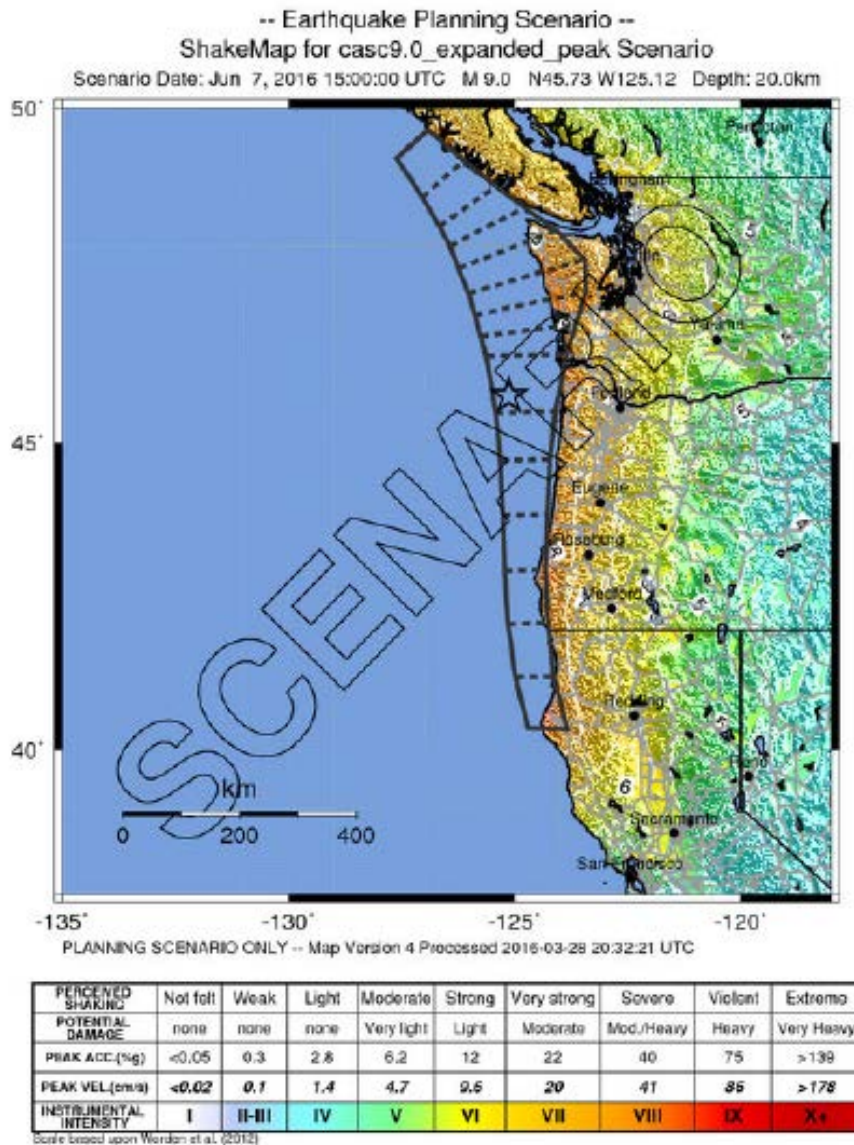
*This system—the largest in the nation—operates both domestic and international routes, serving destinations throughout Northwest Washington State and Southwest British Columbia.*

*Full or partial failure of this system after a CSZ earthquake would create significant response challenges for island communities only accessible, or most easily accessible by existing ferry routes. (Cascadia Rising Exercise Scenario Document)*

Source: Jefferson County Department of Emergency Management

Figure EQ-12 is a shakemap scenario for a Cascadia event exceeding M9.0<sup>30</sup>. It shows that East Jefferson County, which is the economic engine for the area, will receive strong to very strong shaking. The concern with this is that the shaking will go on for many minutes. “A magnitude 9.0 earthquake can last for five minutes or longer, and the amount of energy released is 1,000 times greater than that of a 7.0. The most powerful quakes could leave few if any masonry buildings standing, destroy bridges and toss objects into the air, according to the USGS.<sup>31</sup>

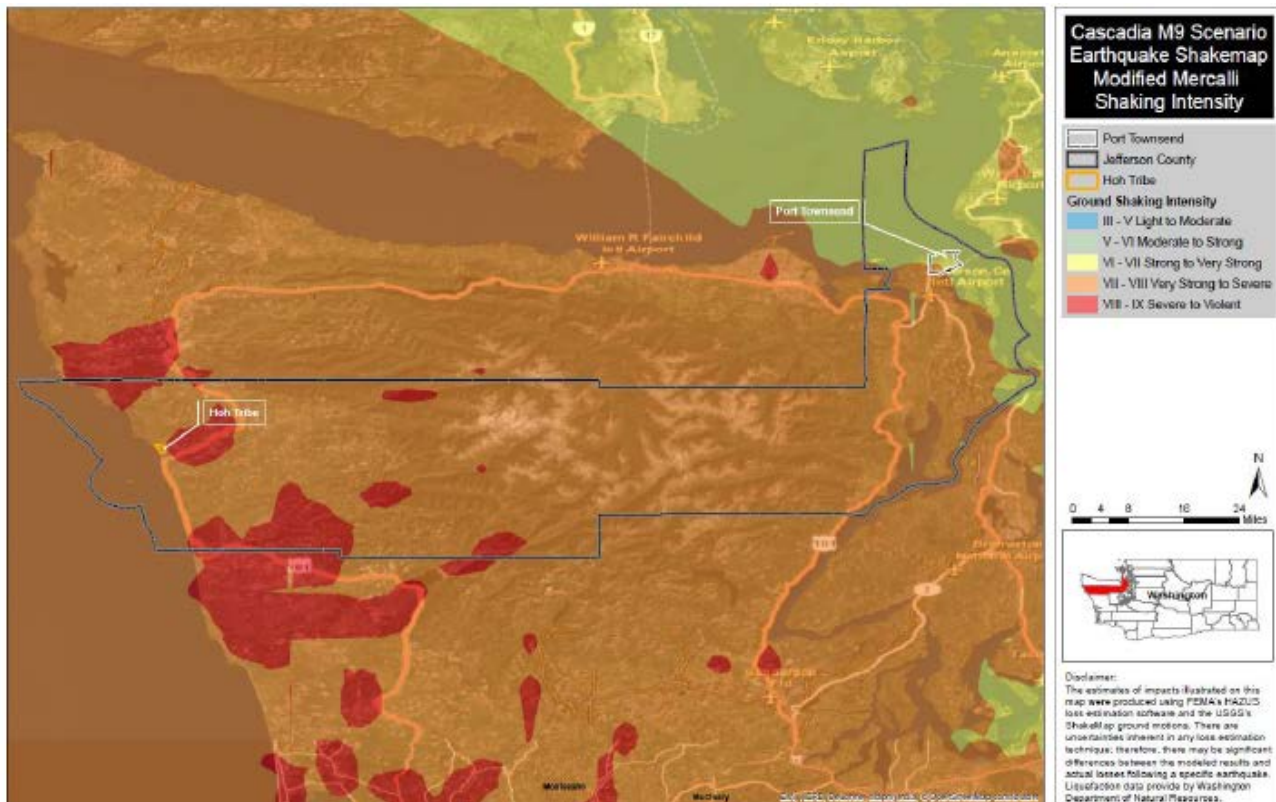
**Figure EQ-12 - Cascadia M9.0+ Earthquake Scenario**



The CSZ event shakemap (Figure EQ-13) shows that the majority of Jefferson County will experience “very strong” to “severe” shaking intensity, with the West Jefferson County getting pockets of “violent” shaking intensity<sup>32</sup>. U.S Hwy 101 can be expected to be busted up in multiple places. The CRX showed that it would take a minimum of three hours for help to reach the West End, which has

no significant emergency assets of its own. Air assets are likely to be the only way to get help to the Hoh Tribe and to the pockets of tourist/survivors. During the tourist season, there can be 10,000+ tourists on the coast at any given time.

**Figure EQ-13 - Cascadia M9.0+ Earthquake Shakemap**



Hazus simulations, summarized in Table EQ-4, show that the destruction in Port Townsend can be significantly higher for an SWI fault event than for an CSZ event of M9.0+. And while it is clear from the caveats, that the damage estimates are understated, the relative levels of death and destruction make sense. An CSZ generated earthquake will be somewhat attenuated by the time the shock waves hit East Jefferson County, and the population will have about ninety minutes to get out of the way of any tsunami generated. An SWI generated earthquake will be right on the City’s doorstep and give people about 10-minutes to get off the Fort Worden beaches or out of the downtown area before any tsunami wave created hits. Once again, at certain times of the year, particularly during festivals, Port Townsend’s population can expand from 9,800 to 50,000 at sea level. It is plausible that people will just be picking themselves off the ground when a tsunami wave hits.



**Table EQ-4 – Hazus Earthquake Results for Selected Scenarios<sup>33</sup>**

Community	Total Estimated Building Value	Total Number of Buildings	Number of Buildings in the Moderate – High Liquefaction Zone	Percent of Buildings in the Moderate-High Liquefaction Zone	Building Dollar Loss for a Southern Whidbey M7.4 Event	Loss Ratio (Dollar Losses/ Total Building Value) Southern Whidbey M7.4 Event	Building Dollar Loss for a Cascadia 9.0 Event	Loss Ratio (Dollar Losses/ Total Building Value) Cascadia 9.0 Event
Port Townsend	\$646,052,977	4845	276	5.7%	\$90,401,638	14%	\$23,310,567	3.6%
Hoh Tribe	\$3,119,782	35	6	17.1%	N/A**	N/A**	\$341,835	11% (*)
Unincorporated	1,639,851,022	14356	1151	8.0%	\$75,073,592	4.6%	\$80,928,751	4.9%
<b>Total</b>	<b>\$2,289,023,782</b>	<b>19,236</b>	<b>1,433</b>	<b>7.5%</b>	<b>\$165,475,259</b>	<b>7.4%</b>	<b>\$104,581,170</b>	<b>4.7%</b>

Note: The above table shows the total estimated building value by community, and percent of buildings and number of buildings located within the moderate to high liquefaction zone. In addition, buildings losses are reported for Cascadia M9.0 and Southern Whidbey M7.4 scenario earthquakes as well as associated loss ratios. Loss ratios are calculated by dividing the dollar loss by the total building value. The loss values are for building losses only; additional damages to infrastructure and building contents are not captured in this table. (\*) Loss ratio would be higher if the earthquake design code was known (for example, Low Code (LC) may give higher loss rates than Medium Codes (MC)). \*\*The western side of Jefferson County will not be impacted by a Southern Whidbey Island event.

### The Bottom Line<sup>34</sup>

Jefferson County’s part of the world is unique in its geology, demographics and geography, and where we might fall in the line for help from state and/or federal agencies on the road to recovery.

Jefferson County’s demographics stand out in terms of emergency response. Leading the other 38 counties in the state for the 65 years+ age of its citizens, by 2020, it is estimated that 35.2 percent of Jefferson County’s population will be 65 and older. Despite lack of family-wage employment opportunities, the population increased by 15.1 percent from 2000 to 2010. There will likely be a higher percentage of special needs people among survivors of a major quake than in more age-diversified areas.

Jefferson County’s geography presents other challenges. The West end of Jefferson County, where the Hoh Native American Reservation is located, is bordered by the Pacific Ocean. Clallam County is the border to the north; to the east, Admiralty Inlet and Hood Canal, and to the south, Grays Harbor and Mason counties. Port Townsend, the largest and only incorporated city in the county is on a peninsula.

Access and egress to the peninsula by car is limited. The most common way to get here is via the Hood Canal Bridge. The second choice is by way of Highway 101. In the event of a disaster, both routes could easily be impacted for one reason or another. Potential damage to either or both of those routes emphasizes

one of the disadvantages to the “Just-In-Time” delivery systems used by local retailers and businesses.

The “Just-In-Time” inventory system has its advantages by eliminating the need for suppliers to have large warehouses to hold inventories.

But there are also disadvantages to this system for the end-user. Of specific concern is the time of exceptional need for specific goods and supplies following a major disaster. Because of damaged roads or unavailable goods from suppliers, the shelves would remain empty and demands for specific products unmet.

In a study done by the Cascadia Region Earthquake Workgroup (2005), resupply issues for businesses in the Puget Sound area (to include not just grocery stores, but hospitals, pharmacies, emergency services, transportation related services, fuel, building materials and more) could quickly reach critical stages because of damages to previously used methods of delivery caused by a major disaster.

Getting supplies to the area by other means, should the need occur, would be at the top of the resource acquisition list for emergency management staff but the timeliness of acquiring those supplies would be dependent upon a number of things to include the overall impact of the disaster (how big an area was damaged and to what extent); availability of supplies (resources going to the hardest hit areas with greater populations first) and securing alternate means of delivery of needed supplies to include manpower, food, water and medical supplies and whatever else might be critically needed to save lives).

Of note is the possibility there will be long term interruption of the supply chain on the peninsula after a M9.0 earthquake. Recovery could take years with some resources never recovering.

“Contrary to what some believe is the case, an emergency management office—no matter the size of the community it serves—does not have a giant warehouse full of food, water and other supplies to distribute to residents,” said Bob Hamlin, Program Director of the Jefferson County Department of Emergency Management. “Our primary focuses are to provide public education and information, coordinate the response to a disaster, assessment and coordinate the delivery of state or federal assistance; support agency and jurisdictional partners, and run the Emergency Operations Center when it is activated for a countywide emergency,” he added.<sup>35</sup>

*A survey recently completed by Chapman University, revealed that most people in the U.S. have unrealistic expectations of what would happen if a major disaster—man-made or natural—were to occur.*

*“We found a major disconnect between people’s expectations of what would happen in a disaster and the reality of a disaster’s aftermath,” said Ann Gordon, Ph.D., and lead researcher on the disaster portion of the survey.*

*“The number one excuse given by Americans for not having an emergency kit is that they expect first responders to come to their aid immediately – this is an unrealistic belief in the wake of a natural disaster.” (CBS News)*



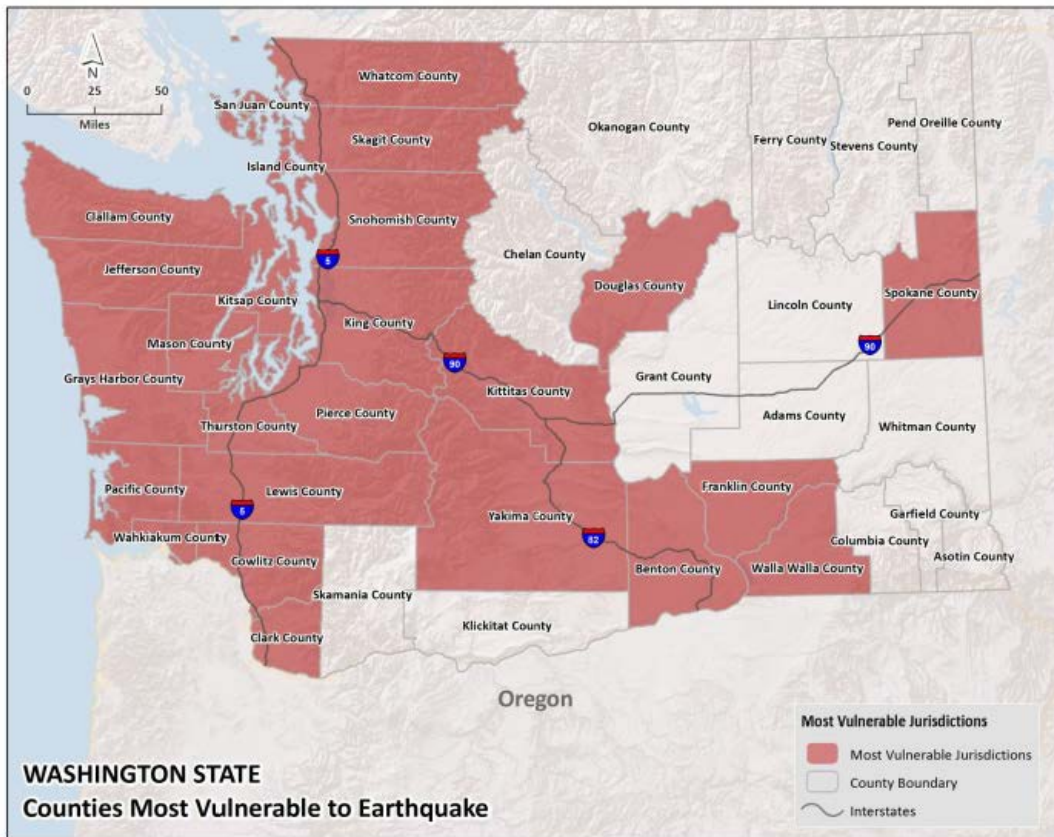
## Climate Change

**Not Applicable**

## Conclusion

Jefferson County is among the counties considered most at-risk and vulnerable to earthquake. Our evaluation is that the County has a very high risk and a very high vulnerability.

**Figure EQ-15 - Counties Most Vulnerable to Earthquake<sup>36</sup>**



Although scientists have tried for decades to predict earthquakes, no one has discovered a method that can be applied with regular success. For some areas with well-understood patterns of seismicity, it may be possible to forecast decades-long time windows when large earthquakes are likely to occur. However, the Pacific Northwest has only been monitored for a couple of decades; not long enough to allow us to see what patterns, if any, exist here. Seismologists are still trying to understand what types of earthquakes are possible here, and what kind of shaking we will experience from future earthquakes (depending on the earthquake location and size, and the site geology and topography).

Mitigation activities, including the following, should be instituted and maintained to lessen potential problems:

1. Examination, evaluation, and enforcement of effective building codes

2. Geologically hazardous areas, as defined by the Growth Management Act, should be identified and land use policies adopted to lessen risk.
3. Public information on what to do before, during, and after an earthquake should be provided to citizens. Emphasis must be placed on individual and family preparation for not just earthquake related disaster, but for all disasters.

Since 2004, the City of Port Townsend has actively sought to seismically retrofit public buildings that are critical assets. City Hall, the police station, the city's Historic Carnegie Library, City Water Distribution Center, tunnel lids and the City's water tower have all been completed or are in the process of being seismically retrofitted. The city is also developing plans for a "Resiliency Center" to deal with the post-disaster recovery needs after a major event.

Earthquake hazards can be reduced by advance preparation; such as coordinating emergency communications and activities across jurisdictional lines, preparing personal emergency plans, and considering seismic hazards in land use plans, building codes, and planning for medical, utility, and emergency facilities. Education programs are currently in place to facilitate the development of individual, family and neighborhood preparedness.

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# FLOOD<sup>1</sup>

## SUMMARY

**The Hazard:** Flooding is the uncontrolled release of impounded water resulting that can affect life and property. Flooding may occur as an overflow of water from water bodies, such as a river, lake, or ocean, in which the water overtops or breaks levees, resulting in some of that water escaping its usual boundaries or it may occur due to an accumulation of rainwater on saturated ground in an area flood.<sup>2</sup>

The National Flood Insurance Program defines flood as, “A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:

- Overflow of inland or tidal waters; or
- Unusual and rapid accumulation or runoff of surface waters from any source; or
- Mudflow (liquid and flowing mud moving across surface); or
- Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.”<sup>3</sup>

Flooding can be caused by excessive precipitation causing rivers and lakes to overflow their banks; tidal floods, or flash floods can be caused by intensive short bursts of precipitation in areas that cannot absorb or retain the water.

**Previous Occurrences:** Flooding is a frequent occurrence on the plains near the coasts. Between 1938 and 1966 (28 years), the Duckabush River flooded 26 times. Between 1931 and 1982 (51 years), the Dosewallips River flooded 23 times. In 2002, the flooding of Dosewallips changed the river course near Highway 101. In 2003, Dosewallips flooded the streets near Brinnon 3.5 feet<sup>5</sup>. In the same flood event, Duckabush flooded the Fire District #4 Station<sup>6</sup>. In December 2014, the Duckabush flooded Fire District #4's Station 4-2 again, resulting in a \$40,000 clean-up bill and \$14,000 of damage to their apparatus<sup>7</sup>.

In 2015, Jefferson County incurred nearly \$1.6 million in road repair costs due to landslides and flooding in the “West End.” Three hundred thousand was directly to flood damage to the Oil City Road.<sup>8</sup>

Table FL-1 lists all the Presidential Disaster Declarations for flooding in Jefferson County (**RED**) and adjacent counties (**BLUE**) from 1956 through July 2016.<sup>9</sup> Adjacent counties have been included because there have been times when flooding and storm damage in adjacent counties were enough to warrant a Presidential Disaster Declaration for them, but were not high enough to do so in Jefferson County – even though the flooding and / or storms did not respect the county line.

**Probability of Future Events:** High – The probability of severe winter storms in Jefferson County is 100%. Jefferson County's climate does not normally get the severe cold resulting in blizzards, therefore, winter storms contain a lot of rain that often causes flooding.

**Natural Hazard Risk Rating:** The average natural hazard risk rating for avalanches for all districts in Jefferson County was estimated at 19.9, which is right on the boundary for moderate risk.

**Table FL-1 Presidential Disaster Declarations for Flooding  
Jefferson County and Adjacent Counties (1956-2016)**

<b>EVENT DATE</b>	<b>EVENT</b>	<b>COUNTIES / RECIPIENTS</b>
December 1964	Maj. #185 - Heavy rains/flooding	Asotin, Benton, Clark, Columbia, Cowlitz, Garfield, <b>Grays Harbor</b> , King, Kittitas, Klickitat, Lewis, <b>Mason</b> , Pacific, Pierce, Skamania, Snohomish, Wahkiakum, Walla Walla, Whitman, Yakima
January 1971	Maj. #300 - Heavy rains/melting snow/flooding	Columbia, Garfield, <b>Grays Harbor</b> , Lewis, Skagit, Whatcom, Yakima
January 1972	Maj. #322 - Severe storms/flooding	Asotin, Cowlitz, <b>Grays Harbor</b> , Lewis, Pacific, Skamania, Thurston, Wahkiakum, Whitman
January 1974	Maj. #414 - Severe storms/snowmelt/flooding	Asotin, Benton, Columbia, Ferry, <b>Kitsap</b> , Klickitat, Lewis, <b>Mason</b> , Pend Oreille, Stevens, Thurston, Whitman, Yakima
December 1975	Maj. #492 - Severe storms/flooding	Benton, Cowlitz, Grays Harbor, King, Kittitas, Lewis, <b>Mason</b> , Pierce, Skagit, Snohomish, Thurston, Whatcom, Yakima
December 1977	Maj. #545 - Severe storms/mudslides/flooding	Benton, Clark, Cowlitz, Garfield, <b>Grays Harbor</b> , King, Kittitas, Klickitat, Lewis, Pacific, Pierce, Snohomish, Thurston, Wahkiakum, Whitman, Yakima
December 1979	Maj. #612 - Storms/high tides / mudslides / flooding	<b>Clallam</b> , Grays Harbor, <b>Jefferson</b> , King, <b>Mason</b> , Skagit, Snohomish, Whatcom
January 1986	Maj. #757 - Severe storms/flooding	<b>Clallam</b> , <b>Jefferson</b> , King
January 1990	Maj. #852 - Severe storms/flooding	Benton, <b>Grays Harbor</b> , King, Lewis, Pierce, Thurston, Wahkiakum
November 1990	Maj. #883 - Severe storms/flooding	Chelan, <b>Clallam</b> , Grays, Harbor, <b>Island</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom, Yakima
December 1990	Maj. #896 - Storms/high wind/ flooding	<b>Island</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Lewis, Pierce, San Juan, Skagit, Snohomish, Whatcom
November 1995	Major #1079 - Flooding and Wind (Nov - Dec 95) Declared Jan 3, 1996	Chelan, <b>Clallam</b> , Clark, Cowlitz, <b>Grays Harbor</b> , <b>Island</b> , <b>Jefferson</b> , King, Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom, Yakima
February 1996	Major #1100 - Flooding Declared February 9, 1996	Adams, Asotin, Benton, Clark, Columbia, Cowlitz, Garfield, <b>Grays Harbor</b> , King, <b>Kitsap</b> , Kittitas, Klickitat, Lewis, Lincoln, Pierce, Skagit, Skamania, Snohomish, Spokane, Thurston, Wahkiakum, Walla Walla, Whitman, Yakima, and Yakima Indian Reservation
December 1996	Major #1159 - Winter Storm (Ice, snow, flooding) Declared January 17, 1997	Adams, Asotin, Benton, Chelan, <b>Clallam</b> , Clark, Columbia, Cowlitz, Douglas, Ferry, Franklin, Garfield, Grant, <b>Grays Harbor</b> , <b>Island</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Klickitat, Lewis, Lincoln, <b>Mason</b> , Okanogan, Pacific, Pend Oreille, Pierce, San Juan, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Walla Walla, Whatcom, Yakima
March 1997	Major #1172 - Flooding Declared April 2, 1997	<b>Grays Harbor</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Lincoln, <b>Mason</b> , Pacific, Pierce, Pend Oreille, Stevens



EVENT DATE	EVENT	COUNTIES / RECIPIENTS
January 27 to February 4, 2006	DR 1641 Severe Storms, Flooding, Tidal Surge, Landslides, and Mudslides	<b>Clallam, Grays Harbor, Island, Jefferson, Kitsap, Mason, Pacific, Pend Oreille, San Juan, Snohomish, and Wahkiakum</b> Counties
November 2-11, 2006	DR 1671 Severe Storms, Flooding, Landslides, and Mudslides	All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program.
December 14-15, 2006	DR 1682 Severe Winter Storm, Landslides, and Mudslides	All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program
December 1 - 17, 2007	DR 1743 Severe Storms and Flooding	<b>Clallam, Grays Harbor, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Skagit, Snohomish, Thurston and Wahkiakum</b> Counties.
December 2008 / January 2009	DR 1817 Severe Winter Storm, Landslides, Mudslides, and Flooding	Adams, Asotin, Benton, Chelan, <b>Clallam</b> , Columbia, Cowlitz, Franklin, <b>Grays Harbor, Jefferson, King, Kittitas, Klickitat, Lewis, Mason, Pacific, Pierce, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Wahkiakum, Walla Walla, Whatcom, Whitman, and Yakima</b> counties.
March 2012	DR 4056 Severe Winter Storm, Flooding, Landslides, and Mudslides	<b>Clallam, Grays Harbor, King, Klickitat, Lewis, Mason, Pierce, Skamania, Snohomish, Thurston, and Wahkiakum</b>
March 2014	ED 3370 Flooding and Mudslides	State of Washington
January 2016	DR 4249 Severe Storms, Straight-line Winds, Flooding, Landslides, and Mudslides	Chelan, <b>Clallam, Garfield, Island, Jefferson, Kittitas, Lewis, Lincoln, Mason, Pend Oreille, Skamania, Snohomish, Spokane, Stevens, Wahkiakum, and Whitman</b> counties
February 2016	DR 4253 Severe Winter Storm, Straight-Line Winds, Flooding, Landslides, Mudslides, and a Tornado	<b>Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Skamania, and Wahkiakum</b> counties



Brinnon Flooding – February 2015

Photo by Keppie Keplinger

## Hazard Identification and Vulnerability Assessment



### Definition

Of all the hazards that affect Jefferson County, floods are the most common and cause the most property damage. There are basically three types of floods possible in Jefferson County.

**River building floods:** River building floods are caused by heavy, prolonged rain, melting snow, or both. Prolonged heavy rains and high freezing levels are the common cause for river flooding in Jefferson County. Runoff from the melting of low elevation snow often contributes to these floods. The spring runoff of the mountain snowpack also drives some river flooding in Jefferson County, especially during times of spring rains.

- **Tidal floods:** Tidal floods occur when high tides, strong winds, heavy swell, and low atmospheric pressure combine to produce flooding.
- **Flash floods:** Although possible, flash floods are not as common in Jefferson County as they are in Eastern Washington. Flash floods are characterized by a very rapid quick rise of the water level in a small river, stream or dry wash. In the most extreme case, a flash flood is a literal wall of water moving down a steep canyon or ravine. The brief intense rainfall from a thunderstorm is usually the cause of a flash flood.

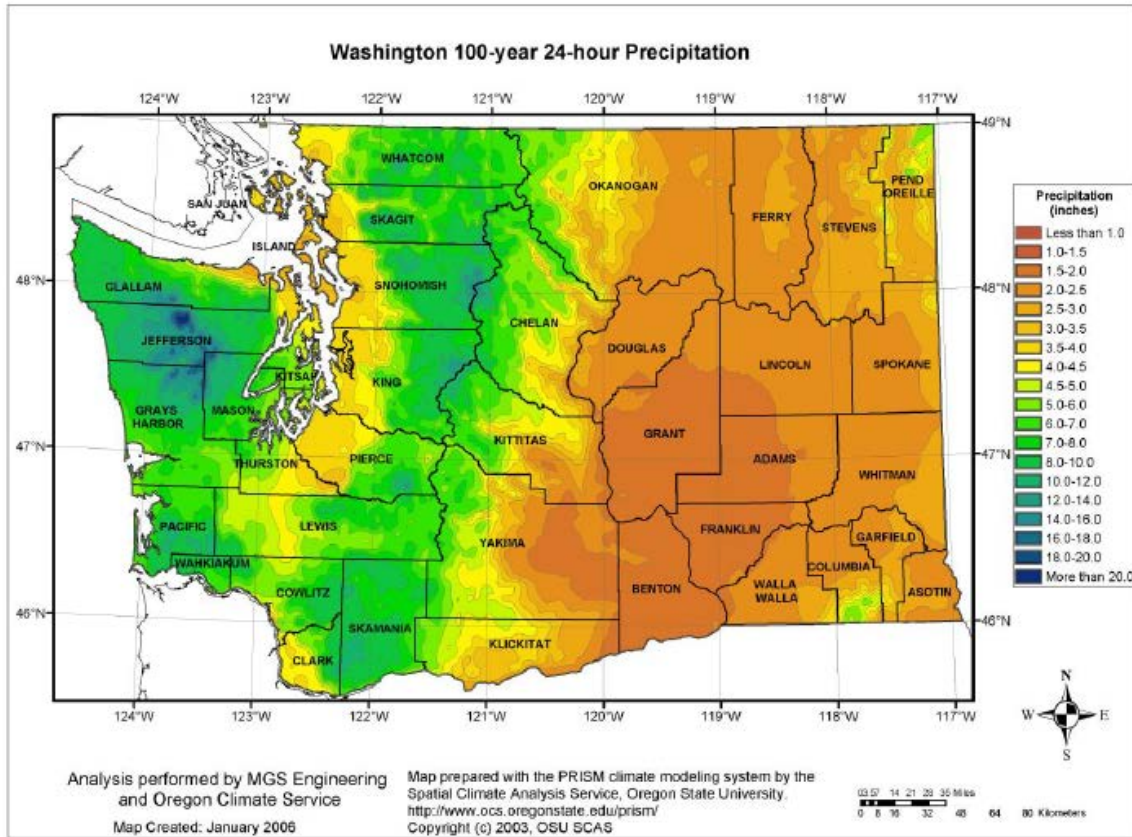
Flooding in Jefferson County occurs in the winter months. Coastal flooding is caused by storm surges which result from high spring tides and strong winter storm winds. Newspapers have reported wave run up during heavy wind storms in Port Townsend.

The rivers swell during winter months when heavy rains and snowmelt produce the highest runoff flows. The greatest and most frequent flooding occurs at river mouths where the high river waters are held back by concurrent ocean water surges and heavy rains characteristic of winter storms.<sup>10</sup>

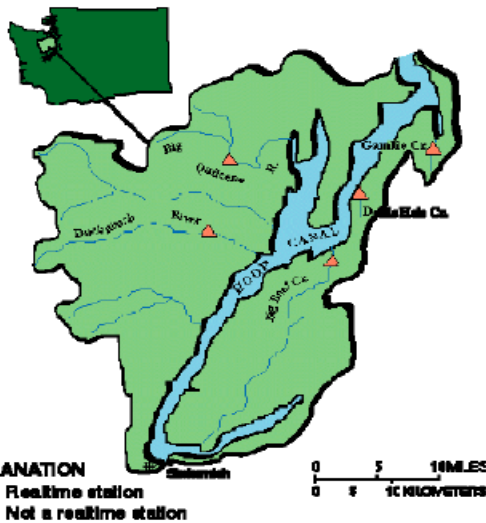
The frequency of major flooding is well-correlated with precipitation levels. Figure FL-1 on the following page shows 100-year 24-hour precipitation data. The high precipitation areas, shown in blue, green and yellow on Figure FL-1 include all of the counties with a history of frequent major flood events.<sup>11</sup>

As one can see from the map, there are locations in Jefferson County where there would have to be a real toad-strangler of a rain to exceed a 100-year event. The Olympic Mountains keep the rain on the Pacific side of the mountains and create such locations as the Hoh Rain Forest, which gets 12 – 14 feet of rain each year.

**Figure FL-1 – 24-Hour Precipitation Totals that would Qualify as a 100 Year Event<sup>11</sup>**



Floods on the rivers of Eastern Jefferson County, specifically the Duckabush, Dosewallips, and both the Big and Little Quilcene Rivers, generally are a combination of two types—the river building floods with help twice each day from the tidal floods. These rivers are short rivers with steep sided banks. Tidal changes from Hood Canal combined with increased runoff from the Olympics have produced a history of frequent flooding. Occurring principally during the winter months, flooding has inflicted loss of life and



property, damage to infrastructure and has been the cause for suspension of economic activity in communities near the Big and Little Quilcene, Duckabush, and Dosewallips Rivers in Eastern Jefferson County.

Eastern Jefferson County has short, steep rivers that rise quickly and recede quickly. The flood plains are alluvial in nature and are greatly affected by tidal action. Southern winds tend to hold water against the shores compounding the effects.





*Kelly Road, Brinnon. 2010 Flooding. Photo by Julian Ray*

Most floods are short term, however the potential for extreme damage is possible

In Western Jefferson County, floods on the Hoh, Clearwater, Bogachiel, and Quinault Rivers have damaged roads and bridges causing significant expense to the County to constantly repair and maintain them. Over the last 10-years, the average annual cost to the county for repairs due to flood and landslide damage has been \$750,000.<sup>12</sup>

Rivers in Western Jefferson County are highly erosive

to the low riverbanks of the flood plains. Many acres of farm and timberland disappear annually. Road and bridge washouts on Highway 101 in the “West End” have necessitated sandbagging and other emergency measures for members of the Hoh Tribe residing on reservation lands at the end of the Lower Hoh Road.

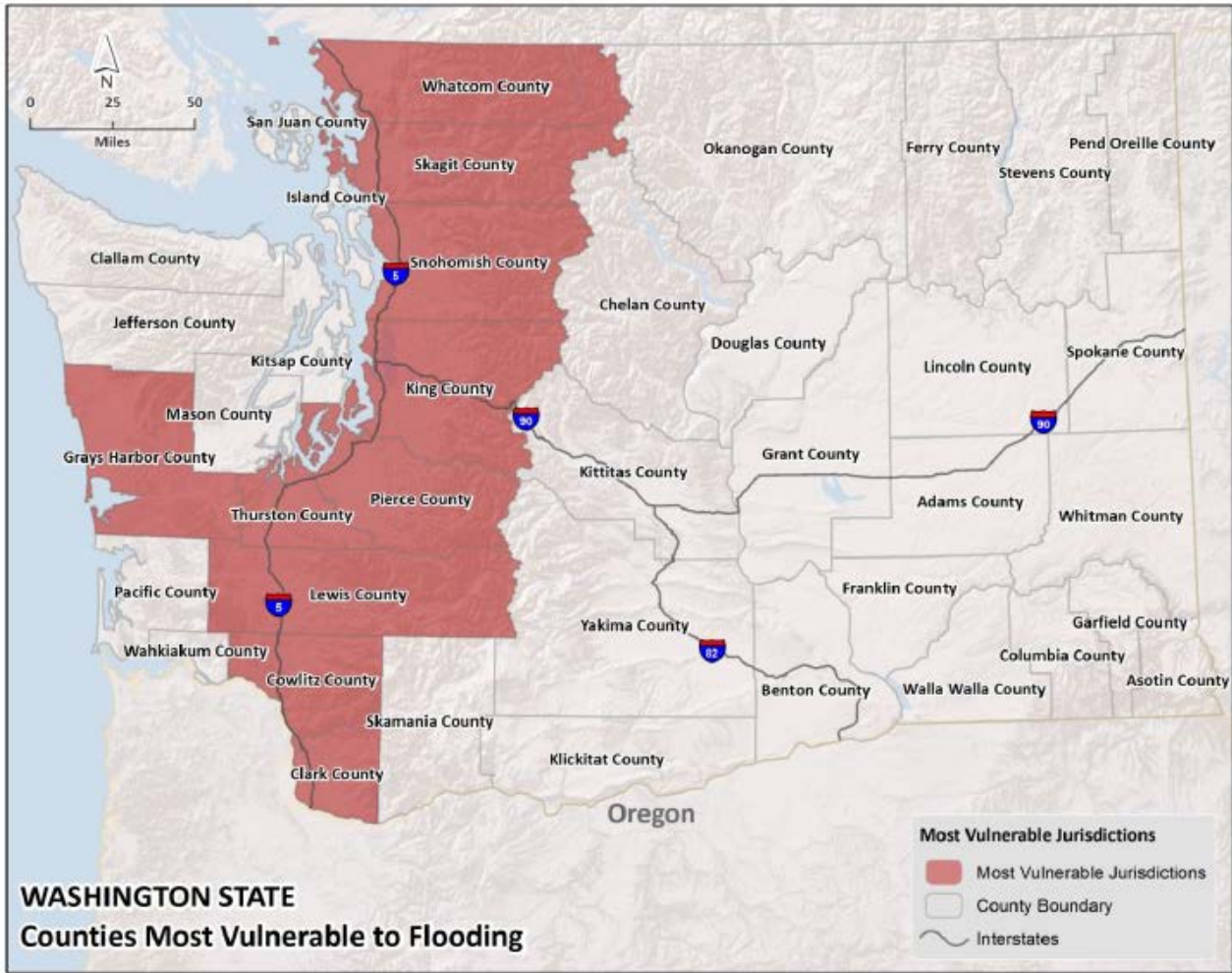


*Big Quilcene River, 2010 Flooding, Photo by Julian Ray*

Much of the recent development in the County has occurred either in or near flood plains. This development increases the likelihood of flood damages in two ways. First, new developments near a flood plain add structures and people in flood areas. Secondly, new construction alters surface water flows by diverting water to new courses or increases the amount of water that runs off impermeable pavement and roof surfaces. This second effect diverts waters to places that were previously safe from flooding.

Floods have regularly occurred throughout Western Washington. Principally during the winter and early spring months, Jefferson County’s flooding typically follows long rainy periods and / or rapid warming when Olympic Mountain snowpack melts rapidly into rivers and streams on all sides of the mountain slopes. That being said, Figure FL-2 shows that Jefferson County is not among the counties considered most vulnerable to flooding<sup>13</sup>.

**Figure FL-2 – Washington Counties Most Vulnerable to Flooding<sup>13</sup>**



Jefferson County is not considered at high risk or having a high vulnerability to floods because most of the County’s critical assets are not in flood zones. There are pockets, however of vulnerability near river flood zones. Since a picture is worth a thousand words, the following gallery of figures (Table FL-2) extracted from the Washington State Enhanced Hazard Mitigation Plan shows evidence for the above conclusions:

- The dollar value of assets at risk from flooding is less compared to other counties (Figure FL-3<sup>14</sup>).
- Frequency of flooding is moderate compared to other counties (Figure FL-4<sup>15</sup>);
- Jefferson County only has 2.9% of its land area at risk for riverine flooding (Figure FL-5<sup>16</sup>).
- Washington State Watershed Flood Risk Map (Figure FL-6<sup>17</sup>).
- Jefferson County only has three NFIP categorized repetitive loss properties and no Severe Repetitive Loss (SRL) properties within its borders,



Jurisdictions most vulnerable to flooding were determined by the State by scoring each county based on the above factors: frequency of flooding that causes major damage, the percentage of the county in floodplain, the number of flood insurance policies currently in effect, the number of flood insurance claims paid, the number of repetitive flood loss properties, and the number of severe repetitive loss properties. A maximum value of 28 points was possible (King County received this score). Jefferson County received 7 points. The entire table and analysis can be found in the “*Flood Hazard Profile*” of the Washington State Enhanced Hazard Mitigation Plan at [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Flood\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Flood_Hazard_Profile.pdf).<sup>xx</sup>

The ten counties with the highest score are considered most vulnerable to flooding and are highlighted in Table FL-2. Note that county totals include properties in the unincorporated areas of the County as well as the properties inside of the limits of the incorporated cities and towns within those Counties.

***Why is this important?*** It is not just a “humble brag” to say that Jefferson County should be recognized as among the top 10 counties most vulnerable to flooding (assuming that is something one wants to brag about). It is a recognition that in a major flood disaster Jefferson County, because of its relatively small population, will not be among the counties getting emergency resources quickly because those resources will be focused on more densely populated areas. Consequently, local authorities have to develop strategies that rely on resilience, self-reliance, and a trained-to-handle disasters population.

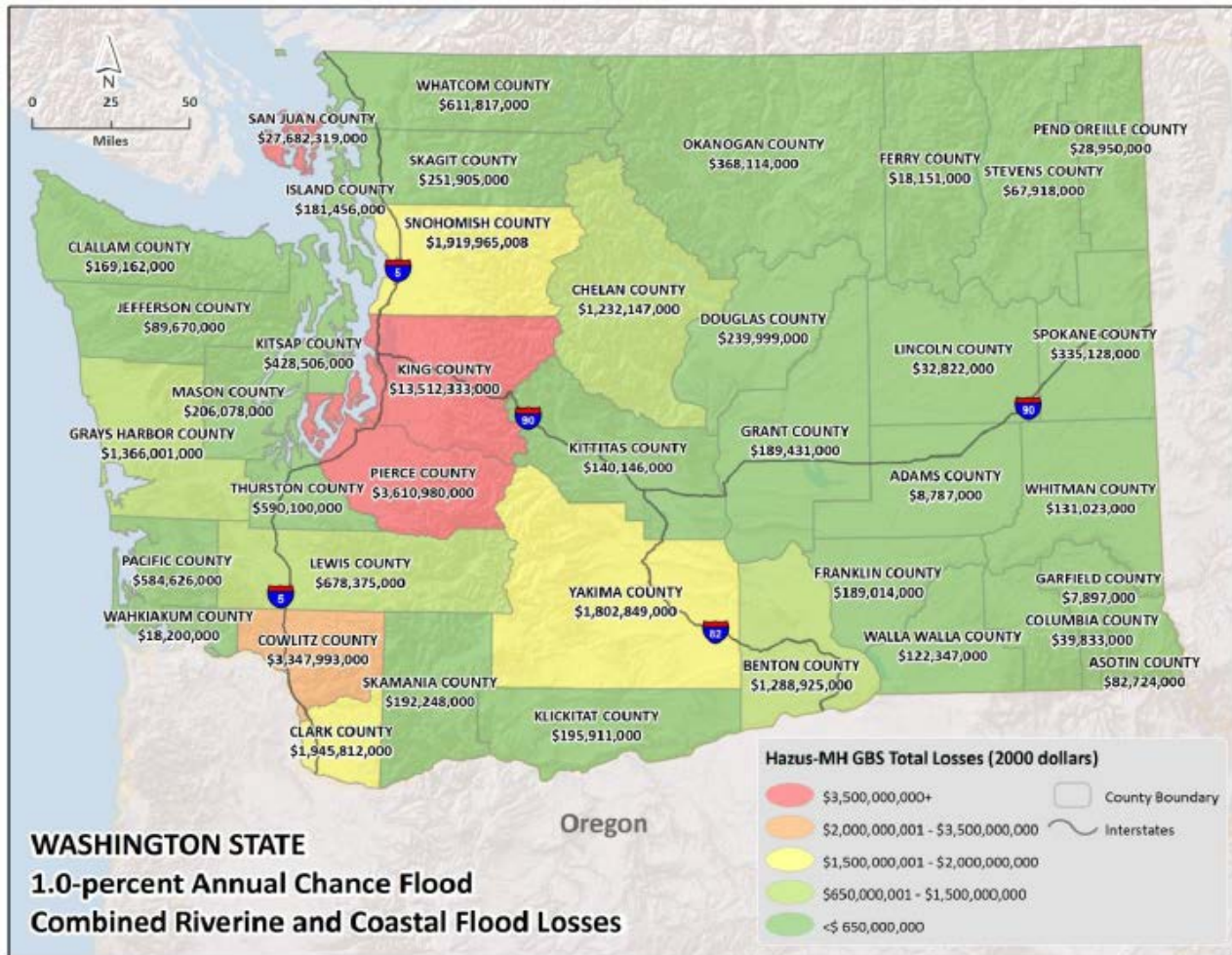


Center Valley flooding worst in 10 years, Short says

Source: Leader March 16, 2016

**Table FL-2 – Gallery of Relative Criteria for Identifying Counties Most Vulnerable to Flooding**

**Figure FL-3 - The Modeled Value of Flood Damage<sup>14</sup>**



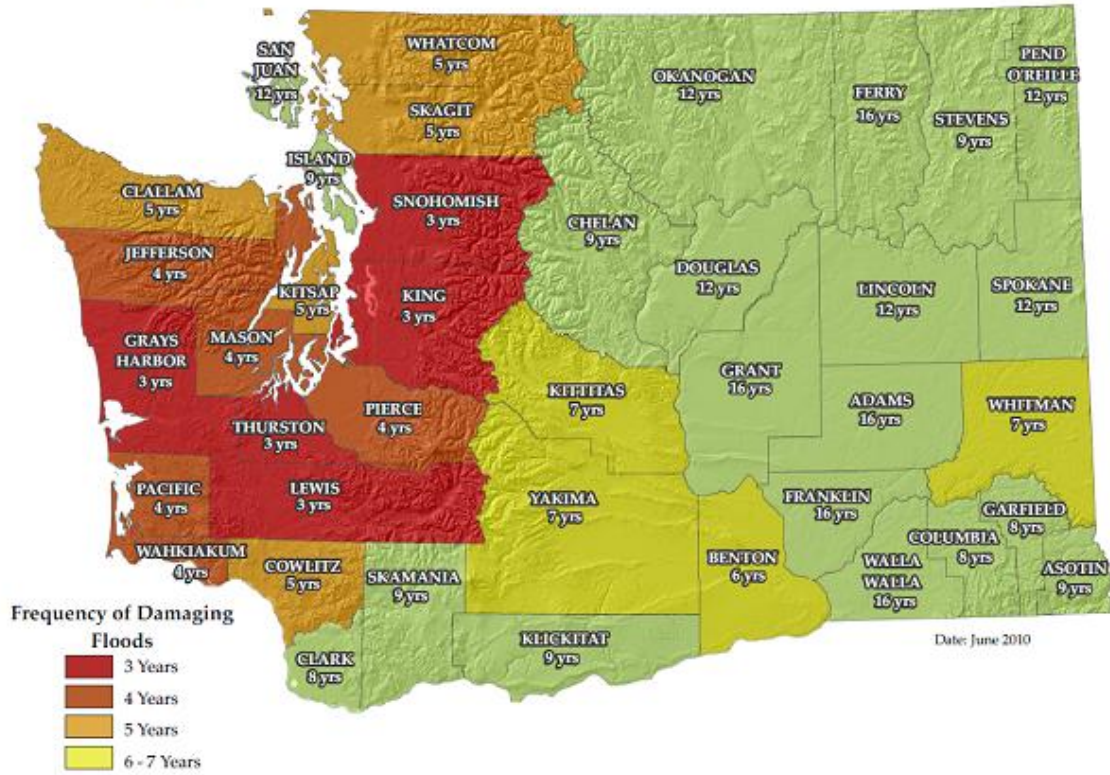
The modeling of total flood losses by the State predicts a loss of \$89,670,000 for Jefferson County, which puts it among the least affected counties on an absolute basis. However, if you divide the *Total Losses* by the population of the county for that year to create a “misery index”, by the modeling, Jefferson County would have a higher per capita loss than Skagit, Snohomish, and Thurston counties, all of which are listed as in the ten most vulnerable counties.

*Source: Washington State Emergency Management Division Hazard Mitigation Plan*



Figure FL-4 – Frequency of Major Flooding<sup>15</sup>

Frequency of Flooding Causing Major Damage, 1956 - Present



Source: Washington State Emergency Management Division Hazard Mitigation Plan

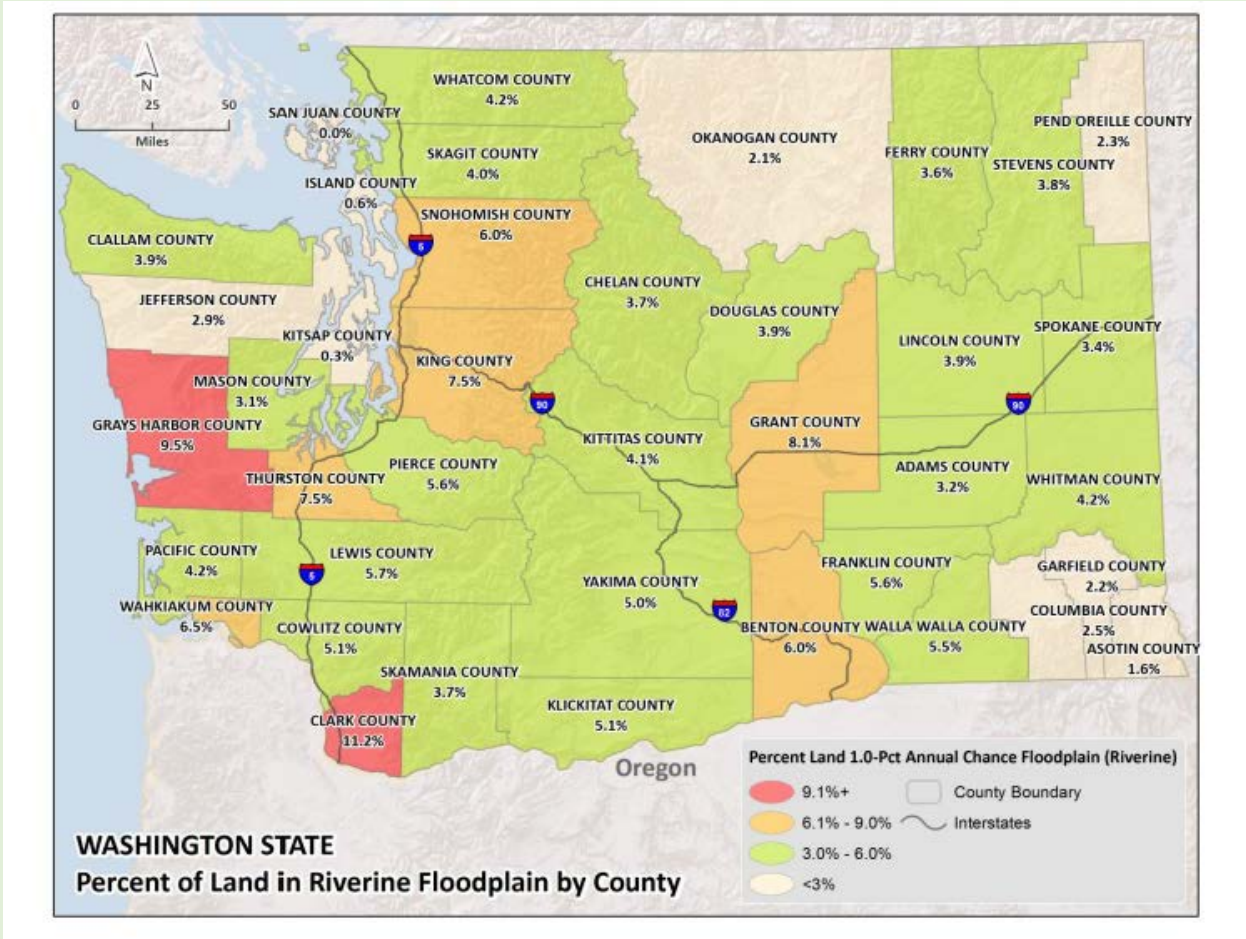


Jefferson County Sheriff's Car Caught in Flood

Source: PBStwimg.com



Figure FL-5 – Percentage of the County in the Riverine Floodplain<sup>16</sup>

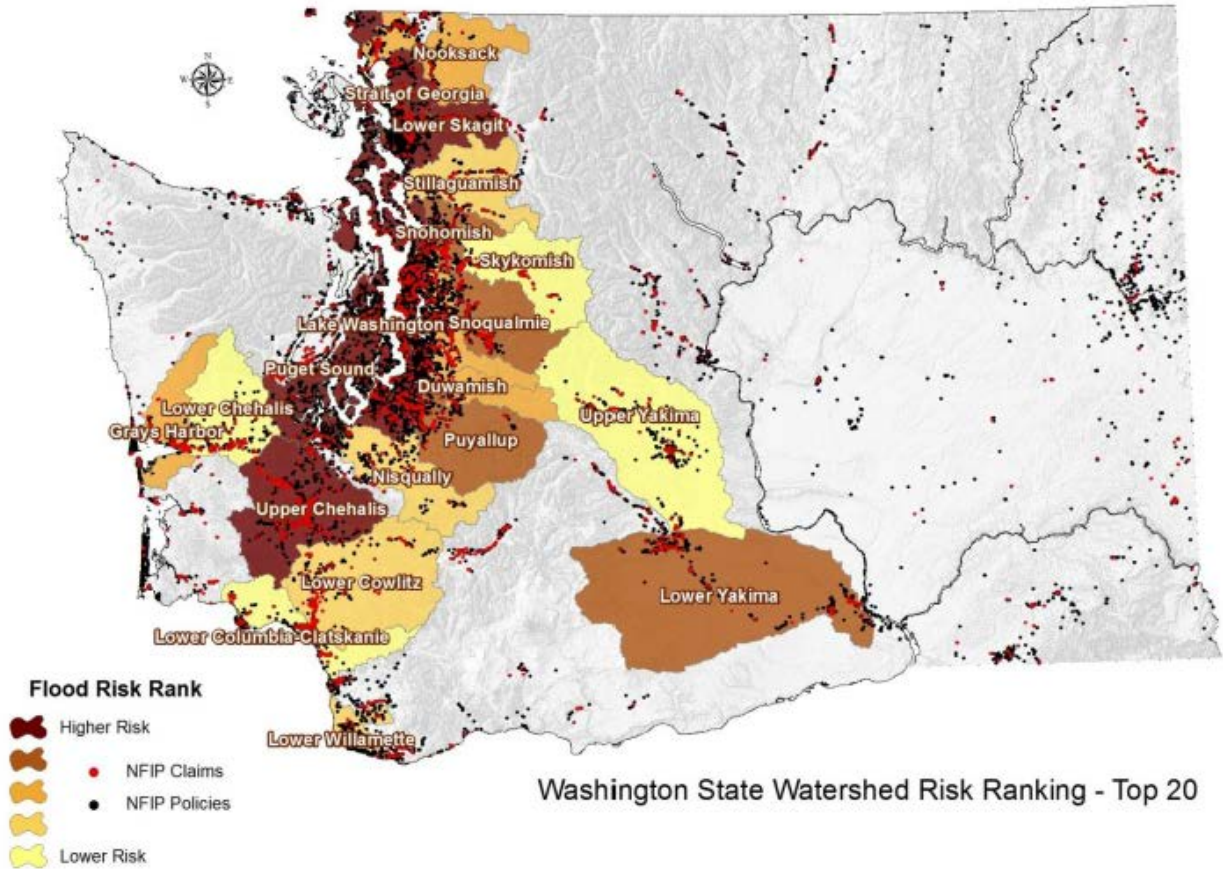


Source: Washington State Emergency Management Division Hazard Mitigation Plan

Although Jefferson County has less than 3% of its land in a riverine floodplain, there are two factors which argue for the county’s flood vulnerability:

- Nearly all of its population centers are in coastal floodplains to one degree or another,
- The majority of the county’s economic engine is in or near the floodplains, and
- Significant critical assets are within or adjacent to the costal floodplains.

**Figure FL-6 – Washington State Watershed Flood Risk Map<sup>17</sup>**



Source: Washington State Emergency Management Division Hazard Mitigation Plan

In 2012, the Washington Department of Ecology assessed flood risk based on the watershed availability in the western portion of the state.<sup>18</sup> Watersheds in the Puget Sound were considered high risk because the area is so heavily populated. Three risk factors were used: population density (60%), NFIP Policies and Claims (30%) and Floodplain Area (10%). Port Townsend was included in the Puget Sound sector, which was the second highest risk due to Seattle and its population.

**End of Gallery**

**NFIP**

In 1968, Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding.<sup>19</sup>

The following NFIP statistics were used in determining the vulnerability ranking of Washington counties:

- Number of Flood Insurance Policies in Effect
- Number of Flood Claims Paid

- Number of Repetitive Loss Properties, and
- Number of Severe Repetitive Loss Properties.

**Repetitive Loss Properties** – “A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP. Currently there are over 122,000 RL properties nationwide.”<sup>20</sup>

**Severe Repetitive Loss Properties (SRL)** – “The SRL group consists of any NFIP-insured residential property that has met at least 1 of the following paid flood loss criteria since 1978, regardless of ownership:

- 4 or more separate claim payments of more than \$5,000 each (including building and contents); or
- 2 or more separate claim payments (building payments only) where the total of the payments exceeds the current value of the property.

In either case, two of the claim payments must have occurred within 10 years of each other. Multiple losses at the same location within 10 days of each other are counted as 1 loss, with the payment amounts added together.”<sup>21</sup>

Only a small percentage of the homes in mapped flood plains are insured against flood loss. Many homeowners who live in flood plains carry fire insurance, however they do not carry flood insurance. Only about 20 to 30 percent of the homes in floodplains have insurance for flood losses.

**Jefferson County and the City of Port Townsend are both participants in the NFIP program. Their statistics are presented in their community profiles and below in “Risk Map Assessment.”**

**RISKMAP ASSESSMENT**

**RiskMAP** replaced the Flood Map Modernization program in 2010. Flood Map Modernization was established in 1997 to digitally update FEMA flood maps. Under the Map Moderations Program, several counties in the Washington were mapped, providing countywide Digital Flood Insurance Rate Maps (DFIRMs). Jefferson County’s turn came in 2014, with the Preliminary DFIRMS available for comment in February 2016. Figure FL-7 below shows the scope of the DFIRMS under development.

Additionally, the Risk Map project does Hazus simulations and pulls the latest NFIP statistics for the area being studied. Table FL-3 provides the NFIP community characteristics for the Jefferson County area as of December, 2015.<sup>22</sup>

**Table FL-3 – Community Characteristics**

Community Name	Total Population	CRS Community	Flood Claims	Total Losses Paid	Repetitive Loss Properties	Total Policies	Total Insurance Coverage
Port Townsend	9,210	No	4	\$26K	0	60	\$17M
Unincorporated Jefferson County	30,076	No	28	\$387K	1	162	\$38M
Hoh Tribe	102	No	0	0	0	3	\$520k





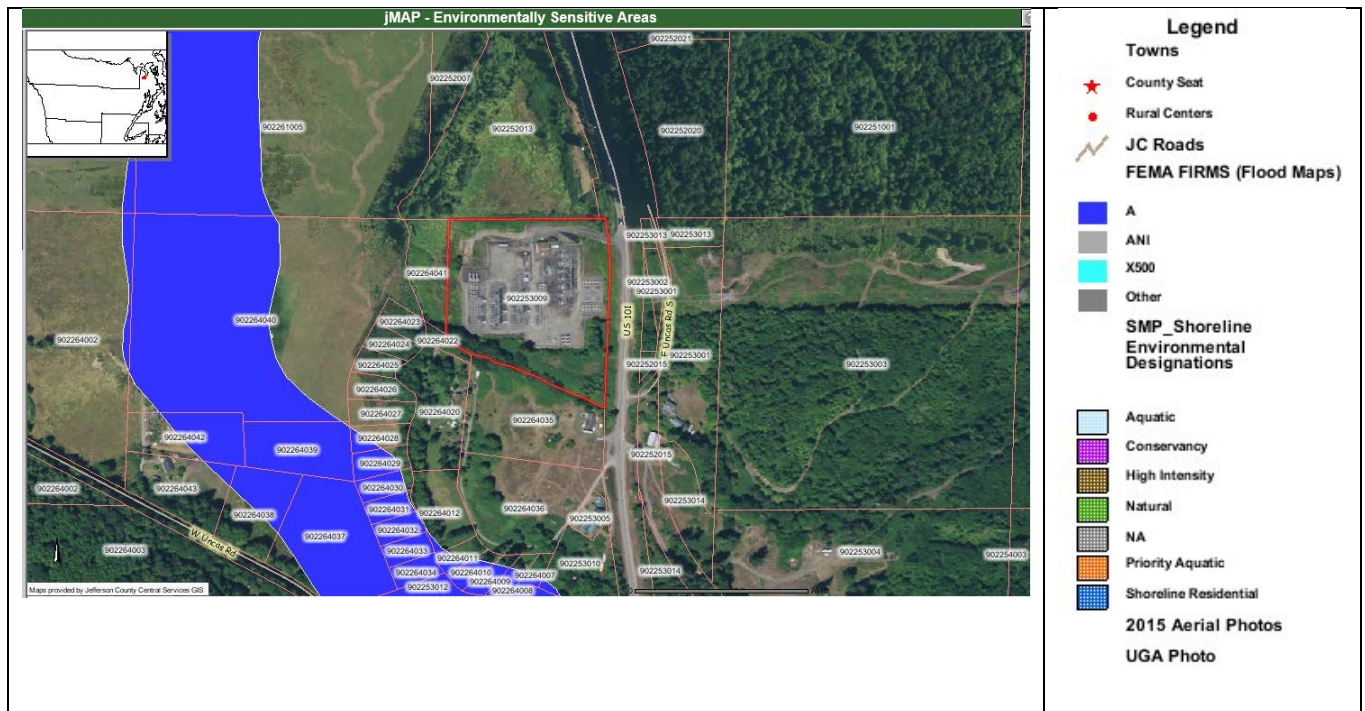
Table FL-4 presents building value and percentage of buildings located within the floodplain of the community.<sup>23</sup>

**Table FL-4 – Assessment of Special Flood Hazard Area**

Community	Total Estimated Building Value	Total Number of Buildings	Building Dollar Loss for a 1% Annual Chance Flood Event	Loss Ratio (Dollar Losses/Total Building Value)	Number of Buildings within the VE Zone	Number of Buildings within the AE or A zones	Percent of Buildings in the Special Flood Hazard Area (AE-A and VE Zones)
Port Townsend	\$646,052,977	4,845	\$5,042,238	0.8%	0	64	1.3%
Unincorporated	\$1,639,851,022	14,356	\$4,980,605	0.3%	10	681	4.8%
Hoh Tribe	\$3,119,782	35	Unknown*	Unknown*	1	7	23%
<b>Total</b>	<b>\$2,289,023,781</b>	<b>19,236</b>	<b>\$10,022,843</b>	<b>0.44%</b>	<b>11</b>	<b>752</b>	<b>3.9%</b>

It should be noted that there are a number of critical structures that are located slightly outside the floodplain, based on maps – but not based on Mother Nature’s predilections. Figure FL-8 is an illustration of one of risks that do not get picked up in generic simulations – one of two power substations that serves the Quimper Peninsula is a few feet outside a flood zone.<sup>24</sup> If a tsunami or flood takes out that substation, the Quimper Peninsula has the potential to be without power for months.

**Figure FL-8 - PUD Substation Near Flood Zone**



## Climate Change

The NOPRCD report estimates rain events in which rainfall exceeds one inch in 24 hours will increase by 13% by the 2050's.<sup>25</sup> Table FL-5 copies the Precipitations: Trends and Extremes table from the NOPRCD report.<sup>26</sup> Table FL-6 provides the probability that the mean sea level will reach or exceed projected Mean Higher High Water (MHHW) tidal datum by selected years, including 2050.<sup>27</sup>

Figures FL-9 and FI-10 are maps of the probabilistic sea level rise / coastal flood risk for Port Townsend for 2050.<sup>28,29</sup> It is interesting to note that, based on the *Annual Extreme Storm Flooded Areas in 2050* map, the frequency of flooding will increase, and critical infrastructure that one would expect to be in a higher flood zone are shown to be threatened more than they are today. Specifically, the Port Townsend Paper Mill, Life Care Center of Port Townsend, and the Kearney Street power substation all appear to be inside the predicted flood zone due to rising sea levels.

**Table FL-5 – Precipitations: Trends and Extremes<sup>26</sup>**

Precipitation <sup>57</sup>	Observed Changes	Future Projections
Averages (for Pacific Northwest)	No significant changes in average amount; Region-wide decrease in snowpack.	Little average annual change – with dryer summers (-6% to -8% average decrease). Continued declining snowpack with significant loss of snowpack in Olympics by 2080 <sup>58</sup> .
Extremes	Ambiguous	More heavy rainfall events: 13% (± 7%) increase in days with > 1 inch of rain.

**Table FL-6 - Relative Sea Level Projection for Coastal Communities<sup>27</sup>**

Location	Probability	... that mean sea level will reach or exceed ___ feet relative to current MHHW...			... and that the annual extreme coastal flood will reach ___ feet relative to current MHHW			
		2030	2050	2100	Current	2030	2050	2100
Neah Bay and Clallam Bay-Seki	99%	-0.1	-0.2	-0.1	2.0	2.1	2.2	2.6
	95%	-0.1	-0.0	0.3	2.4	2.4	2.6	3.1
	83%	0.0	0.1	0.7	2.7	2.9	3.0	3.7
	75%	0.0	0.2	0.9	2.8	2.9	3.1	3.9
	50%	0.1	0.3	1.3	3.2	3.3	3.5	4.5
	25%	0.1	0.5	1.8	3.6	3.6	3.9	5.1
	17%	0.2	0.5	2.0	3.7	3.8	4.0	5.4
	5%	0.2	0.7	2.7	4.1	4.1	4.4	6.2
	1%	0.3	0.9	4.0	4.3	4.4	4.8	7.5
Port Angeles	99%	0.1	0.1	0.5	1.1	1.4	1.6	2.2
	95%	0.1	0.2	0.9	1.4	1.6	1.9	2.7
	83%	0.2	0.4	1.2	1.6	1.9	2.2	3.2
	75%	0.2	0.4	1.4	1.8	2.0	2.3	3.4
	50%	0.3	0.6	1.9	2.1	2.3	2.6	3.9
	25%	0.3	0.7	2.3	2.4	2.6	3.0	4.5
	17%	0.3	0.8	2.6	2.5	2.8	3.2	4.8
	5%	0.4	0.9	3.3	2.8	3.1	3.5	5.5
	1%	0.5	1.2	4.6	3.1	3.4	3.9	6.8
Port Townsend	99%	0.2	0.4	1.0	1.1	1.5	1.9	2.8
	95%	0.3	0.5	1.4	1.3	1.8	2.2	3.3
	83%	0.3	0.7	1.8	1.6	2.1	2.5	3.8
	75%	0.4	0.7	2.0	1.8	2.2	2.6	4.0
	50%	0.4	0.9	2.4	2.1	2.5	2.9	4.5
	25%	0.5	1.0	2.9	2.4	2.8	3.3	5.1
	17%	0.5	1.1	3.1	2.5	2.9	3.5	5.3
	5%	0.6	1.2	3.9	2.8	3.3	3.8	6.1
	1%	0.6	1.5	5.2	3.1	3.6	4.1	7.3

Relative sea level (third column) and annual extreme coastal flood projections (right column, which includes sea level rise) for the coastal communities of the Strait of Juan de Fuca relative to the contemporary Mean Higher High Water (MHHW) tidal datum. The third column of the table provides the probability (in percent) that mean sea level will be at or above a certain elevation (in feet) above contemporary MHHW by 2030, 2050 or 2100. The right column of the table provides the probability in a given year that the largest single coastal flooding event will reach a given elevation (in feet) above the contemporary MHHW. This column reflects how storm surge amounts vary at locations across the peninsula.

Source: NOPRC Report



**Figure FL-9 – Sea Level Inundation Area In 2050, Port Townsend<sup>28</sup>**

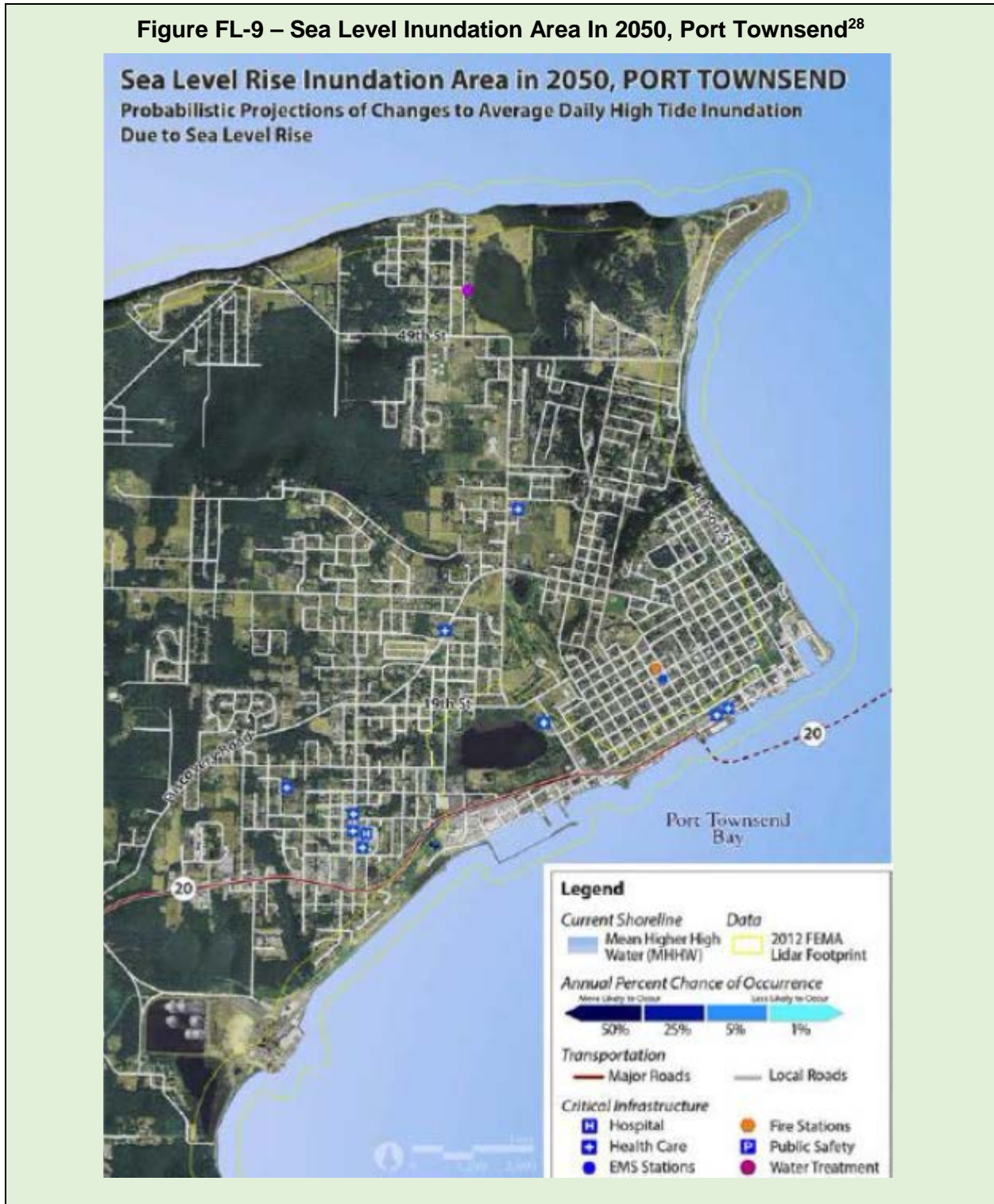
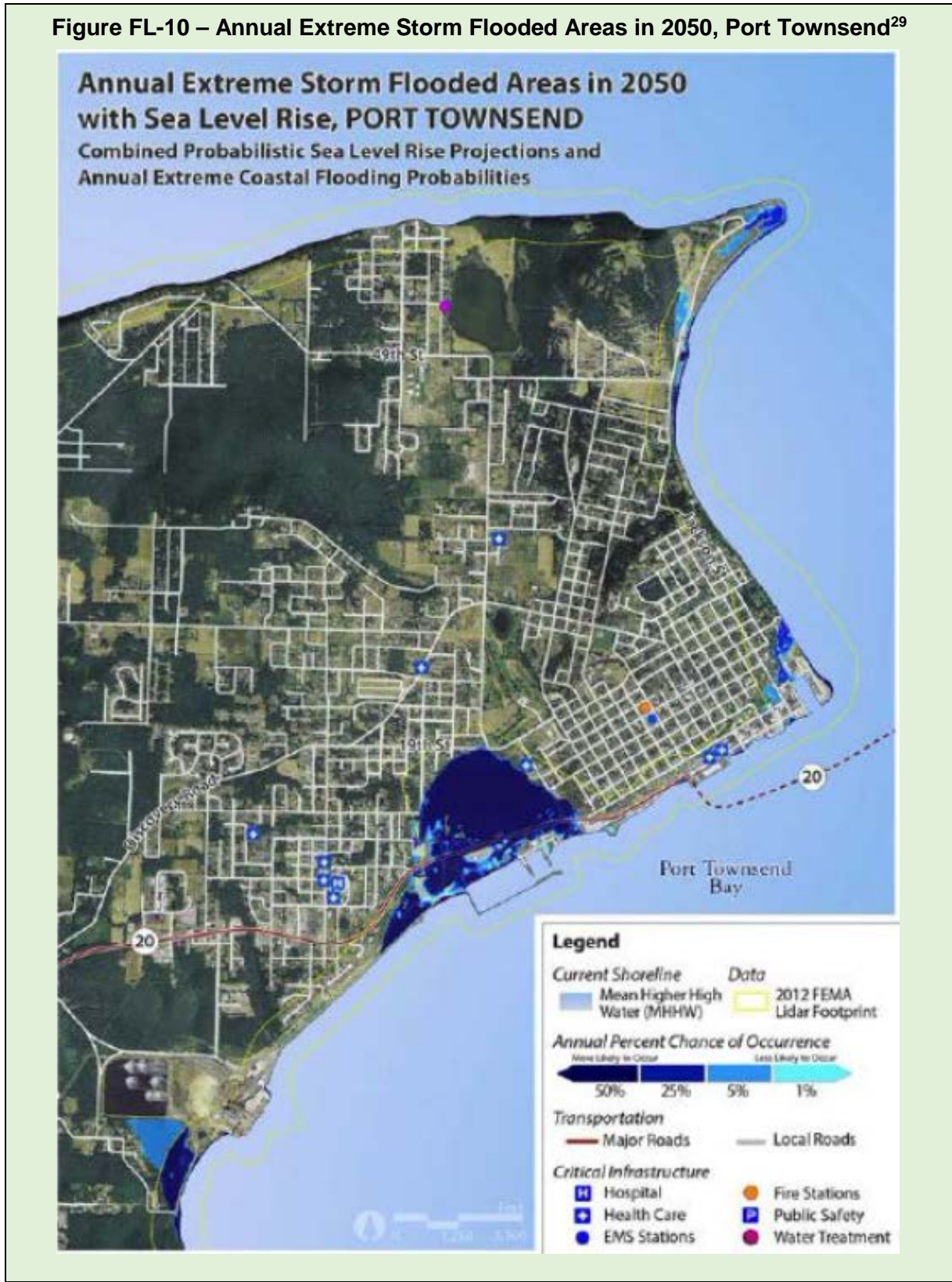


Figure FL-10 – Annual Extreme Storm Flooded Areas in 2050, Port Townsend<sup>29</sup>





## Conclusion

Many homes and small businesses located in flood plains are vulnerable to damage. Flood damage to croplands, structures, land resources, roads and utilities exceed damage cause by all other natural hazards in Jefferson County. Building in floodplains must be regulated to ensure that floodplain development is limited to utilization such as parks, golf courses, farmlands, etc., to help ensure that land use is maximized while the potential for damages is minimized.

Jefferson County developed the “Jefferson County Flood Damage Prevention Ordinance, No. 18-1120-95” to better regulate and direct development in flood plain areas. It regulates planning, construction, operation, maintenance and improvements in these areas for both public and private endeavors. The ordinance helps ensure that work is properly planned, constructed, operated and maintained to avoid adversely influencing the regimen of the stream. It provides a sound basis for planning to ensure the security of life, health, and property damage by floodwaters in floodplain areas.

The public should be made aware and reminded of hazardous areas and be provided information on flood insurance, mitigation, preparedness, response and recovery. Local plans should reflect warning, evacuation, housing and other emergency procedures. Plans must also include and emphasize the need to be aware of potential disease, hazardous material releases, or debris that may affect floodwaters.

In years past, people living on or near rivers have taken it upon themselves to remove gravel deposits thus helping to maintain river and stream channels. As greater emphasis has been placed on maintaining salmon spawning areas, this type of activity is now restricted and requires hydraulic permits for any activity in the riverbeds. As a result, deposits of gravel have built up over the years, and the river channels have become increasingly shallow, exacerbating the chances of flooding. Low levees constructed along several rivers in eastern Jefferson County have failed in the past. Although levees have been reinforced on the Dosewallips River, many levees on the mouth of the Big Quilcene River are the same elevation as the riverbed.

The National Weather Service has extensive weather monitoring systems and usually provides adequate and timely warning. The National Oceanic and Atmospheric Administration (NOAA) provides coverage of the Puget Sound area, but currently does not cover the western portion of the county. N.O.A.A. WEATHER RADIO (NWR) is a source of initial warnings and alerts. It is a nation-wide network that broadcasts continuous weather information and emergency alerts - including relays from the Emergency Alert System (EAS).



Work on Dosewallips River. Photo by Bob Hamlin

The United States Army Corps of Engineers, under PL 84-89, has the authority to assist public entities in flood fighting and rescue operations as well as protecting, repairing and restoring federally constructed flood control infrastructure

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29. *Ibid.*

## Tables - Flood

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FL-1	Presidential Disaster Declarations for Flooding in Jefferson County and Adjacent Counties (1956-2016)
FL-2	Gallery of Relative Criteria for Identifying Counties Most Vulnerable to Flooding
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FL-4	Assessment of Special Flood Hazard Area
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FL-10	Annual Extreme Storm Flooded Area for Port Townsend, WA in 2050

# HEAT WAVE (EXTENDED) <sup>1</sup>

## SUMMARY

**The Hazard:** The National Weather Service defines a heat wave as a “prolonged excessive heat/humidity episode” in which its Heat Index (HI) is expected to exceed 105° for at least two consecutive days<sup>2</sup>. Severe heat waves have caused catastrophic crop failures, thousands of deaths from hyperthermia, and widespread power outages due to increased use of air conditioning. A heat wave is considered extreme weather, and a danger because heat and sunlight may overheat the human body<sup>3</sup>.

“In 2015, 45 people died nation-wide as a result of extreme heat, up dramatically from the 2014 total of 20 but down from the 92 fatalities in 2013. This number is well below the 10-year average for heat related fatalities, 113. In 2015, the most dangerous place to be was in a permanent home, likely with little or no air conditioning, where 15 people died<sup>4</sup>. As in the past, extreme heat most strongly affected adults aged 50+, with 33 deaths (73%). Sadly, the next highest age-range was children 0-9, many left in vehicles. Once again, more males, 32 (71%), than females, 13 (29%), were killed by heat.<sup>5</sup>”

### Impacts and Effects:

- Potential deaths due to Heat Related Illness (HRI)
- Increase in illness and accidents due to HRI
- Potential illness and death of commercial livestock as well as domestic pets
- Adverse impact on agriculture, especially dry land farms and grazing lands
- Increased danger of fires
- Imposition of water conservation measures
- Shortages of water for firefighting
- Increased prices for local produce
- Economic impact due to loss of sales from people sheltering from heat instead of being out in the community
- Economic impact of lost work-time due to HRI

**Previous Occurrences:** There have been three outdoor-work heat related deaths in Washington during the years 2005 and 2006.

**Probability of Future Events:** High – Climatic changes may be impacting the frequency and duration of extended heat events on the Olympic Peninsula.

**Natural Hazard Risk Rating:** The average natural hazard risk rating for heat wave for all districts in Jefferson County was estimated at 13.65, which would be considered low, approaching moderate.

## Definition

The National Weather Service (NWS) defines a heat wave as a “prolonged excessive heat/humidity episode” in which its Heat Index (HI) is expected to exceed 105° for at least two consecutive days.

A definition based on Frich et al.'s Heat Wave Duration Index is that a heat wave occurs when the daily maximum temperature of more than five consecutive days exceeds the average maximum temperature by 5 °C (9 °F), the normal period being 1961–1990<sup>6</sup>.

Heat related illness is a well-known, recognized hazard in the outdoor work environment, as well as a threat to the day-to-day functioning of people without the means of sheltering from the heat. Heat Related Illnesses (HRI) include heat fatigue, heat rash, fainting, heart cramps, heat exhaustion, and heat stroke. Aside from these disorders, heat poses an additional threat of injuries due to accidents caused by heat related fatigue, dizziness, and disorientation.

The Heat Index devised by the NWS gives an accurate measure of how hot it really feels when the relative humidity is added to the actual air temperature. Since HI values were predicated on shady, light wind conditions, exposure to full sunshine can increase values by 15 degrees. Figure HW-1, below, presents a graphic representation of the heat index<sup>7</sup>.

#### **Possible heat related disorders are:**

Heat Index 130° or higher: Heat stroke/sunstroke highly likely with continued exposure.

Heat Index 105° - 130°: Sunstroke, heat cramps or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity.

Heat Index 90° - 105°: Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.

Heat Index 80° - 90°: Fatigue possible with prolonged exposure and/or physical activity.

#### **NWS Alerts:**

The National Weather Service tracks heat waves by reporting stations, of which Seattle is the closest to Jefferson County. It issues heat advisories and excessive heat warnings based on the following criteria:

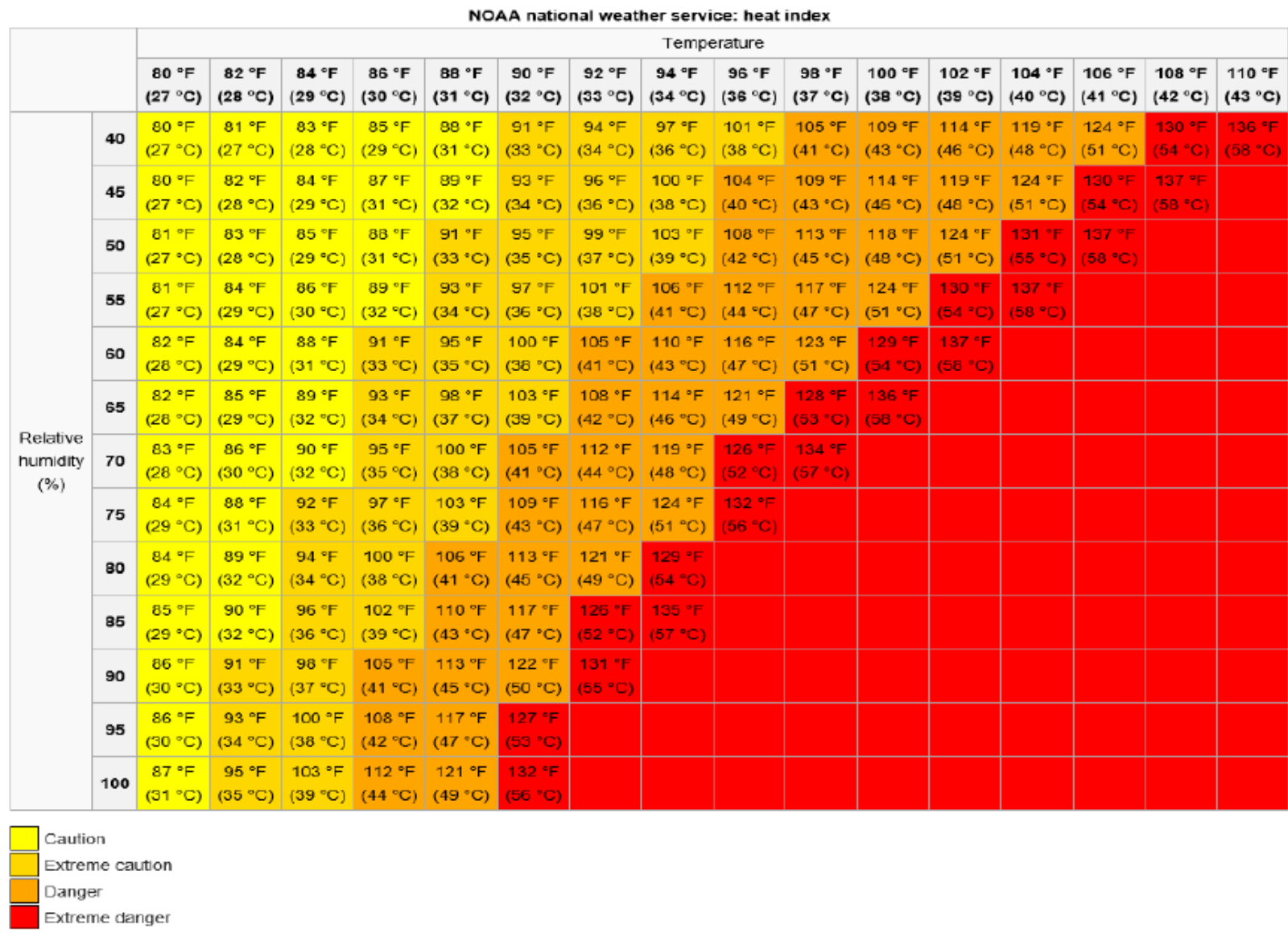
**Heat Advisory** - Issued within 12 hours of the onset of the following conditions: heat index of at least 105°F but less than 115°F for less than 3 hours per day, or nighttime lows above 80°F for 2 consecutive days<sup>8</sup>.

**Excessive Heat Watch** - Issued by the National Weather Service when heat indices in excess of 105°F (41°C) during the day combined with nighttime low temperatures of 80°F (27°C) or higher are forecast to occur for two consecutive days<sup>9</sup>.

**Excessive Heat Warning** - Issued within 12 hours of the onset of the following criteria: heat index of at least 105°F for more than 3 hours per day for 2 consecutive days, or heat index more than 115°F for any period of time<sup>10</sup>.



**Figure HW-1 – NOAA National Weather Service Heat Index Chart<sup>7</sup>**



Source: [https://en.wikipedia.org/wiki/Heat\\_wave](https://en.wikipedia.org/wiki/Heat_wave)

## HISTORY OF HEAT WAVES IN JEFFERSON COUNTY

The following incidents were gleaned from local news sources and histories of Jefferson County:

**Mar 2001-Dec 2001** - On March 14, 2001, Gov. Gary Locke authorized the Department of Ecology to declare a statewide drought emergency; Washington was the first Northwest state to make such a declaration, which remained in effect until December 31, 2001.<sup>11</sup>

**2002-2003**- Two of the driest summers on record—one of five driest winters in past 100 years. **Port Townsend Paper Corporation curtailed some operations**, and fishing was halted on rivers on the Olympic Peninsula

**2006** – Multiple heat waves of 3-4 days each in June, July, August, and culminating in September during Seattle’s Bumbershoot festival.

**August 2008** – Three days in which heat alerts were issued by the National Weather Service.

**July – August 2009** – Triple digit heat from Seattle to Medford, Oregon on July 28 – 29.<sup>12</sup>

**August 18th – 20th 2016** – Multiple days of over-100 degree temperatures in the counties surrounding Jefferson County. Silverdale, Sequim, Seattle, etc. were all under “excessive heat warnings.”

## HAZARD ASSESSMENT AND VULNERABILITY ASSESSMENT

During the period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died. From 1999 to 2010, a total of 7,415 deaths in the United States, an average of 618 per year, were associated with exposure to excessive natural heat.<sup>13</sup> The highest yearly total of heat-related deaths (1,050) was in 1999 and the lowest (295) in 2004. Approximately 68% of heat-related deaths were among males.

During the period from 1994 through 2007, three people died directly as a result of heat exposure in Washington. None have been recorded in Jefferson County.

The geography of Jefferson County mitigates its exposure to extreme heat because it is heavily wooded, surrounded by significant waterways (the Strait of Juan de Fuca and Puget Sound), and is protected by the Olympic Mountains. Even so, the moderate conditions deter people from purchasing air conditioners, and nearly a third of the population is over 65-years old.<sup>14</sup> Even though extremely high temperatures are generally of short duration in Jefferson County, the high proportion of vulnerable populations, including the elderly, small children, and chronic invalids, dictate that local governmental, emergency, and public health officials are sensitive to heat conditions and take appropriate preventive measures.

## Climate Change

Future projections predict a slight increase in days over 90°F (+8 days) for the Pacific Northwest (PNW), with a limited increase in days over 95°F on the Olympic Peninsula.<sup>15</sup>

## Conclusion

Heat-related deaths state-wide will increase as average yearly temperatures increase. More frequent days over 100 °F (38 °C) will cause several problems for humans, including heat cramps, heat exhaustion, and heat stroke. The amount of heat waves has increased in the state of WA over the past 20 years. The average cost for each mortality from heat related deaths is \$6,250.<sup>16</sup>

Due to its favorable location and geography, Jefferson County has a low probability of experiencing the significant heat wave related issues that the rest of the State will face. Nevertheless, Washington's Department of Labor and Industries (L&I) has issued a rule, with which Jefferson County employers must comply, for employers having one or more employees performing work outdoors to:

- Establish and implement written procedures to prevent the occurrence of HRI;
- Provide and make accessible enough drinking water when hazards are present;
- Have formalized procedures in place to respond to employees showing signs of HRI; and
- Provide effective HRI prevention training to all employees.

The NWS will initiate alert procedures when the HI is expected to exceed 105°- 110°F (depending on local climate) for at least two consecutive days. The procedures are:

- Include HI values in zone and city forecasts.
- Issue Special Weather Statements and/or Public Information Statements presenting a detailed discussion of
  - Extent of the hazard including HI values
  - Who is most at risk
  - Safety rules for reducing the risk.
- Assist state/local health officials in preparing Civil Emergency Messages in severe heat waves. Meteorological information from Special Weather Statements will be included as well as more detailed medical information, advice, and names and telephone numbers of health officials.
- Release to the media and over NOAAs own Weather Radio all of the above information.

Jefferson County and the City of Port Townsend are in compliance with the L&I rule, and local civil, public health, and emergency management authorities are cognizant of the issues and prepared to issue warnings and to react to stress indicators within the population.

## References – HEAT WAVE (Extended)

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## Figures - HEAT WAVE (Extended)

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HW-1 NOAA NWS Heat Index Chart

# LANDSLIDES<sup>1</sup>

## SUMMARY

**The Hazard:** Landslide is the sliding movement of masses of loosened rock and soil down a hillside or slope. Landslide causes depend on rock type, precipitation, seismic shaking, land development and zoning practices, soil composition, moisture, and slope steepness. It can be fast moving, such as the March 2014 Oso Landslide in Snohomish county, Washington, or slow moving such as the inches per day landslide in Jackson, Wyoming in April 2014.<sup>2</sup>

### Impacts and Effects:

- Loss of life
- Loss of homes and businesses
- Loss of public buildings
- Damage or complete loss of bridges
- Interruption of the transportation infrastructure
- Damage and interruption to utilities
- Destruction by covering of clam and oyster beds
- Damage to critical transportation infrastructure
- Damage or loss of recreation facilities
- Loss of jobs due to damaged equipment and facilities
- River and streams seek new channels affecting property values and economic development opportunities
- Damage to salmon habitat and salmon stream restoration projects

**Previous Occurrences:** Winter storms in December 2007 resulted in multiple landslides, one of which moved a house off its foundation in the Brinnon area. In January of 2009, a massive landslide in adjoining Clallam County severely damaged State Route 112 for a length of 500 feet, and resulting in its closure for weeks before it was safe enough for crews to get close enough to fully assess the damage.

It is nearly an annual event to have landslides take out a section of county road in the West end of Jefferson County. The Upper Hoh Road, Quinault South Shore Road, Undie Road and Oil City Road have all had pieces taken out over the past few years. During the period from 2010 thru 2015, the range of cost to repair roads damaged by landslides was from \$600,000 to \$1,181,000. The average for that period was \$742,000.<sup>3</sup>

**Probability of Future Events:** High – Jefferson County experiences multiple winter storms each year that have the potential to saturate soils and precipitate landslides in the hilly topography of the county.

**Natural Hazard Risk Rating:** The average natural hazard risk rating for landslides for all districts in Jefferson County was estimated at 20.5, which would be considered moderate.

## Definition

Landslide is the sliding movement of masses of loosened rock and soil down a hillside or slope. Landslide causes depend on rock type, precipitation, seismic shaking, land development and zoning practices, soil composition, moisture, and slope steepness.

## History of Landslides in Jefferson County<sup>4</sup>

Landslides are a common hazard in Jefferson County. Most recent records indicate that earth movement is associated with inclement weather, such as heavy rains, saturated ground and strong winds that loosen tree roots. Slides have been a problem over the years on the road between Port Hadlock and Port Ludlow. During the storm of January 1997, slides occurred along Discovery Bay, Cape George, Mats Mats, Paradise Bay, Shine, South Point, Coyle, Quilcene Bay, and Brinnon in the eastern part of the county. In the western part of the county, slides occurred in the Hoh, Clearwater, and Quinault River drainage areas. Evidence indicates that large land movements have occurred from past earthquakes such as the sunken forest off Point Wilson along the South Whidbey Fault. In more recent history, a landslide along Highway 20 at Eaglemount in the 1970s took out the road to Discovery Bay, covered the railroad tracks, and caused a derailment of rail cars carrying hazardous materials.

Highway 101 has been washed out numerous times where the Hoh and the Bogachiel Rivers have undercut the hillside after heavy rains and snowpack melts. With the addition of water from the rain and runoff, these rivers have had a long history of eroding their banks causing the slopes to slide. The typical scenario is that heavy storms cause rivers and creeks to overflow and undercut nearby roads. The roads then give way, often destabilizing the land above the road, and causing larger landslides.

In December 2007, landslides from heavy rains moved a house off its foundation in Brinnon. At the same time, over 1000 feet of the Hoh Road in west Jefferson County were damaged, resulting in its closure for six months. The Hoh Road is a significant access-way to the Hoh Rain Forest in the Olympic National Park.

In November 2009, the Dosewallips Road, which runs parallel to the Dosewallips River near Brinnon, experienced a landslide that took out a section of road and required a local disaster declaration to effect emergency repairs.

In March 2013, a landslide that ran 1000 feet along Whidbey Island jutted 300 feet into the ocean and raised the beach by 30 feet.<sup>5</sup> The Whidbey News Times reported it as displacing 5.3 million cubic feet of earth or the equivalent of 40,000 dump trucks.<sup>6</sup> Although not in Jefferson County, this type of landslide in the right spot on Whidbey Island could create a tsunami that would hit the Fort Worden Beach and Port Townsend Bay. Figure LS-1, below, shows the before and after of the landslide.<sup>7</sup>

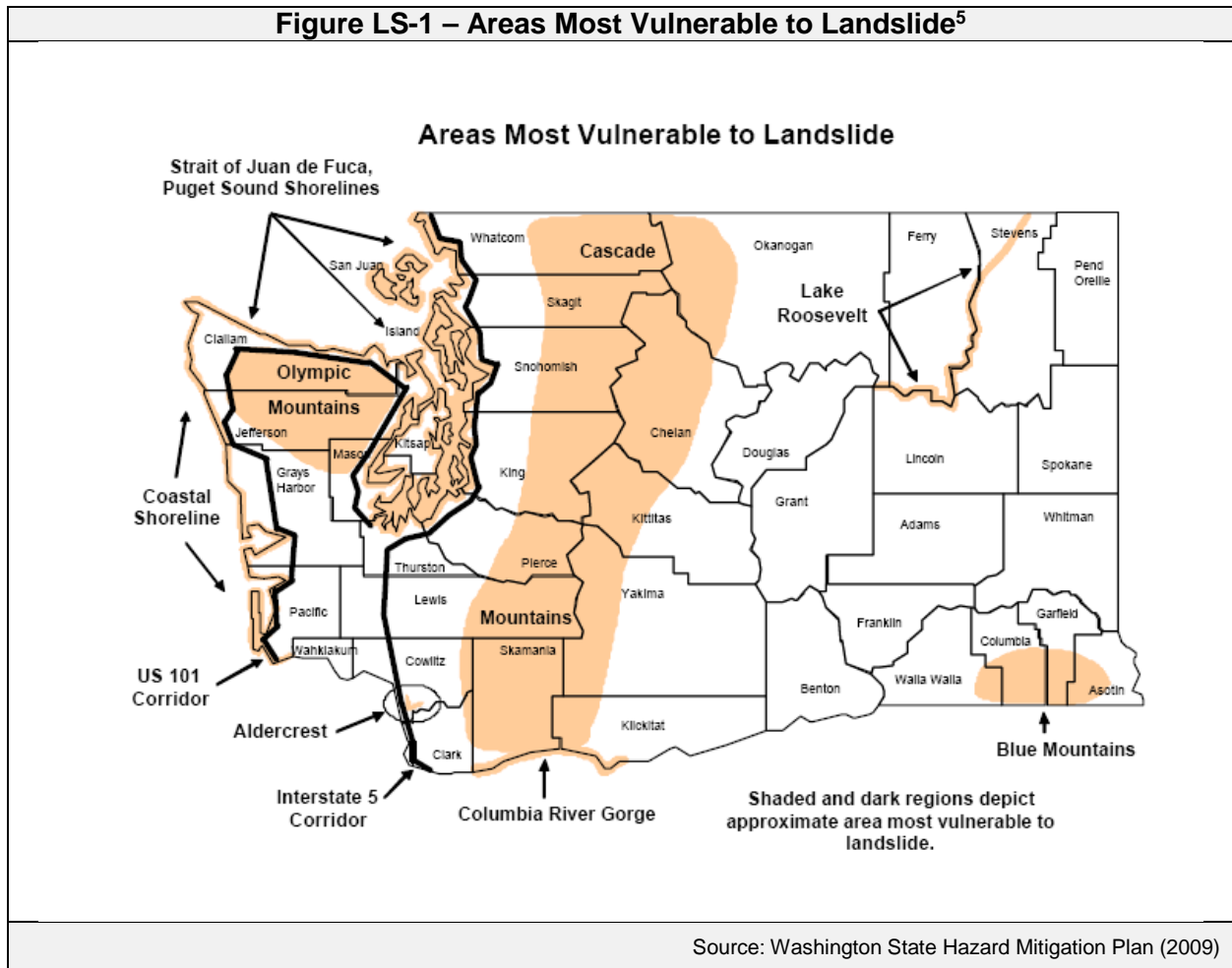
**Figure LS-1 – Before and After the Ledgewood-Bonair Landslide<sup>7</sup>**



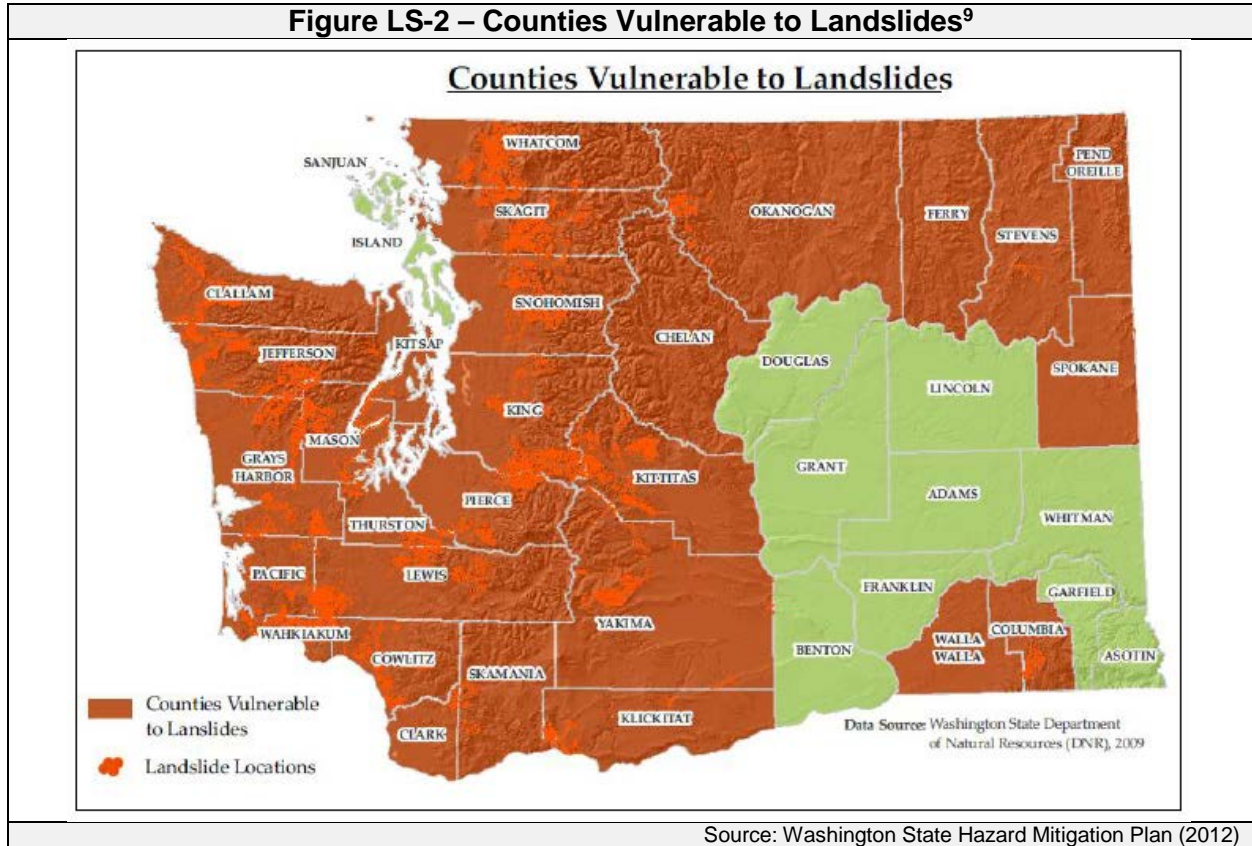


## Hazard Assessment and Vulnerability Assessment

The map (Figure LS-1) below shows that Jefferson County is considered among the counties that are most vulnerable to landslides.<sup>8</sup> This is because of the significant Pacific Coastline, the Olympic Mountains, and the Puget lowlands that are part of our geography. Figure LS-2 amplifies on this by overlaying previous landslide locations on the premise that the locations of known landslides are at-risk for future ones.<sup>9</sup>



**Figure LS-2 – Counties Vulnerable to Landslides<sup>9</sup>**



In addition to the shoreline conditions, Jefferson County is plagued by the stealth landslides of roads being undercut by rivers overflowing their banks, particularly along the Dosewallips and the Hoh Rivers. These are stealth landslides because they only make the local news, and are not significant enough for emergency declarations. Even so, Jefferson County Public Works averages \$750,000 per year on projects to rebuild sections of road lost to landslides during the rainy season.

Slides in Jefferson County range in size from thin masses of soil of a few yards deep to deep seated bedrock slides many yards wide. Slides are commonly categorized by the “form of initial failure”, but they may travel in a variety of forms along their paths. The travel rate may change in velocity from a few inches per month to many feet per second depending on the slope, material, and water content. The recognition of ancient dormant slide masses is important because landslides can be reactivated by earthquakes or unusually wet winters. Sinkholes can develop unexpectedly and cause damage to roadways and private property.



Brinnon Mud Slide – February 2015

Source: Jefferson County Public Works

Figure LS-3 shows the landslide susceptibility in East Jefferson County.<sup>10</sup> The scale is set for readability in this document, but it masks how vulnerable the shorelines are. In grid 27N1E, for example, getting closer in allows one to see that there have been two slides and multiple areas marked as “High” hazard. These do not show up well in the document. Anyone can get online at the Jefferson County Maps dialog and drill down to find the natural hazards for their own property. A direct link to the Environmentally Sensitive Areas map is: <http://maps.co.jefferson.wa.us/Website/mspub/viewer.htm?mapset=esa>



**Figure LS-3 Landslide Risk in East Jefferson County<sup>10</sup>**

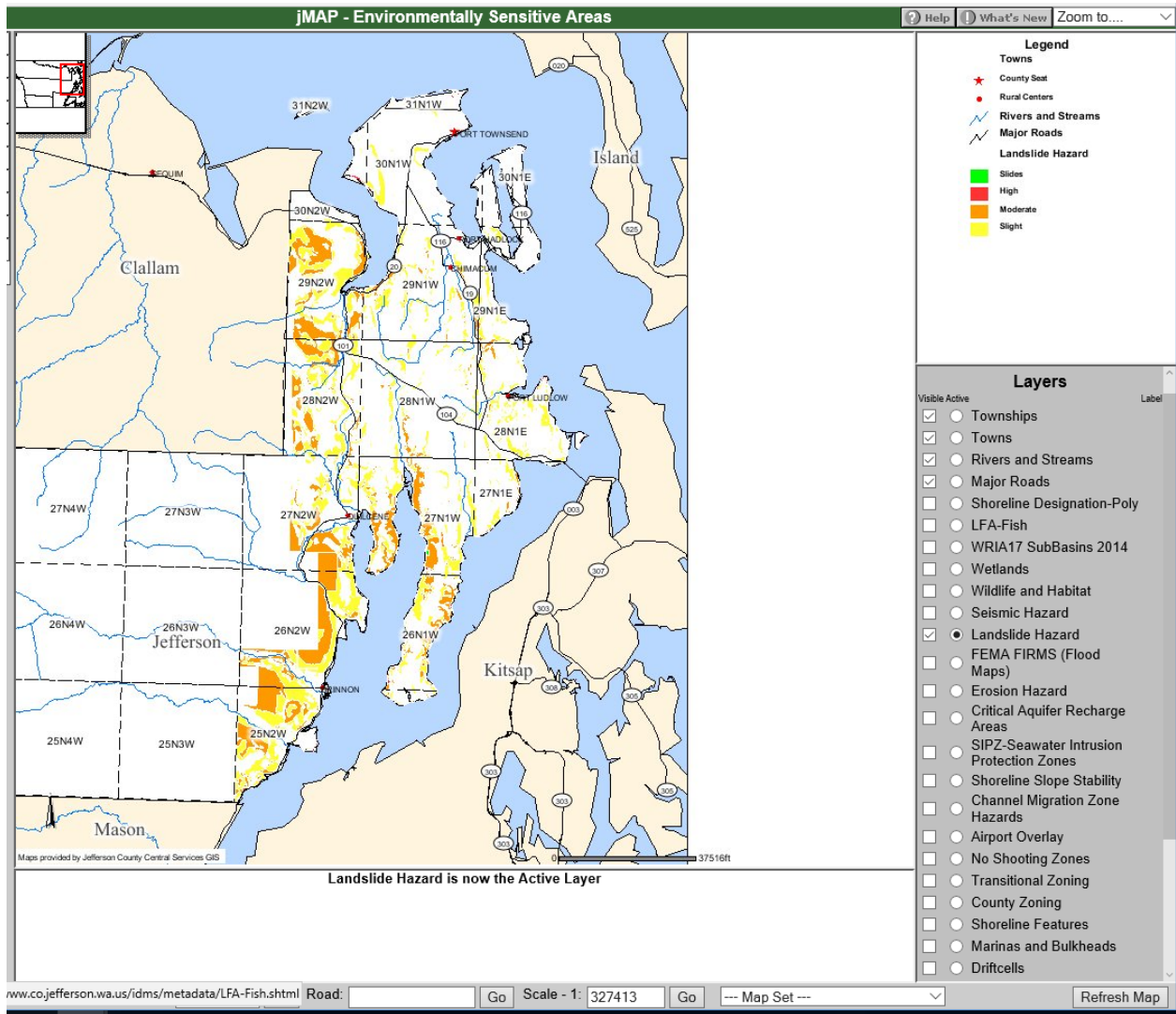


Table LS-1 lists landslides that have impacted Jefferson County, including some in adjacent counties.<sup>11</sup> The table is a subset of a DNR table that covers all landslides of consequence throughout the state. Since the scope of this document is Jefferson County, we deleted the line items for those landslides that did not have a direct impact on Jefferson County – either through direct damage or blocking major access routes.

**Table LS-1 Significant Landslides that Directly Affected Jefferson County<sup>11</sup>**



**Significant Deep-Seated Landslides in Washington State – 1984 to 2014**

Landslide Name	Date	Location	Area	Volume	Comments	Fatalities	Direct Costs (millions in 2014 \$)	References
Ledgewood–Bonair (Whidbey Island)	Mar. 27, 2013	Island Co.	12 acres; 900 ft wide; 700 ft long	~200,000 yd <sup>3</sup>	Small portion of a larger landslide complex, ~1.5 mi long, ~11,000 years old; 35 homes evacuated when landslide occurred; 20 homes still at risk, either through structural damage or loss of property.	0		Slaughter, Steven; Sarikhan, Isabelle; Polenz, Michael; Walsh, Tim, 2013, Quick report for the Ledgewood–Bonair landslide, Whidbey Island, Island County, Washington: Washington Division of Geology and Earth Resources Quick Report, 7 p. [http://www.dnr.wa.gov/Publications/ger_qr_wh
Rockcrusher Hill (U.S. 101 MP 72.6)	2006	Grays Harbor Co.	1,500 ft long; 400 ft wide	0.5 million yd <sup>3</sup>	Ongoing deformation with acceleration in 2006 resulted in costly temporary repair (that has now failed) and now requires frequent repairs to keep highway open. Threatens severing US 101, which would require ~50-mile-long detour. Estimated \$7 million repair programmed for 2015.		2	WSDOT, 2007, SR 101 MP 72.6 landslide–geotechnical recommendations; 75 p.
Bogachiel (U.S. 101 MP 184)	2004	Jefferson Co.	700 ft long; 2,800 ft wide	1–2 million yd <sup>3</sup>	Ongoing deformation within large landslide complex, with failure surface greater than 100 ft deep beneath highway and toeing out in river. Localized acceleration in 2004 resulted in costly repairs for 200-ft-wide section. Movement persists and threatening previous repairs. Evidence for prehistoric catastrophic	0	8	WSDOT, 2007, Bogachiel landslide– geologic assessment and mitigation alternatives, 49 p.
Jorstad Creek (U.S. 101 MP 322)	Feb. 1999	Mason Co.	500 ft long; 1,000 ft wide	1 million yd <sup>3</sup>	Resulted in long duration closure of US 101 with very long detour route. Extensive drainage network required to stabilize slope.	0	≈3	Golder, 1999, Geotechnical report–landslide on U.S. 101 MP 326 Lilliwaup, Washington, prepared for WSDOT.
Lilliwaup U.S. 101 MP 326)	Feb. 1999	Mason Co.	500 ft long; 1,800 ft wide	1.5 million yd <sup>3</sup>	Resulted in long duration closure of US 101 with very long detour route. Extensive drainage and retaining wall required to stabilize slope.	0	≈5–10	Golder, 1999, Geotechnical report–landslide on U.S. 101 MP 322, prepared for WSDOT.

Landslide Name	Date	Location	Area	Volume	Comments	Fatalities	Direct Costs (millions in 2014 \$)	References
Allyn Curves (SR 3)	Dec. 1998	Mason Co.	2,000 ft long; 1,300 ft wide		Episodically active for decades followed by severe deformation and retrogression in 1997–8 and 1998–99, resulted in 5 month highway closure. Realignment in 1993 and stabilization in 1999 costs totaled around \$5 million.	0	≈10–15	WSDOT report and memos
SR 112 MP 36	Feb. 1990	Clallam Co.	1,500 ft long; 500 ft wide		Destroyed approximately 500 ft of highway and toed out in the Straits, resulting in 8 month closure. Highway realigned off of active portion.	0	≈5	WSDOT, 1990 report and memos
Jim Creek (SR112 MP 32)	November 1990	Clallam Co.	300 ft long; 300 ft wide		Destroyed approximately 300 ft of highway and toed out in creek, resulting in 2-month- long highway closure with a very long detour.	0	≈5	WSDOT and Golder reports and memos prepared for WSDOT

### Widespread Shallow Landslide and Debris Flow Events in Washington State – 1984 to 2014

Time Period	Areas Affected	Description	Fatalities	References
January 2009	western Washington, including Lewis, Skagit, Whatcom, Kittitas, Clark, and Cowlitz Counties	A typical atmospheric river (Pineapple Express) storm rolled through the state, bringing with it warm rains that rapidly melted lowland snow. The Washington Geological Survey reported that the storm caused more than 1,500 landslides greater than 5,000 ft <sup>2</sup> in size. More than 500 landslides were recorded in eastern Lewis County. Approximately 300 to 500 landslides occurred in Skagit and Whatcom Counties.		Sarikhan, I. Y.; Contreras, T. A., 2009, Landslide field trip to Morton, Glenoma, and Randle, Lewis County, Washington: Washington Division of Geology and Earth Resources Open File Report 2009-1, 13 p. [ <a href="http://www.dnr.wa.gov/publications/ger_ofr2009-1_landslide_field_trip.pdf">http://www.dnr.wa.gov/publications/ger_ofr2009-1_landslide_field_trip.pdf</a> ]
December 2007	western Washington, including Mason, Jefferson, Lewis, and Thurston Counties	The storm event of December 1–3, 2007 caused thousands of landslides and major flooding. The storm brought snow, warm rain, and hurricane force winds across much of western Washington. Landslides blocked or damaged roads, isolating communities in the height of the storm and delaying emergency response. A massive debris avalanche and numerous smaller landslides blocked SR 6. SR 8 was blocked by landslides near Onalaska. Highway 101 was blocked north of the Skokomish River. Nearly 20 in. of rain was recorded within a 48-hour period in the headwaters of the Chehalis River. This caused more than 1,600 landslides in the Chehalis headwater basin alone, clogging flood waters with debris. I-5 was flooded with as much as 10 ft of water.		Sarikhan, I. Y.; Stanton, K. D.; Contreras, T. A.; Polenz, Michael; Powell, Jack; Walsh, T. J.; Logan, R. L., 2008, Landslide reconnaissance following the storm event of December 1-3, 2007, in western Washington: Washington Division of Geology and Earth Resources Open File Report 2008-5, 16 p. [ <a href="http://www.dnr.wa.gov/publications/ger_ofr2008-5_dec2007_landslides.pdf">http://www.dnr.wa.gov/publications/ger_ofr2008-5_dec2007_landslides.pdf</a> ]

Time Period	Areas Affected	Description	Fatalities	References
December 2006	<b>western Washington</b>	A strong storm known as the Hanukkah Eve Storm of 2006 brought hurricane force wind gusts and heavy rains to western Washington. The storm initiated a small number of landslides around western Washington.		
January to February 2006	<b>entire state</b>	Prolonged heavy rainfall from December 2005 into January 2006 caused numerous landslides throughout the state. More than 13 in. of rain fell between December 19 and January 14. Slides, slumps, or settlement closed lanes of I-5, US 101, SR's 4, 9, 14, 107, 105, 112, 116, 166, 302, and 530 for various periods. On February 3, the Governor signed emergency proclamation requesting federal funds for all 39 counties.		Information from news reports and the Washington Department of Transportation
October 2003	entire state, including Skagit, Okanogan, Clallam, <b>Jefferson</b> , Mason, Snohomish, Pierce Counties	Heavy rainfall caused severe flooding and landslides in 15 counties. Landslides or ground failure caused temporary closures on nine state highways. Landslides closed SR 20 between Skagit and Okanogan Counties, a landslide closed SR 112 in Clallam County, debris flows also blocked US 101 in Jefferson and Mason Counties, US 2 in Snohomish County, and SR 410 in Pierce County.		
Nisqually Earthquake – February 28, 2001	<b>western Washington</b> , including Tacoma, Renton, Olympia, Burien, and Tumwater	The magnitude 6.8 earthquake produced a number of significant, widely scattered landslides resulting in at least \$34.3 million in losses. Salmon Beach suffered a 1,300 yd <sup>3</sup> landslide that demolished two homes. Cedar River had two landslides, one of which was an estimated 50,000 yd <sup>3</sup> . The parkway on Capitol Lake experienced significant damage from ground failure. Five homes in Burien sustained structural damage when underlying fill formed a landslide.		Highland, L. M., 2003, An account of preliminary landslide damage and losses resulting from the February 28, 2001, Nisqually, Washington, earthquake: U.S. Geological Survey Open-File Report 03-211, 48 p. [http://pubs.usgs.gov/of/2003/ofr-03-211/ofr-03-211.pdf]
September 17, 1997	Clallam Co.	Debris flow-avalanche kills one in Port Angeles tavern situated below steep slope. Weather was not especially wet preceding the event (0.5 in. of rain).	1	
December 1996 to January 1997	<b>western Washington</b> , primarily the bluffs of Puget Sound, Lake Washington, Lake Union, Portage Bay, West Seattle, Magnolia Bluff, and along the	December precipitation was 191% of normal, triggering hundreds of landslides and debris flows on steep bluffs and ravines. At least four people were killed by these events, and millions of dollars of damage were caused. A landslide on January 15 derailed five cars of a freight train midway between Seattle and Everett. Twenty to 30 landslides occurred in Pierce County, including one that cut phone service to homes on Salmon Beach. In Whatcom and Clark Counties, two interstate natural gas lines were ruptured due to landslides, causing	4	Gerstel, W. J.; Brunengo, M. J.; Lingley, W. S., Jr.; Logan, R. L.; Shipman, Hugh; Walsh, T. J., 1997, Puget Sound bluffs—The where, why, and when of landslides following the holiday 1996/97 storms: Washington Geology, v. 25, no. 1, p. 17-31. [http://www.dnr.wa.gov/publications/ger_washington_geology_1997_v2
February 1996	<b>entire state</b> , including Walla Walla, Seattle, and Pierce, Thurston, Lewis, Clark, and Skamania Counties	Near-record snowfall in January followed by warm, heavy rain caused massive flooding and landslides. Landslides damaged or destroyed nearly 8,000 homes and closed traffic along major highways (including I-5, SR 4, and SR 503) for several days. Damages totaled at least \$800 million. The highest concentration of landslides occurred near Walla Walla. Seattle had more than 40 landslides during the winter, about two-thirds of which were related to the storm. Lewis County had the largest landslide, with an estimated 1.5 million yd <sup>3</sup> of debris.		U.S. Federal Emergency Management Agency, 1996, Interagency Hazard Mitigation Team report, including progress report on early implementation strategies—State of Washington, winter storms of 1995-1996; FEMA-DR-1079, declared January 3, 1996; FEMA-DR-1100-WA, declared February 9,



As the county continues to grow and the desire of people to have a home with a view, an increasing number of structures are built on top of or below slopes subject to land sliding. Land is not stable indefinitely. People often believe that if a bluff has remained stable for the last 50 years, it will remain so for the next 50 years regardless of the development or maintenance around it. As trees are removed to make way for new homes, the nature of erosion and water absorption makes the slopes and bluff in these areas a dynamic and changing environment.

Characteristics that may be indicative of a landslide hazard area:

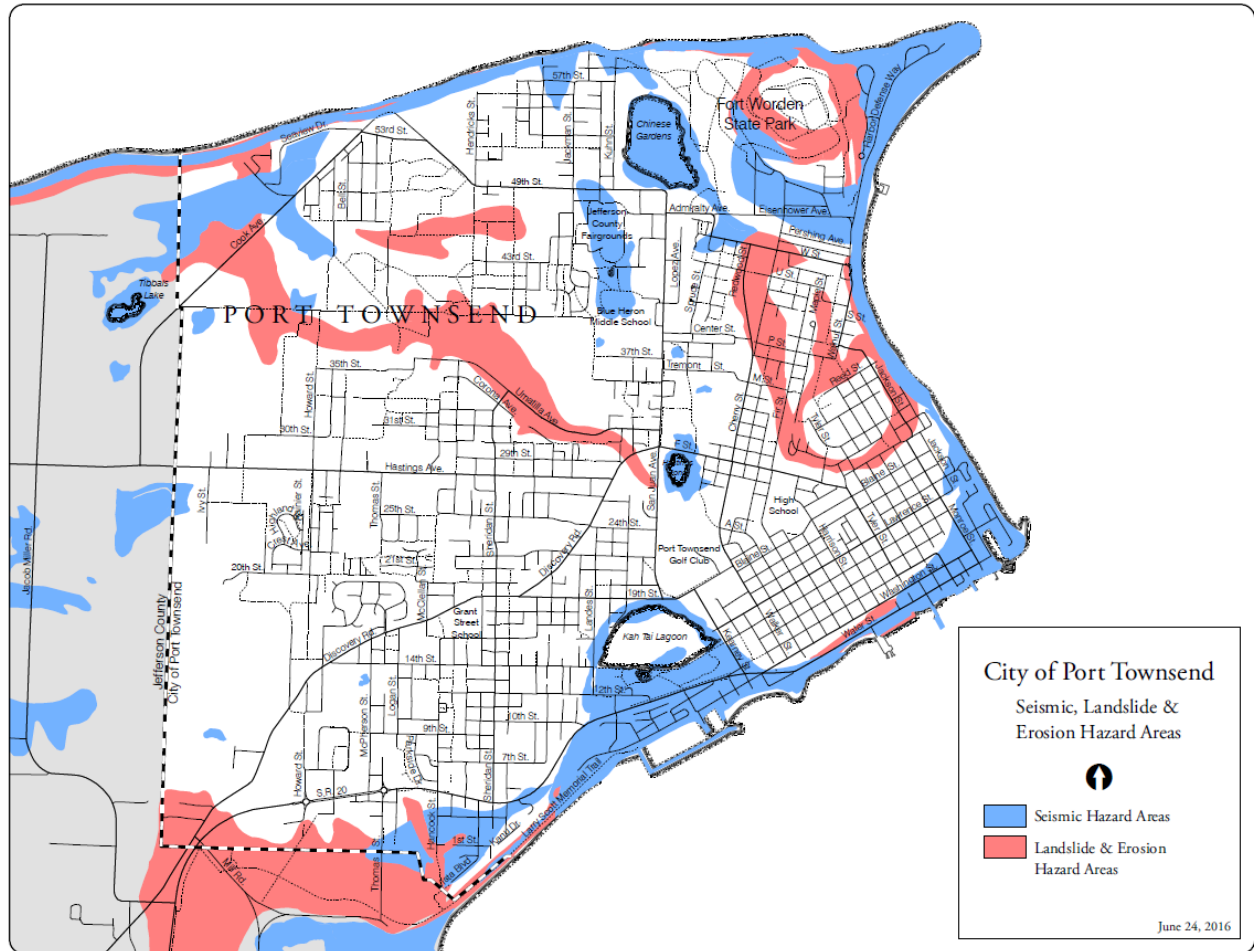
- Bluff retreat caused by sloughing of bluff sediments, resulting in a vertical bluff face with little vegetation
- Pre-existing landslide area
- Tension or ground cracks along or near the edge of the top of a bluff
- Structural damage caused by settling and cracking of building foundations and separation of steps from the main structure
- Toppling, bowed or jack-sawed trees
- Gullying and surface erosion
- Mid-slope ground water seepage from a bluff face

Land stability cannot be absolutely predicted with current technology. An unequivocal predictor of landslide vulnerability is the occurrence of previous landslides in the same area. The best design and construction measures are still vulnerable to slope failure. The amount of protection, usually correlated to cost, is proportional to the level of risk reduction. Debris and vegetation management is integral to preventing landslide damages. Corrective measures help, but still leave the property vulnerable to risk. Figure LS-4 shows the known landslide risk areas within the City of Port Townsend.<sup>12</sup>

A landslide risk assessment was completed by *Risk Management* by comparing the unstable-to-intermediate sloped areas with the locations of buildings throughout coastal zones of eastern Jefferson County. The analysis is summarized in Table LS-2 for Port Townsend and unincorporated portions of the county. Table LS-2 shows the building value (in dollars) for the communities located in the known and potentially unstable slope zones. This table also includes the number of buildings in the zone as well as the overall total number of buildings and building value.<sup>13</sup>

Over 1600 buildings are located in potential coastal landslide zones, which have a total estimated value of approximately \$237.5 million. The majority of these buildings are located in unincorporated areas; these 1590 buildings have an estimated value of \$225 million. In Port Townsend, 56 out of 2129 buildings are identified in Unstable, Unstable recent slide, Unstable old slide, and Intermediate slope zones of the coastal zone atlas slope stability map. Figure LS-6 provides a sample map of Port Townsend to illustrate how slope stability and recent landslides are illustrated in map sets available from the Washington.<sup>14</sup>

Figure LS-5 City of Port Townsend Seismic, Landslide and Erosion Risk<sup>12</sup>



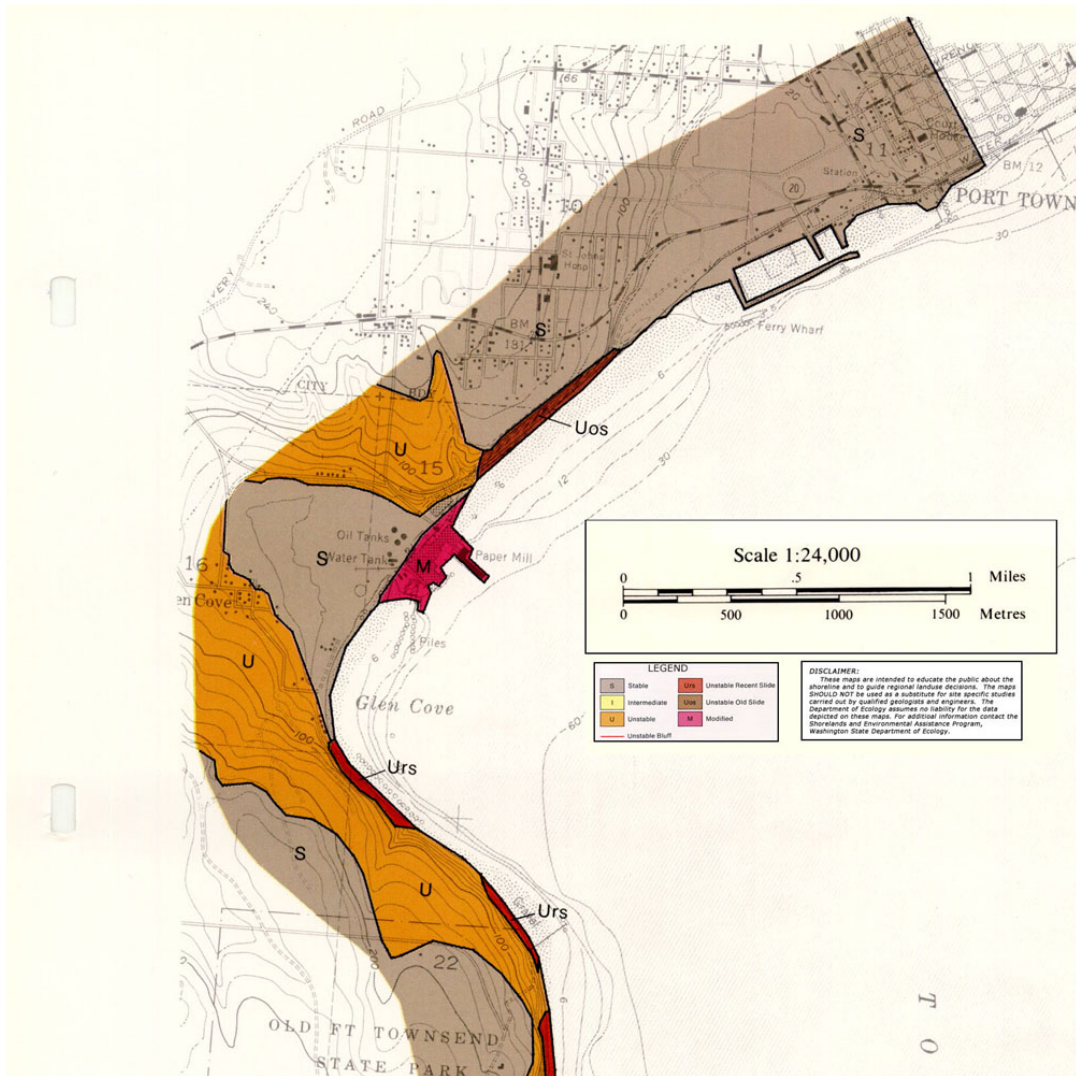
Although the **blue areas** are seismic hazard areas likely to liquefy, they are frequently adjacent to high-bank waterfront that can easily calve off if the area becomes unstable at sea level.

**Table LS-2 - Buildings Exposed to Unstable, Unstable-Recent, Unstable-Old, Intermediate, and Stable Slopes<sup>13</sup>**

Community	Total Estimated Building Value	Building Value in Landslide Zone	Percent of Economic Values of Buildings Exposed (Unstable to Intermediate Slopes)	Total Number of Buildings	Number of Buildings Exposed (Unstable to Intermediate Slopes)	Percent of Buildings in Landslide Zone
Port Townsend (entire city limit area)	\$646,052,977	\$12,416,517	1.9%	4845	56	1.2
Port Townsend (coastal zone area)	\$339,817,661	\$12,416,517	3.7%	2129	56	2.6%
Unincorporated (entire county)	\$1,639,851,022	\$225,040,217	13.7%	14356	1590	11.1%
Unincorporated (western Jefferson coastal zone area)	\$829,644,324	\$225,040,217	27.1%	6513	1590	24.4%
<b>Total (Entire County)</b>	<b>\$2,285,903,999</b>	<b>\$237,456,734</b>	<b>10.4%</b>	<b>19201</b>	<b>1646</b>	<b>8.6%</b>
<b>Total (Coastal Zone Atlas Area)</b>	<b>\$1,169,461,985</b>	<b>\$237,456,733</b>	<b>20.3%</b>	<b>8642</b>	<b>1646</b>	<b>19.0%</b>

Note: Two highlighted rows show the values obtained relative to the Coastal Zone Atlas slope stability study area (Washington Department of Ecology, 1978)

Figure LS-6 – Sample Slope Stability Map for Port Townsend<sup>14</sup>



## Climate Change

The NOPRCD report projects a 13% ( $\pm 7\%$ ) increase in days with  $>1$  inch of rain by the 2050s along with a 50% chance of future annual coastal flood elevation rise of  $\geq 2.9$  feet in Port Townsend.<sup>15</sup> Shifts in the timing and type of precipitation, creating rain on snow events and unseasonably high stream flows will scour river bottoms and flood low-land areas.<sup>16</sup> This, in turn, will undercut high banks and destabilize hillsides, thus promoting increased landslides.



On Sunday, Oct. 13, 2013 another large chunk of sand and debris tumbled to the beach below “End of the World,” a bluff overlooking the Strait of Juan de Fuca on the edge of Port Townsend. Photo by Scott Wilson<sup>17</sup>

## **Conclusion**

Jefferson County's significant coastline, Olympic Mountains, and network of roads that parallel rivers make it a high risk for landslides and high vulnerability to the cost of repairing the damage.

Some landslide hazards can be mitigated by engineering, design, or construction so that risks are acceptable. When technology cannot reduce the risk to acceptable levels, building in hazardous areas should be avoided. Ordinances identifying geological hazards must be rigorously applied.

The least expensive and most effective landslide loss reduction measure is by avoidance. The next most economical solution is mitigation using qualified expertise with an investigation report review process. The most costly is repair of landslide damages.

## References - LANDSLIDES

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## Tables - LANDSLIDES

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- LS-1 Significant Landslides that Directly Affected Jefferson County
- LS-2 Buildings Exposed to Unstable, Unstable-Recent, Unstable-Old, Intermediate, and Stable Slopes

## Figures - LANDSLIDES

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- LS-1 Before and After the Ledgewood-Bonair Landslide
- LS-2 Areas Most Vulnerable to Landslides
- LS-3 Counties Vulnerable to Landslides
- LS-4 Jefferson County Landslide Risk
- LS-5 City of Port Townsend Seismic, Landslide and Erosion Risk
- LS-6 Sample Slope Stability Map for Port Townsend

# PUBLIC HEALTH EMERGENCY

## SUMMARY

**The Hazard:** Public Health Emergencies can be food or water contamination or medical emergencies such as diseases, epidemics, or a pandemic that have the potential to affect people and animals over a significant area. Water emergencies are discussed in the sections on man-made hazards.

### Impacts and Effects:

- Potential deaths due to toxins or illness
- Increase in illness
- Potential illness and death of commercial livestock as well as domestic pets
- Increased stress on local health care system and providers
- Demands made on local health care system beyond capacity to respond
- Disruption of local commerce
- Spot shortages of food, supplies due to commerce disruption
- Economic impact due to loss of sales from people sheltering in place
- Economic impact of lost work-time due to illness
- Pharmaceutical Interventions such as mass distribution of antibiotics, antiviral medications and/or vaccines
- Non-Pharmaceutical Interventions including, but not limited to social distancing, isolation and quarantine, health education, and respiratory etiquette.

**Previous Occurrences:** In 2008, national recalls of pet foods due to melamine contamination and peanut butter products due to salmonella affected Jefferson County to a small extent. In 2007, public health authorities tracked customers who purchased particular produce from a local farm store when it was discovered that the employee stocking the produce had Hepatitis-A.

**Probability of Future Events:** High – There is a high probability of viral diseases being introduced into the area due to the large number of visitors to this tourism destination, or due to national events introducing things into the distribution systems. Specifically, the *Wooden Boat Festival* draws an international attendance of about 40,000 people to Port Townsend each year, providing an ideal venue for contact, airborne and mosquito-borne vectors.

Additionally, immunization coverage for Jefferson County is below the State average in 22 out of 33 categories for children up to the age of 17 years-old.

Since the previous Hazard Mitigation Plan was completed, the U.S. has experienced epidemic threats from the Ebola virus and the Zika virus. Ebola is spread by contact with infected body fluids and is almost always fatal. Zika is spread via mosquito bites and / or intimate contact with someone who is infected. It can cause birth defects if an infected woman is pregnant or becomes pregnant.

## Definitions

Public Health Emergencies can be food or water contamination or medical emergencies such as diseases, epidemics, or pandemic. In the United States, a **public health emergency** declaration releases resources meant to handle an actual or potential public health crisis. Recent examples include incidents of flooding, severe weather, and the 2009 H1N1 influenza outbreak<sup>1</sup>.

**Disease** – Unhealthy condition of the body or mind. A corresponding condition of plants.

**Epidemic** – A widespread occurrence of a disease in a community at a particular time.

**Outbreak** – Limited area in occurrence of a disease in a community at a particular time.

**Pandemic** – Prevalent over a whole country or the world; Universal; Widespread

**Influenza** – a viral disease in which the infected person is feverish, has muscle soreness, headaches, and a general malaise. It can impair breathing function, and be fatal to vulnerable people.

**Seasonal Influenza** – Usually affects 5-10% of the population.

**Avian Influenza** – Variations of the H5N1 virus that spread across bird populations and have been able to cross species into humans in some areas of Asia and Africa. None have been in the United States.

**Pandemic Flu** – Pandemic influenza causes illness in as much as 25-30% of the population, and has had death rates as high as 2.5% in 1918. Table PH-1 summarizes the four flu pandemics that have occurred since 1918<sup>2</sup>.

<b>Table PH-1 – Pandemic Flu History<sup>2</sup></b>	
<b><i>Occurrence Period</i></b>	<b><i>Description</i></b>
<b>1918 - 1919<sup>3</sup></b>	<p>“Illness from the 1918 flu pandemic, also known as the Spanish flu, came on quickly. Some people felt fine in the morning but died by nightfall. People who caught the Spanish Flu but did not die from it often died from complications caused by bacteria, such as pneumonia.</p> <p>During the 1918 pandemic:</p> <ul style="list-style-type: none"> <li>• Approximately 20% to 40% of the worldwide population became ill</li> <li>• An estimated 50 million people died</li> <li>• Nearly 675,000 people died in the United States</li> </ul> <p>Unlike earlier pandemics and seasonal flu outbreaks, the 1918 pandemic flu saw high mortality rates among healthy adults. In fact, the illness and mortality rates were highest among adults 20 to 50 years old. The reasons for this remain unknown.”</p>
<b>1957 - 1958<sup>4</sup></b>	<p>“In February 1957, a new flu virus was identified in the Far East. Immunity to this strain was rare in people younger than 65. A pandemic was predicted. To prepare, health officials closely monitored flu outbreaks. Vaccine production began in late May 1957 and was available in limited supply by August 1957.</p> <p>In the summer of 1957, the virus came to the United States quietly with a series of small outbreaks. When children returned to school in the fall, they spread the disease in classrooms and brought it home to their families. Infection rates peaked among school children, young adults, and pregnant women in October 1957. By December 1957, the worst seemed to be over.</p> <p>However, another wave of illness came in January and February of 1958. This is an example of the potential "second wave" of infections that can happen during a pandemic.</p> <p>Most influenza–and pneumonia–related deaths occurred between September 1957 and March 1958. Although the 1957 pandemic was not as devastating as the 1918 pandemic, about 69,800 people in the United States died. The elderly had the highest rates of death.”</p>
<b>1968 - 1969<sup>5</sup></b>	<p>“In early 1968, a new flu virus was detected in Hong Kong. The first cases in the United States were detected as early as September 1968. Illness was not widespread in the United States until December 1968. Deaths from this virus peaked in December 1968 and January 1969. Those over the age of 65 were most likely to die. The number of deaths between September 1968 and March 1969 was 33,800, making it the mildest flu pandemic in the 20th century. The same virus returned in 1970 and 1972.”</p>

<b>Table PH-1 – Pandemic Flu History<sup>2</sup></b>	
<b>Occurrence Period</b>	<b>Description</b>
<b>2009 - 2010<sup>6</sup></b>	<p>“In the spring of 2009, a new flu virus spread quickly across the United States and the world. The first U.S. case of <u>H1N1 (swine flu)</u> was diagnosed on April 15, 2009. By April 21, the Centers for Disease Control and Prevention (CDC) was working to develop a vaccine for this new virus. On April 26, the U.S. government declared H1N1 a public health emergency.</p> <p>By June, 18,000 cases of H1N1 had been reported in the United States. A total of 74 countries were affected by the pandemic. H1N1 vaccine supply was limited in the beginning. People at the highest risk of complications got the vaccine first.</p> <p>By November 2009, 48 states had reported cases of H1N1, mostly in young people. That same month, over 61 million vaccine doses were ready. Reports of flu activity began to decline in parts of the country, which gave the medical community a chance to vaccinate more people. 80 million people were vaccinated against H1N1, which minimized the impact of the illness.</p> <p>The CDC estimates that 43 million to 89 million people had H1N1 between April 2009 and April 2010. They estimate between 8,870 and 18,300 H1N1 related deaths.</p> <p>On August 10, 2010 the World Health Organization (WHO) declared an end to the global H1N1 flu pandemic”</p>

Source: Flu.gov

## History of Public Health Emergencies in Jefferson County

1859 – The bark *What Cheer* cleared Portland in December 1859 infested with smallpox. Numerous crew members died in sight of Protection Island of the Jefferson County coast. According to Indian legends, an Ozette village of 400 people was decimated, the Makah suffered heavy losses, and Indian villages at Port Discovery and Port Townsend were stricken by smallpox, including the household of Chetzemoka, Chief of the Indian village at Port Townsend.<sup>7</sup>

1892 – Fear of a leper among the Port Townsend Chinese population served as a catalyst to establish the Diamond Point Quarantine Station in 1893.<sup>8</sup>

1900 – Outbreak of bubonic plague was contained by confining victims at the Diamond Point Quarantine Station.<sup>9</sup>

1913 – The Diamond Point Quarantine Station was used to house lepers until 1926.<sup>10</sup>

1918 – Influenza epidemic causes many deaths in Jefferson County.<sup>11</sup>

2006 – Anderson Lake, Gibbs Lake, and Teal Lake quarantined because of toxic Blue/Green algae. Two dogs die after drinking the water.<sup>12</sup>

2007 – Jefferson County health authorities put out warnings to customers of a Port Townsend farm who purchased produce handled by an employee who had contracted Hepatitis-A. The potentially exposed groups Community Supported Agriculture (CSA) customers, Port Townsend Food Co-op customers and children and others who attended a field trip to the farm the first week of June.<sup>13</sup>

2015-2016 – “Anderson Lake remains closed due to toxic algae.” Anderson Lake had been closed in the spring of 2015 due to high levels of a nerve toxin *anatoxin* that comes from blue-green algae in the lake. The toxin level was 28.94 micrograms per liter; the Washington state recreational standard is less than one microgram per liter.<sup>14</sup>

## Hazard Assessment and Vulnerability Assessment

### Hazard Profile

Jefferson County faces the same public health hazards as the rest of the country in the sense that it has national food chains within the county that bring in produce and products from around the world. What follows is a representative list of types of food contamination and disease risks that occur in this area:

**Blue-Green Algae<sup>15</sup>:** Jefferson County lakes have periodically seen moderate blooms of toxic blue-green algae. During such blooms, lakes are quarantined and users are warned not to drink lake water, swim in the lake, or consume fish from the lake. The algae (genera *Anabaena*, *Microcystis*, and *Aphanizomenon*) produce toxins that cause liver damage or nerve impairment. Small children, people with liver problems, and pets are most at risk.

**E coli<sup>16</sup>:** *Escherichia coli* O157:H57 is a bacterial infection causing bloody stool and abdominal cramps. It usually resolves without specific treatment in 5-10 days unless there are complications. Treatment with antibiotics can actually cause complications. Two to seven percent of cases develop complications. Washington has experience outbreaks in campsites, contaminated swimming areas, and occasionally in restaurants due to undercooked foods.

**Hantavirus<sup>17</sup>:** Carried by deer mice, this virus is passed to humans when they breathe in the aerosolized virus. It can cause hemorrhagic fevers, renal syndrome, and Hantavirus (cardio-) pulmonary syndrome (HPS). HPS is potentially deadly. One to five cases are reported every year in Washington. Auto mechanics are particularly concerned because they often do repairs on vehicles in which rodents have been in the engine compartment, and left droppings and dust.

**Lyme Disease<sup>18</sup>:** Lyme disease is a tick-borne disease in which local deer populations support populations of deer ticks. Early manifestations are fever, headache, fatigue, depression, and a “bull’s-eye” skin rash. If treatment is early, the infection can be eliminated. If late or untreated, manifestations of the disease can involve the heart, joints, and nervous system, and be disabling. Approximately fifteen cases are reported in Washington each year. The state does not track Lyme Disease unless it is a human infection. Veterinarians that treat infected pets do not report the incidence, resulting in reservoirs of the disease remaining undetected until a human contracts it. Port Townsend has a deer herd of 238 individuals within the six-square mile city limits.<sup>19</sup>

**Red Tide<sup>20</sup>:** Local bays, such as Discovery Bay and Oak Bay, are periodically contaminated by a “red tide” that infects shellfish and produces a marine biotoxin that can cause paralytic shellfish poisoning (PSP) in people eating the shellfish. In 2006, nearly the entire coastline of Jefferson County was closed to recreational harvesting of shellfish. Commercial shellfish are tested separately, and commercial harvesters have been affected by closures of their commercial shellfish farms from time to time, too.

**Toxic contaminants<sup>21</sup>:** The melamine contamination of pet food was a significant event in Port Townsend, as it was around the country. Being a small city, such events make the front page of local news and become personalized because people you know are affected. A local man had batches of cat food tested after his cat died, and found out that it did not have melamine in it, but it was contaminated with acetaminophen.

**West Nile Virus<sup>22</sup>:** West Nile Virus can cause asymptomatic infections, West Nile Fever, and encephalitis. It mainly infects birds, but can infect humans, horses, dogs, cats, bats, chipmunks, skunks, squirrels, and

domestic rabbits. The main source of human infection is through the bite of an infected and mosquitoes. The main way it is spread is with mosquitoes. There were only 47 mosquitos tested for the virus in Jefferson County during the period from 2006 – 2016, and no positives in Jefferson County during that time. West Nile Virus has been primarily a problem in East and Central Washington counties, although it did reach both Mason County and Grays Harbor County in 2009 with one bird testing positive in each county<sup>23</sup>.

## Vulnerability

Washington State has a significant number of statutes and administrative rules giving authorities the capability to deal with public health emergencies:

RCW 70.05.060	Authority of Local Board of Health and Local Health Officer
RCW 70.070	Mandates of Local Health Officer
WAC 245-100	Duties and Responsibilities of Local Health Officer, Isolation and Quarantine Authority
WAC 245-100-036	Communicable and certain other diseases
RCW 68.50	Role, Responsibility and authority of the Medical Examiner
RCW 70.58.020.030	Local Health Officer is Registrar of Vital Statistics
RCW 43.20.050(4)	Enforcement of Isolation and Quarantine Orders by law enforcement
RCW 18.71	Physician’s Trained Mobile Intensive Care Paramedic
RCW 18.73	Emergency Medical Technicians, Transport Vehicles
RCW 70.168	State-wide Trauma Care System

The problem for Jefferson County is that a significant portion of its population can be considered vulnerable, and it has ecological factors that can exacerbate health issues. Jefferson County has one acute care hospital with 25 beds and six fire districts that provide emergency medical response. East Jefferson Fire & Rescue, which is the only fire district to provide 24x7 manned stations, provides out-of-county transport services for the hospital. All districts except for Fire District 7 are combination departments relying heavily on volunteers. Fire District 7 is an all-volunteer department that covers the West Jefferson County area. During region-wide events, such as a pandemic, local resources will be overwhelmed very quickly and result in the necessity to make life and death decisions at operational levels.

Jefferson County, demographically, is turning into a retirement area. The natural beauty and unspoiled terrain encourages people to build into wooded areas with the effect that deer herds and coyotes coexist in the same localities. It is the norm for people to have deer fences around their gardens. This also means that the retiree population, the over-50, is constantly exposed to the vectors for many of the viruses and illnesses listed above. Mice infest the engine compartments of vehicles parked outdoors, deer ticks are prevalent in fallow fields, and raccoons maintain super-highways through home-owner associations.

Some of Jefferson County’s vulnerability issues stem from its maritime heritage and a “back-to-the-earth” movement that settled in the county during the 1970’s. Port Townsend is a working Victorian seaport, and as such, receives visitors from all over the world. Each year in September, there is a world-renowned *Wooden Boat Festival* that attracts visitors from around the world. Over 40,000 visitors show up for that week-end, many in boats from who-knows-where, and who are capable of carrying a communicable disease into a dense group of people who are quickly going to disperse to a wide variety of geographic areas.

The “back-to-the-earth” movement has resulted in a robust food co-op and farmer’s markets in Jefferson County and neighboring Clallam County. These entities provide a wide-variety of locally grown organic produce to the residents of the area. What is unique is that they also provide a source for raw milk and raw

cheeses to be sold commercially. Sequim Washington has one of the few commercial dairies certified to produce and sell raw milk and cheese. While many people believe that there is a significant health benefit for raw milk over pasteurized milk, it still has to be recognized that any contamination of the milk will not be killed during a heat-treatment process, and that consumers are dependent on the integrity of the dairy farmer to maintain a healthy product.

Jefferson County also has vaccination rates below the State's average in 22 out of 33 categories among children, ages 19-months to 17-years old. Table PH-2, below, consolidates the immunization coverage tables from the Washington State Department of Health so that Jefferson County immunization rates are compared directly to the Washington State average immunization rates for children up to 17-years old.<sup>24</sup> The difference in percent immunization is in **GREEN** when Jefferson County rates are above the state average and are **RED** when the rates are below the state average. To reiterate, Jefferson County immunization rates are below the state average in 22 of 33 categories for 2015.

Figure PH-1, following, shows the average immunization rates for both juveniles and adults in the State, along with the immunization goals desired.<sup>25</sup> It, too, shows significant gaps between goals and experience within the State, and implies the same for Jefferson County.

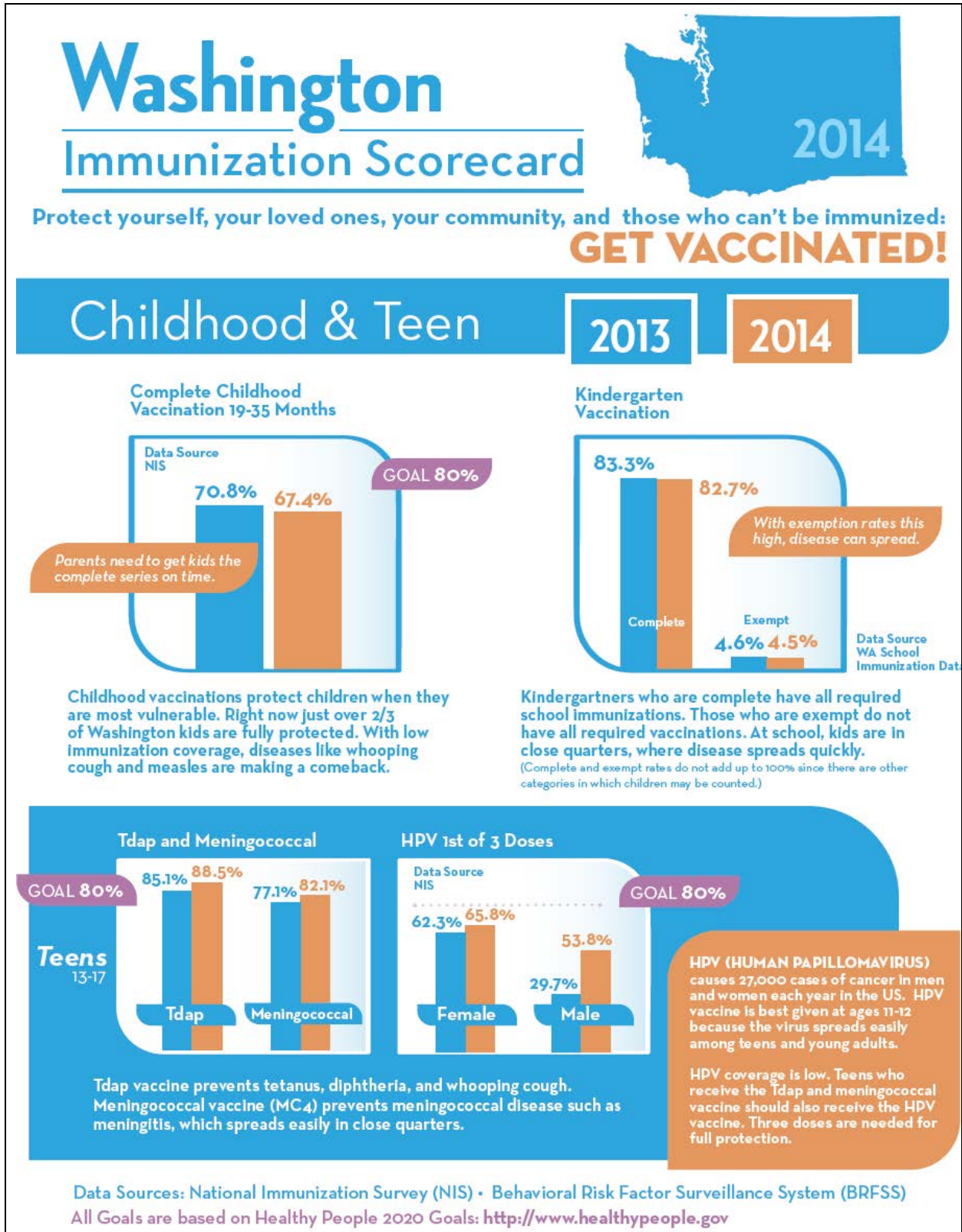


**Figure PH-1 – Immunization Coverage for Jefferson County as of 12/31/2015<sup>24</sup>**

**Immunization Coverage For Jefferson County, Washington as of 12/31/2015**

Jurisdiction	Age Range	Total Population	Number with ≥4 Tdap	Percent with ≥4 Tdap	Number with ≥3 Polio	Percent with ≥3 Polio	Number with ≥1 MMR	Percent with ≥1 MMR	Number with ≥3 Hep B	Percent with ≥3 Hep B	Number with ≥3 Hib	Percent with ≥3 Hib	Number with ≥1 Varicella	Percent with ≥1 Varicella	Number with ≥4 PCV	Percent with ≥4 PCV	Number complete for 4:3:1:3:1:4 series*	Percent complete for 4:3:1:3:1:4 series*	Number with ≥2 HepA	Percent with ≥2 HepA	Number with ≥3 Rotavirus	Percent with ≥3 Rotavirus
Jefferson	19-35 Months	307	214	70%	247	80%	247	80%	246	80%	243	79%	228	74%	210	68%	179	58%	121	39%	164	53%
WA STATE	19-35 Months	127227	86056	68%	100035	79%	104072	82%	98274	77%	100445	79%	101747	80%	85703	67%	73865	58%	61748	49%	68897	54%
Difference				+2%		+1%		-2%		+3%		+0%		-6%		+1%		+0%		-10%		-1%
<p>Data Source: Washington State Immunization Information System. All vaccines administered as of 12/31/2015 and reported to the IS as of 3/21/2016.                      *The 4:3:1:3:1:4 series consists of &gt;4 doses of DtaP (diphtheria, tetanus, and acellular pertussis), &gt;3 doses of polio, &gt;1 dose of MMR (Measles, mumps, and rubella), &gt;3 doses of Hepatitis B, &gt;3 doses of Haemophilus influenzae type B, &gt;1 dose of varicella (chicken pox), and &gt;4 doses of PCV (pneumococcal conjugate) vaccines. Note that although rotavirus and Hepatitis A vaccines are recommended for this age group, they are not included in the 4:3:1:3:1:4 series.</p>																						
Jurisdiction	Age Range	Total Population	Number with ≥5 Tdap	Percent with ≥5 Tdap	Number with ≥3 Hep B	Percent with ≥3 Hep B	Number with ≥4 Hib	Percent with ≥4 Hib	Number with ≥2 MMR	Percent with ≥2 MMR	Number with ≥4 PCV	Percent with ≥4 PCV	Number with ≥4 Polio	Percent with ≥4 Polio	Number with ≥2 Varicella	Percent with ≥2 Varicella	Number complete for 5:4:4:3:2:2:2:4 series*	Percent complete for 5:4:4:3:2:2:2:4 series*	Number with ≥2 HepA	Percent with ≥2 HepA		
Jefferson	4 To 6 Year-Olds	859	501	58%	677	79%	520	61%	591	69%	592	69%	550	64%	534	62%	303	45%	624	73%		
WA STATE	4 To 6 Year-Olds	291737	168921	58%	231564	79%	181408	62%	204994	70%	206665	71%	189131	65%	184179	63%	126002	43%	202509	69%		
Difference				+0%		+0%		-1%		-1%		-2%		-1%		-1%		+2%		+4%		
<p>Data Source: Washington State Immunization Information System. All vaccines administered as of 12/31/2015 and reported to the IS as of 3/21/2016.                      *The 5:4:4:3:2:2:2:4 series consists of ≥5 doses of DtaP (diphtheria, tetanus, and acellular pertussis), ≥4 doses of Haemophilus influenzae type B, ≥4 doses of polio, ≥3 doses of Hepatitis B, ≥2 doses of MMR (Measles, mumps, and rubella), ≥2 doses of varicella (chicken pox), ≥2 doses of HepA (hepatitis A) and ≥4 doses of PCV (pneumococcal conjugate) vaccines.</p>																						
Jurisdiction	Age Range	Total Population	Number with ≥1 Tdap	Percent with ≥1 Tdap	Number with ≥1 MCV	Percent with ≥1 MCV	Number with ≥1 HPV	Percent with ≥1 HPV	Number with ≥2 HPV	Percent with ≥2 HPV	Number with ≥3 HPV	Percent with ≥3 HPV	Number complete for 1:1:1 series*	Percent complete for 1:1:1 series*	Number complete for 1:1:3 series*	Percent complete for 1:1:3 series*						
Jefferson	11 To 12 Year-Olds	640	377	59%	263	41%	167	26%	70	11%	24	4%	152	24%	23	4%						
WA STATE	11 To 12 Year-Olds	209148	129681	62%	105360	50%	66858	32%	33218	16%	13434	6%	61847	30%	12885	6%						
Difference				-3%		-9%		-6%		-5%		-2%		-6%		-2%						
<p>Data Source: Washington State Immunization Information System. All vaccines administered as of 12/31/2015 and reported to the IS as of 3/21/2016.                      *The 1:1:1 series consists of &gt;1 dose of Tdap (tetanus, diphtheria, and acellular pertussis), &gt;1 dose of MCV (meningococcal conjugate), and &gt;1 dose of HPV (human papillomavirus) vaccines. The 1:1:3 series consists of &gt;1 dose of Tdap (tetanus, diphtheria, and acellular pertussis), &gt;1 dose of MCV (meningococcal conjugate), and &gt;3 doses of HPV (human papillomavirus) vaccines.</p>																						
Jurisdiction	Age Range	Total Population	Number with ≥1 Tdap	Percent with ≥1 Tdap	Number with ≥1 MCV	Percent with ≥1 MCV	Number with ≥1 HPV	Percent with ≥1 HPV	Number with ≥2 HPV	Percent with ≥2 HPV	Number with ≥3 HPV	Percent with ≥3 HPV	Number complete for 1:1:1 series*	Percent complete for 1:1:1 series*	Number complete for 1:1:3 series*	Percent complete for 1:1:3 series*						
Jefferson	13 To 17 Year-Olds	1715	1236	72%	948	55%	663	39%	502	29%	350	20%	567	33%	311	18%						
WA STATE	13 To 17 Year-Olds	531658	376200	71%	328966	62%	243642	46%	188848	36%	136486	26%	243642	46%	124845	23%						
Difference				+1%		-7%		-7%		-7%		-6%		-13%		-5%						
<p>Data Source: Washington State Immunization Information System. All vaccines administered as of 12/31/2015 and reported to the IS as of 3/21/2016.                      *The 1:1:1 series consists of &gt;1 dose of Tdap (tetanus, diphtheria, and acellular pertussis), &gt;1 dose of MCV (meningococcal conjugate), and &gt;1 dose of HPV (human papillomavirus) vaccines. The 1:1:3 series consists of &gt;1 dose of Tdap (tetanus, diphtheria, and acellular pertussis), &gt;1 dose of MCV (meningococcal conjugate), and &gt;3 doses of HPV (human papillomavirus) vaccines.</p>																						

Figure PH-1 – Washington Immunization Scorecard<sup>25</sup>



## Measles

**All Ages**

Washington Measles Cases

**Measles, mumps, & rubella (MMR) vaccination rates among kindergartners, 2014-2015 school year**

Washington is one of seven states where less than 90% of kindergartners are fully immunized with MMR.

Measles spreads easily. At least 94% of people need to be vaccinated to protect their community.

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## Adult & Flu

2013
2014

**Zoster 60+ Years**

Data Source BRFSS

Zoster vaccine prevents shingles and is recommended for all adults 60 and up. Shingles is common and painful in adults who have had chickenpox.

**Pneumococcal 65+ Years**

Data Source BRFSS

Pneumococcal disease can cause pneumonia, meningitis, and blood stream infections. Two types of vaccine are needed to protect older adults. Either vaccine counts towards percentages (PCV13 or PPSV23).

What can you do to improve rates?

- 1** Parents and families: Make sure you're up to date [www.doh.wa.gov/immsrecords](http://www.doh.wa.gov/immsrecords)
- 2** Providers: Access resources [www.cdc.gov/vaccines/hcp.htm](http://www.cdc.gov/vaccines/hcp.htm) [www.doh.wa.gov/WAIIIS](http://www.doh.wa.gov/WAIIIS)
- 3** Know our rates [www.doh.wa.gov/ImmData](http://www.doh.wa.gov/ImmData)

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**6 Months Through 17 Years**

GOAL 80%

Data Source NIS

Babies and young kids are at higher risk of flu complications.

**18 Through 64 Years**

GOAL 80%

Data Source BRFSS

All adults should get an annual flu shot. Pregnant women and people with certain health conditions are at higher risk of flu complications.

**65+ Years**

GOAL 90%

Data Source BRFSS

People 65 and older are at higher risk of flu complications.

For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY 711).

For data sources, goals, and more information contact: Office of Immunization and Child Profile  
 Web: [www.doh.wa.gov/immunization](http://www.doh.wa.gov/immunization) | Phone: 360-236-3595 | Email: [OICP@doh.wa.gov](mailto:OICP@doh.wa.gov)

DOH 348-514 March 2016

## Special Consideration

**Ebola Virus:** Causes a severe and often fatal hemorrhagic fever in humans and mammals. Mortality rate is high (up to 83-90%). The natural reservoir of Ebola virus is bats, and it is transmitted between humans and from animals to humans through contact with body fluids.<sup>26</sup> No cases have ever been identified in Jefferson County, but the U.S. had cases of infected doctors and / or travelers returning to the U.S. after having acquired it in infected areas of Africa.

**Zika Virus<sup>27</sup>:** “The infection, known as Zika fever or Zika virus disease, often causes no or only mild symptoms, similar to a very mild form of dengue fever.<sup>28</sup> While there is no specific treatment, paracetamol (acetaminophen) and rest may help with the symptoms.<sup>29</sup> As of 2016, the illness cannot be prevented by medications or vaccines.<sup>30</sup> Zika can spread from a pregnant woman to her fetus. This can result in microcephaly, severe brain malformations, and other birth defects.<sup>31</sup>”

## Climate Change

Table PH-3, *Summary of Projected Climate Change and Related Human Health Impacts*, is taken in its entirety from “Section 12 – How Will Climate Change Affect Human Health in Washington?”<sup>32</sup> It provides a comprehensive summarization of how “human health in Washington is likely to be affected by projected increases in extreme heat events, flooding, sea level rise, drought, and forest fires; increased allergen production and summer air pollution; and changes in the types, distribution, and transmission of infectious diseases (e.g., West Nile Virus) and fungal diseases.<sup>33</sup>”

The table is based on Bethel et al. 2013<sup>34</sup> and other sources. Few studies have been conducted to date on climate change impacts to human health in the Pacific Northwest, so impacts listed in the table represent examples rather than an all-inclusive list of potential impacts<sup>35</sup>.



**Table PH-3 - Summary of Projected Climate Change and Related Human Health Impacts<sup>32</sup>**

Projected Climate Change Impact		Related Human Health Impacts
General Trend	Specific Changes Projected	
<p><b>More extreme heat events<sup>[D]</sup></b></p>	<ul style="list-style-type: none"> <li>• The number and duration of days above 90°F increases throughout the state.<sup>[E]</sup></li> <li>• Increases in number of days in Washington above 95°F annually range from less than 3 days to up to 10 days by 2050s, compared to 1980-2000, depending on the greenhouse gas scenario and location.<sup>[E][F]</sup></li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>• worsening of existing problems with respiratory illness, cardiovascular disease, and kidney failure;</li> <li>• more heat exhaustion, heart attacks, strokes, and drownings; and</li> <li>• more heat related deaths, although the projected numbers vary widely.</li> </ul> <p>Related information:</p> <ul style="list-style-type: none"> <li>• One study for the greater Seattle area projected an additional 157 annual heat-related deaths by 2045 under a moderate (A1B) greenhouse gas emissions scenario.<sup>[F][2]</sup> Another study projected only an additional 14 annual heat-related deaths in Seattle for approximately the same time period under a very high (A1FI) emissions scenario.<sup>[G][6]</sup></li> </ul>

<sup>D</sup> The temperature thresholds used to define an extreme heat event will vary by location. The thresholds used for Seattle and Spokane in Jackson et al. 2010 were 92.5°F and 100.6°F, respectively. For more on projected changes in extreme events, see this report’s section on projected Pacific Northwest climate.

<sup>E</sup> Greenhouse gas scenarios were developed by climate modeling centers for use in modeling global and regional climate impacts. These are described in the text as follows: “very low” refers to the RCP 2.6 scenario; “low” refers to RCP 4.5 or SRES B1; “medium” refers to RCP 6.0 or SRES A1B; and “high” refers to RCP 8.5, SRES A2, or SRES A1FI – descriptors are based on cumulative emissions by 2100 for each scenario. See Section 3 for more details.

<sup>F</sup> Study inclusive of King, Pierce, and Snohomish Counties. Projected change in mortality for those over age 45, relative to a base period of 1980-2006. Projections based on the average of the climate change scenarios derived from two global climate models and two greenhouse gas emissions scenarios: the PCM model run with the B1 emissions scenario and the HADCM1 model run with the A1B emissions scenario. Population levels were held constant at year 2025.

<sup>G</sup> Projected change in mortality relative to a base period of 1975-95. Projections cited here based on modeling of the A1FI greenhouse gas emissions scenario with the PCM global climate model.

Projected Climate Change Impact		Related Human Health Impacts
General Trend	Specific Changes Projected	
Increased winter flooding <sup>[H]</sup>	<ul style="list-style-type: none"> <li>• More winter flooding is expected west of the Cascades. The largest projected changes are found in mid-elevation mixed rain and snow basins, which are most sensitive to warming winter and spring temperatures.<sup>[I]</sup></li> <li>• Some higher elevation snow dominant watersheds will see increasing flooding, while others experience decreased flooding.<sup>[I]</sup></li> </ul>	Increased potential for: <sup>[J]</sup> <ul style="list-style-type: none"> <li>• injuries and death,</li> <li>• exposure to hazardous and toxic substances released and spread by flooding,</li> <li>• respiratory illness from mold and microbial growth in flood-impacted structures,</li> <li>• contamination of, or disruption to, public water supplies,<sup>[8]</sup></li> <li>• mental health impacts<sup>[J]</sup> associated with damage to homes, communities, places of employment.</li> </ul>
Increased drought <sup>[H]</sup>	<ul style="list-style-type: none"> <li>• Lower summer streamflows, warmer summer temperatures, and earlier spring snowmelt contribute to increased risk of drought, particularly in eastern Washington.</li> <li>• Drought impacts can affect food production, the potential for wildfire in forests and rangeland, water supply, and water quality.</li> </ul>	Increased potential for: <sup>[J]</sup> <ul style="list-style-type: none"> <li>• respiratory illness associated with increased forest fires (see next row),</li> <li>• reduced water supplies, including impacts to groundwater supplies used by private wells, and</li> <li>• mental health effects.</li> </ul>

<sup>H</sup> For more on projected impacts on Pacific Northwest hydrology, see Section 6.

<sup>I</sup> Projections for specific Washington locations can be found here: <http://warm.atmos.washington.edu/2860/products/sites/>

<sup>J</sup> Mental health impacts are common to most climate change impacts. Potential mental health impacts include: emotional and psychological stress associated with weather-related trauma, including loss of homes or places of employment, financial concerns, recovery and rebuilding, family pressure, loss of leisure and recreation, loss of security; physical impacts of stress, including post-traumatic stress disorder, high blood pressure, and unhealthy coping mechanisms (e.g., increased alcohol or tobacco use, poor dietary habits); non-trauma related anxiety and depression related to feelings of losing control over a situation, or uncertainty about the future; and grief and despair over the loss, or potential loss, of culturally important resources, traditions, or places.

Projected Climate Change Impact		Related Human Health Impacts
General Trend	Specific Changes Projected	
<b>Increased forest fires<sup>[K]</sup></b>	<ul style="list-style-type: none"> <li>• Most models project increases in the amount of area burned in Washington by forest fires. The projected change is less than 100% to greater than 500% by mid-century.<sup>[9]</sup></li> <li>• Risk of fires is greatest east of the Cascades, but air quality around the state is affected.</li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>• more asthma, bronchitis, and pneumonia hospital admissions;</li> <li>• missed school and work days;</li> <li>• mental health effects due to potential or actual loss of property and disruptions to communities.</li> </ul> <p>Related information:</p> <ul style="list-style-type: none"> <li>• Smoke from the 2012 wildfires in Chelan and Kittitas Counties contributed to an additional 350 hospitalizations for respiratory conditions and 3,400 student absences from school.<sup>[L]</sup></li> <li>• Studies in California found that fine particulate matter concentrations in the air were higher and more toxic during wildfires that occurred in 2003 and 2007.<sup>[10]</sup></li> </ul>
<b>Increased production of allergens</b>	<ul style="list-style-type: none"> <li>• The pollination season is projected to lengthen.<sup>[11][12]</sup></li> <li>• The amount of allergy-causing proteins in pollen is also projected to increase.<sup>[12]</sup></li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>• more severe and longer-lasting allergy symptoms;</li> <li>• asthma attacks, and</li> <li>• missed school and work days.</li> </ul>
<b>Increased air pollution</b>	<ul style="list-style-type: none"> <li>• Warmer summer air temperatures are expected to lead to the production of more ground-level ozone, particularly in urban areas. This could slow air quality improvements made in recent decades in urban areas.<sup>[2]</sup></li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>• Cardiovascular disease, respiratory disorders (e.g., asthma), and mortality.</li> </ul> <p>Related information:</p> <ul style="list-style-type: none"> <li>• Under a high emissions scenario (A2), the annual number of additional May-September deaths due to ozone is projected to increase from 69 in 1997-2006 to 132 by mid-century in</li> </ul>

<sup>K</sup> For more on projected impacts on Pacific Northwest forests and forest fire risk, see this report's section on forests.

<sup>L</sup> Glen Patrick, Manager of the Environmental Epidemiology, Washington State Dept. of Health, personal communication



Projected Climate Change Impact		Related Human Health Impacts
General Trend	Specific Changes Projected	
		King County, and from 37 (1997-2006) to 74 in Spokane. <sup>[2]</sup>
<b>Infectious, vector-borne, and fungal diseases</b>	<ul style="list-style-type: none"> <li>Higher temperatures may increase the incidence of West Nile virus. The impact of climate change on Lyme disease, hantavirus, malaria, and dengue in the PNW is unknown.<sup>[1]</sup></li> <li>Warmer ocean temperatures increase the risk of <i>Vibrio parahaemolyticus</i> outbreaks in oysters and shellfish, which can cause illness in humans.<sup>[1]</sup></li> <li>Projected increases in precipitation and flooding increase the potential for <i>Cryptosporidium</i> contamination in water supplies.<sup>[1]</sup></li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>More illness and mortality associated with infectious diseases.</li> </ul> <p>The emergence of new diseases and/or expansion of existing diseases is expected to exacerbate these impacts.</p>
<b>Harmful Algal Blooms (HABs)</b>	<ul style="list-style-type: none"> <li>Models project the window of opportunity for <i>A. catenella</i>, which can cause illness or death via paralytic shellfish poisoning, in Puget Sound to increase by an average of 13 days by the end of the century under a moderate (A1B) greenhouse gas emissions scenario.<sup>[13]</sup></li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>More illness and mortality associated with infectious diseases.</li> </ul>
<b>Sea Level Rise</b>	<ul style="list-style-type: none"> <li>Sea level is projected to increase +4 to +56 inches overall in Washington State by 2100, relative to 2000, although some locations may experience sea level fall because of uplift caused by plate tectonics.<sup>[M][14]</sup></li> <li>Associated impacts with the potential to impact human health include inundation of low-lying areas, increased coastal river flooding, increases in the frequency of today's extreme tidal/storm surge events, and changes in coastal habitats that may affect culturally and economically important species.</li> </ul>	<p>Increased potential for:<sup>[1]</sup></p> <ul style="list-style-type: none"> <li>Mental health stress associated with storm surge damage and loss of culturally or economically important areas to inundation, erosion, or storm surge.</li> <li>Reduced drinking water quality due to saltwater intrusion into coastal aquifers and rivers.</li> </ul>

<sup>M</sup> Mean value: +24 inches (± 12 inches) for a moderate (A1B) greenhouse emissions scenario for 2100, relative to 2000. The range values reported in the table are for the lowest (B1) to the highest (A1FI) greenhouse gas emissions scenarios used prior to the release of the CMIP5 RCP scenarios. For more on sea level rise and coastal impacts, see this report's sections on projected Pacific Northwest climate and projected impacts on oceans and coasts.

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## Conclusion

Jefferson County has several unique factors that increase its vulnerability to contaminated foods and the spread of infection, but public health officials recognize this and work hard to contain local outbreaks of disease or contaminated products. Nevertheless, the potential exists that in a region-wide event or a pandemic event, local resources will be quickly overwhelmed necessitating help from outside the region.

## References – PUBLIC HEALTH EMERGENCY

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## **Figures - PUBLIC HEALTH EMERGENCY**

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PH-1 Washington Immunization Rates vs Goals

## **Tables - PUBLIC HEALTH EMERGENCY**

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PH-1 Pandemic Flu History

PH-2 Immunization Coverage for Jefferson County as of 12/31/2015

PH-3 Summary of Projected Climate Change and Related Human Health Impacts

# TORNADO<sup>1</sup>

## SUMMARY

**The Hazard:** Tornadoes are the most violent weather phenomena known. They are characterized by funnel clouds of varying sizes that generate winds as fast as 500 miles per hour. They can affect an area of ¼ to ¾ of a mile and seldom more than 16 miles long.<sup>2</sup>

### Impacts and Effects:

- Death
- Severe Injury
- Destruction

**Previous Occurrences:** Table TN-1, below, shows that there have only been 7 tornadoes recorded in Jefferson County since 1950. During all that time, there has been only one injury.



Source: <https://en.wikipedia.org/wiki/Tornado>

Table TN-1. Recorded Tornado Events in Jefferson County Washington since 1950					
Date	Location	Force	Death(s)	Injuries	Distance
12/12/1969	Brinnon	F3	0	1	27
11/24/1970	Port Townsend	F2	0	0	27
04/09/1991	Brinnon	F0	0	0	13
06/11/2001	Brinnon	F0	0	0	19
06/05/2004	Port Townsend	F0	0	0	26
05/18/2005	Port Townsend	F1	0	0	25
01/18/2015	Brinnon	EF1	0	0	28

**Probability of Future Events:** *Extremely Low* – Severe windstorms are far more likely than tornados.<sup>3</sup>

**Natural Hazard Risk Rating:** The average natural hazard risk rating for tornadoes for all districts in Jefferson County was estimated at 3.1, which is the lowest risk rating for all natural hazards that Jefferson County has seen.

## Definition

Tornadoes are the most violent weather phenomena known. They are characterized by funnel clouds of varying sizes that generate winds as fast as 500 miles per hour. They can affect an area of  $\frac{1}{4}$  to  $\frac{3}{4}$  of a mile and seldom more than 16 miles long. Tornadoes normally descend from the large cumulonimbus clouds that characterize severe thunderstorms. They form when a strong crosswind (sheer) intersects with strong warm updrafts in these clouds causing a slowly spinning vortex to form within a cloud. Eventually, this vortex may develop intensity and then descend to form a funnel cloud. When this funnel cloud touches the ground or gets close enough to the ground to affect the surface it becomes a tornado. Tornadoes can come from lines of cumulonimbus clouds or from a single storm cloud.

Up until 2007, tornadoes were measured using the Fujita-Pearson Scale ranging from F0 to F5 (Figure TN-1).<sup>4</sup> Table TN-2 shows the Fujita-Pearson Scale and its criteria. Since 2007, the “Enhanced” Fujita Scale (EF) has been used to estimate the scale of a tornado based on 28 criteria. Table TN-2 shows the equivalence of the Fujita and the Enhanced Fujita scale. Table TN-3 presents the 28 criteria with which to evaluate a tornado’s destructive force.

### Figure TN-1 - THE FUJITA-PEARSON SCALE<sup>4</sup>

The National Weather Service scales tornadoes by intensity on a scale of zero to five on the Fujita-Pearson scale which include:

**F-0. Light damage.** Wind up to 72 mph. Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.

**F-1. Moderate damage.** Wind 73 to 112 mph. The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.

**F-2. Considerable damage.** Wind 113 to 157 mph. Roof torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.

**F-3. Severe damage.** Wind 158 to 206 mph. Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.

**F-4. Devastating damage.** Wind 207 to 260 mph. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.

**F-5. Incredible damage.** Wind above 261 mph. Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel-reinforced concrete structures badly damaged.

**F-6 to F12. Toast City.** Exponentially increasing force that was originally proposed as from 319 mph to Mach 1, the speed of sound. The maximum wind speeds of tornadoes are not expected to reach F6, therefore the public is generally unaware of this part of the scale. We would expect “Sharknado” before having an F6 or greater storm. The “Enhanced” Fujita Scale simply makes the top end of the F-5 scale open-ended.



## History of Tornadoes in Jefferson County

Jefferson County does not have a record of significant tornado activity. Generally, the Northwest lacks the big thunderstorms that spawn tornadoes. From the period 1880 through 2012, there have been no “officially” recorded tornadoes in Jefferson County.<sup>5</sup> Yet, we have documentation of tornadoes occurring from 1969 thru 2015, albeit infrequently. We have no explanation for the divergence in agreement of sources.

Washington state usually experiences one to two tornadoes each year. In 2004, however, there were nine, while in 2007 none were reported. Wind patterns in Jefferson County are broken up by the Olympics, thus mitigating tornado spawning conditions.<sup>6</sup>

**Table TN-2. The Fujita Scale vs the Enhanced Fujita Scale.**

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	<b>0</b>	<b>65-85</b>
1	73-112	79-117	1	86-109	<b>1</b>	<b>86-110</b>
2	113-157	118-161	2	110-137	<b>2</b>	<b>111-135</b>
3	158-207	162-209	3	138-167	<b>3</b>	<b>136-165</b>
4	208-260	210-261	4	168-199	<b>4</b>	<b>166-200</b>
5	261-318	262-317	5	200-234	<b>5</b>	<b>Over 200</b>

**Table TN-3 - Enhanced Fujita Scale Damage Indicator**

<b>NUMBER</b>	<b>DAMAGE INDICATOR</b>	<b>ABBREVIATION</b>
<a href="#"><u>1</u></a>	Small barns, farm outbuildings	SBO
<a href="#"><u>2</u></a>	One- or two-family residences	FR12
<a href="#"><u>3</u></a>	Single-wide mobile home (MHSW)	MHSW
<a href="#"><u>4</u></a>	Double-wide mobile home	MHDW
<a href="#"><u>5</u></a>	Apt, condo, townhouse (3 stories or less)	ACT
<a href="#"><u>6</u></a>	Motel	M
<a href="#"><u>7</u></a>	Masonry apt. or motel	MAM
<a href="#"><u>8</u></a>	Small retail bldg. (fast food)	SRB
<a href="#"><u>9</u></a>	Small professional (doctor office, branch bank)	SPB
<a href="#"><u>10</u></a>	Strip mall	SM
<a href="#"><u>11</u></a>	Large shopping mall	LSM
<a href="#"><u>12</u></a>	Large, isolated ("big box") retail bldg.	LIRB
<a href="#"><u>13</u></a>	Automobile showroom	ASR
<a href="#"><u>14</u></a>	Automotive service building	ASB
<a href="#"><u>15</u></a>	School - 1-story elementary (interior or exterior halls)	ES
<a href="#"><u>16</u></a>	School - jr. or sr. high school	JHSH
<a href="#"><u>17</u></a>	Low-rise (1-4 story) bldg.	LRB
<a href="#"><u>18</u></a>	Mid-rise (5-20 story) bldg.	MRB
<a href="#"><u>19</u></a>	High-rise (over 20 stories)	HRB
<a href="#"><u>20</u></a>	Institutional bldg. (hospital, govt. or university)	IB
<a href="#"><u>21</u></a>	Metal building system	MBS
<a href="#"><u>22</u></a>	Service station canopy	SSC
<a href="#"><u>23</u></a>	Warehouse (tilt-up walls or heavy timber)	WHB
<a href="#"><u>24</u></a>	Transmission line tower	TLT
<a href="#"><u>25</u></a>	Free-standing tower	FST
<a href="#"><u>26</u></a>	Free standing pole (light, flag, luminary)	FSP
<a href="#"><u>27</u></a>	Tree - hardwood	TH
<a href="#"><u>28</u></a>	Tree - softwood	TS

## Hazard Assessment and Vulnerability Assessment



Tornadoes are not normal occurrence in the Northwest the way they are in the Midwest. Tornadoes require a confluence of warm surface temperatures and warm fronts coming from the south with cold fronts coming from the north. Northwest climates do not normally generate the temperature variations conducive to tornado formation. Washington is ranked 43 in the US for total number of tornadoes. Nonetheless, the tornado threat should be taken very seriously. The conditions conducive to tornado formation can develop in Northwest Washington, although it is not common for funnel clouds to be reported in this region. During severe thunderstorms, it is possible for tornadoes to occur.<sup>7</sup>

Tornadoes in Washington tend to be light or moderate, with winds ranging from 40 to 112 mph. There are a notable minority of tornadoes that cause significant to severe damage with winds going as high as 200 mph. The peak season for tornadoes is April through July. However, in Washington tornadoes may occur in the late summer months and, in a few rare cases, may occur in the winter months. While tornadoes are sometimes formed in association with large Pacific storms, most of them are caused by intense local thunderstorms. Tornadoes almost exclusively occur in the late afternoon and early evening.

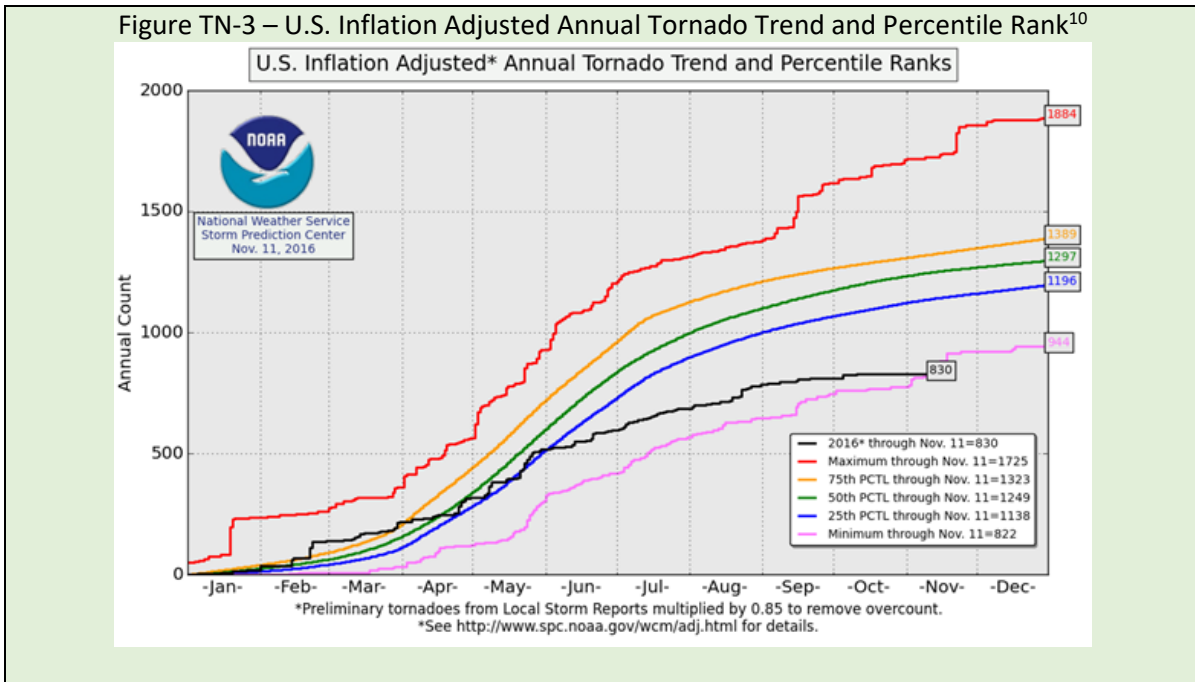
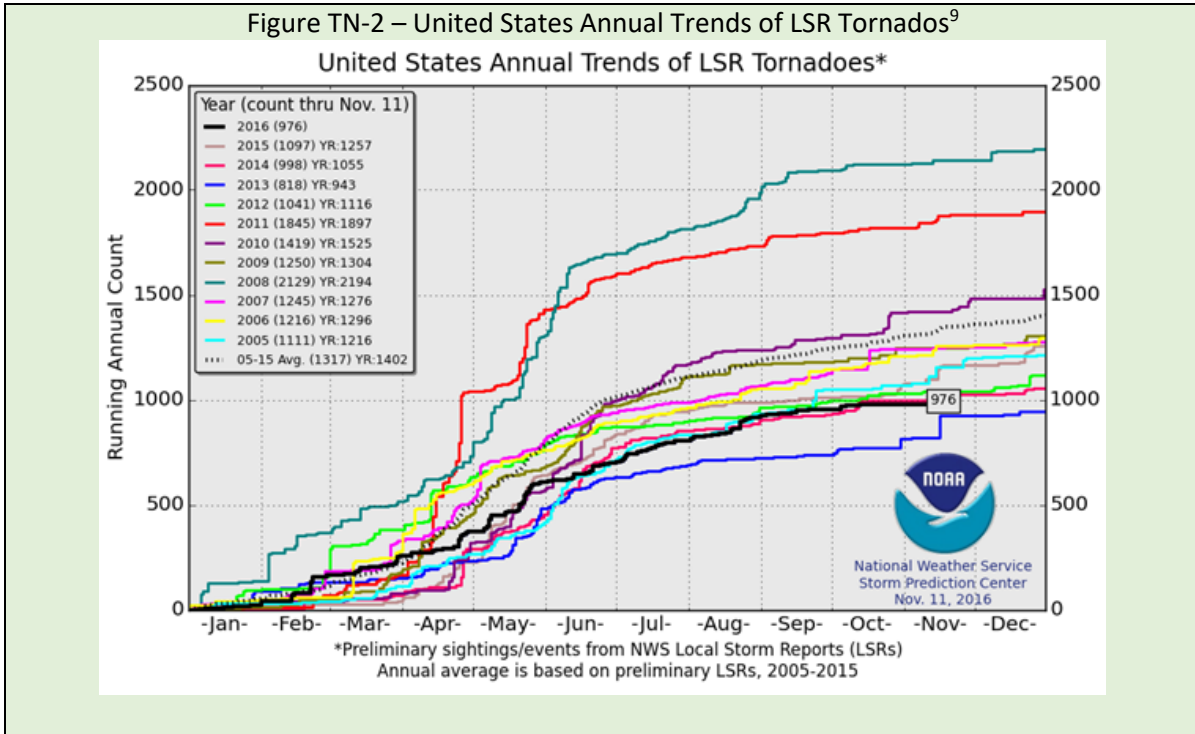
Normally, Pacific Northwest tornadoes are moderate but it is possible for serious tornadoes to develop, causing death and serious injury.

Typically, tornadoes may cause severe damage to everything in their path. Walls collapse, roofs are ripped off, trees and power lines are destroyed. The challenge is that tornadoes, especially in the Northwest, are very difficult to predict and their onset is sudden. Unlike the tornado-prone areas in the plains states, there is little awareness of the tornado threat and the forecasting and warning systems are less well developed. It is extremely rare for a tornado watch or warning to be issued anywhere in the Northwest. As such, there is little public awareness of the warning systems and self-protection measures common to the tornado prone states.

## Climate Change

At this point in time, there is too much variability in wind speeds and storm events and too short of wind time series to be able to make projections of climate changes effect on the intensity or patterns of winds in the region.<sup>8</sup>

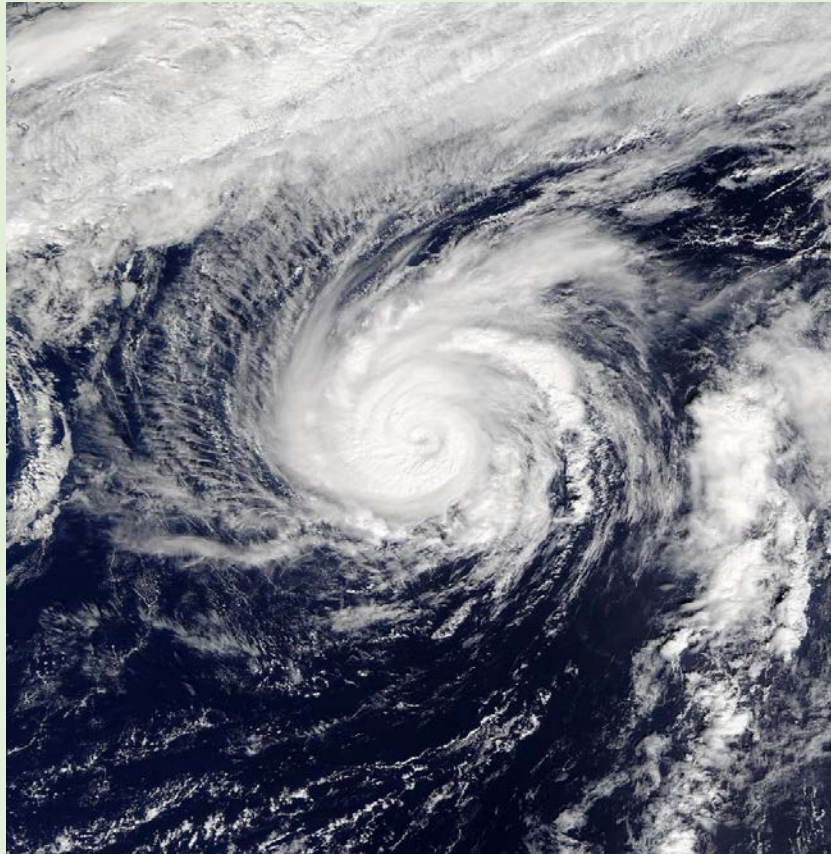
Figures TN-2 and TN-3 contain provisional data released on November 14, 2016 by the NOAA National Weather Service Storm Prediction Center<sup>9,10</sup>. They show that the recent trend nationally is for fewer tornados.



Since we now have a 24-7 news cycle and since threatening weather is good for ratings, news media pump up the coverage of storms and tornados, often giving the impression that events are going to be worse than they turn out to be.

Just prior to October 15, 2016, the media hyped a “mega-storm” that was to have 150 mph winds to hit the Seattle area on October 15, 2016<sup>11</sup>. There is anecdotal evidence that some local stations kept on promoting how bad the storm was going to be – even after they had word from the NWS that the threat was mitigating.

### **Mega-storm packing 150 mph winds and 50-foot waves set to pummel West Coast**



Source: medium.com



## Conclusion

Emergency response agencies should not be taken by surprise by a tornado in Jefferson County. While violent tornadoes are not a characteristic of the Northwest Washington climate, the weather systems that may generate tornadoes appear regularly. Emergency response agencies and emergency management officials should be prepared for the rapid notification of the public and for the efficient management of a mass casualty incident, and the prioritization of debris clearance.

Figure TN-4 - Results of an EF-6 – EF-12 Tornado<sup>12,13,14</sup>



## References - TORNADO

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14. *Sharknado3 Movie Poster*, Accessed August 10, 2016. Available at: [https://en.wikipedia.org/wiki/Sharknado\\_3:\\_Oh\\_Hell\\_No!](https://en.wikipedia.org/wiki/Sharknado_3:_Oh_Hell_No!)



## Tables - TORNADO

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- TN-1 Recorded Tornado Events in Jefferson County Since 1950, Compiled by Jefferson County Department of Emergency Management, August 2016.
- TN-2 *Fujita vs Enhanced Fujita Scale*, Storm Prediction Center, NOAA, Accessed August 2016. Available at: <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>
- TN-3 *Enhanced Fujita Scale Damage Indicator*, Storm Prediction Center, NOAA, Accessed August 2016. Available at: <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>

## Figures - TORNADO

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- TN-1 *Fujita Tornado Damage Scale*, Fujita, T. Theodore, University of Chicago, 1971. Source: Storm Prediction Center, NOAA. Available at: <http://www.spc.noaa.gov/faq/tornado/f-scale.html>
- TN-2 United States Annual Trends of LSR Tornadoes
- TN-3 U.S. Inflation Adjusted Annual Tornado Trend and Percentile Rank
- TN-4 “*Results of an EF-6 to EF-12 Tornado*”, Sharknado Movie Posters to break up the monotony of reviewing 600+ pages.

# TSUNAMI / SEICHE<sup>1</sup>

## SUMMARY

**The Hazard:** Tsunamis are wave trains, or series of waves, generated in a body of water by an impulsive disturbance including earthquakes, subaqueous or terrestrial landslides impacting water bodies, or volcanoes.

### Impacts and Effects:

- Loss of life
- Loss of property
- Damage to critical transportation infrastructure
- Damage or loss of recreation facilities
- Disruption of utilities
- Loss of jobs due to damaged equipment and facilities

**Previous Occurrences:** Geologic evidence shows that the Jefferson County area around Discovery Bay and the City of Port Townsend have experienced at least 7 major inundations in the last 3500 years<sup>2</sup>.

**Probability of Future Events:** High – Minor tsunamis have been documented every few years. There are several know faults and subduction zones capable of generating major tsunamis as part of an underwater subsidence.

**Natural Hazard Risk Rating:** The average natural hazard risk rating for tsunamis for all districts in Jefferson County was estimated at 10.45, which would be considered low. Districts with water boundaries, however, consistently rate the risk at 40, which, while moderate, is among the highest ratings given for anything in Jefferson County.



Figure TS-1 Olympic Peninsula Tsunami Inundation Zones at 100' and 600'<sup>3</sup>

## **Definition:**

Tsunamis are wave trains, or series of waves, generated in a body of water by an impulsive disturbance including earthquakes, subaqueous or terrestrial landslides impacting water bodies, or volcanoes. Tsunami waves, often incorrectly described as tidal waves, are extremely destructive to life and property. Imperceptible on the open ocean, they can travel at velocities of up to 1000 km/h. Tsunami waves are usually 100 or more miles from crest to crest and can reach heights of up to 30 meters. They can traverse the entire 12,000 to 14,000 miles of the Pacific Ocean in 20 to 25 hours, striking with virtual undiminished force on coastal areas<sup>4</sup>.

A seiche is the formation of standing waves in water body, due to wave formation and subsequent reflections from the ends. A seiche may be incited by earthquake motions, impulsive winds over the surface, or wave motions entering the basin<sup>5</sup>. A tsunami generated along the South Whidbey Island earthquake fault could send a wave directly into Port Townsend Bay, where it would wrap around the bay and create a seiche.

## **History of Tsunamis in Jefferson County**

The Washington coast, including the coastal areas of Jefferson County, experienced a large tsunami following the 1964 Alaskan earthquake; however, no deaths were reported in this state. As recently as March 2011, a tsunami warning was issued for the Washington coast due to the Tohoku earthquake in Japan, which created a tsunami that did reach our coast.

Research indicates that an earthquake on the west coast of America at 21:00 on January 26, 1700 caused a tsunami in Japan that killed thousands of people. Local evidence now indicates that the same tsunami damaged the west coast of Jefferson County and the lowlands of Grays Harbor and Pacific counties. This was caused by an estimated 9.0+ undersea earthquake along the Cascadia Subduction Zone, which can happen again. The event, called a megathrust earthquake, created a large tsunami that crossed the Pacific Ocean and inundated Japanese villages without the shaking warning they were used to having. The Japanese documented the event, thus allowing us to get the exact time of arrival of the wave in Japan and to back calculate when the earthquake occurred on Washington coast<sup>6</sup>.

At the time of the “1700 Tsunami”, there were only native and early explorer civilizations in the areas inundated in Washington. Today, there are billions of dollars of property and millions of people that could be directly affected.

Seafloor core evidence indicates that there have been forty-one subduction zone earthquakes on the Cascadia subduction zone in the past 10,000 years, suggesting a general average earthquake recurrence interval of only 243 years.<sup>7</sup> Of these 41, nineteen have produced a "full margin rupture," wherein the entire fault opens up.<sup>8</sup> There is also evidence of accompanying tsunamis with every earthquake. One strong line of evidence for these earthquakes is convergent timings for fossil damage from tsunamis in the Pacific Northwest and historical Japanese records of tsunamis.<sup>9</sup> Table TS-1 provides the approximate dates of the tsunami events occurring from Cascadia ruptures in the last 3500 years<sup>10</sup>. The interval ranges were from about 200 to 900 years with an average of about 500 years.

<b>Table TS-1 Recurrence of the “Great Earthquakes” in Washington State</b>		
<i>Estimated Year of Occurrence</i>		<i>Return Interval</i>
<i>2005 Source<sup>11</sup></i>	<i>2003 Source<sup>12</sup></i>	<i>Years</i>
1440 – 1340 BCE	1150 -1220 BCE	Unknown
980 - 890 BCE	910 – 780 BCE	250
660 – 440 BCE	610 – 450 BCE	400
350 – 420 CE	250 – 320 CE	910
690 – 730 CE	550 – 750 CE	330
780 – 1190 CE	880 – 960 CE	210
9:00 pm, January 26 1700 (NS)		780

The Washington State Emergency Operations Center was activated on June 9, 1996 after the Alaska Tsunami Warning Center issued a Tsunami Watch for the Washington coast and Puget Sound. An earthquake of 7.5 near Adak, Alaska generated a seismic wave of 2.5 feet. The state EOC returned to normal operations on the same date after the Tsunami Warning Center determined there was no threat to Washington State. Although not a common occurrence, the history indicates that the potential for tsunamis exists for coastal areas and areas along the Strait of Juan de Fuca.

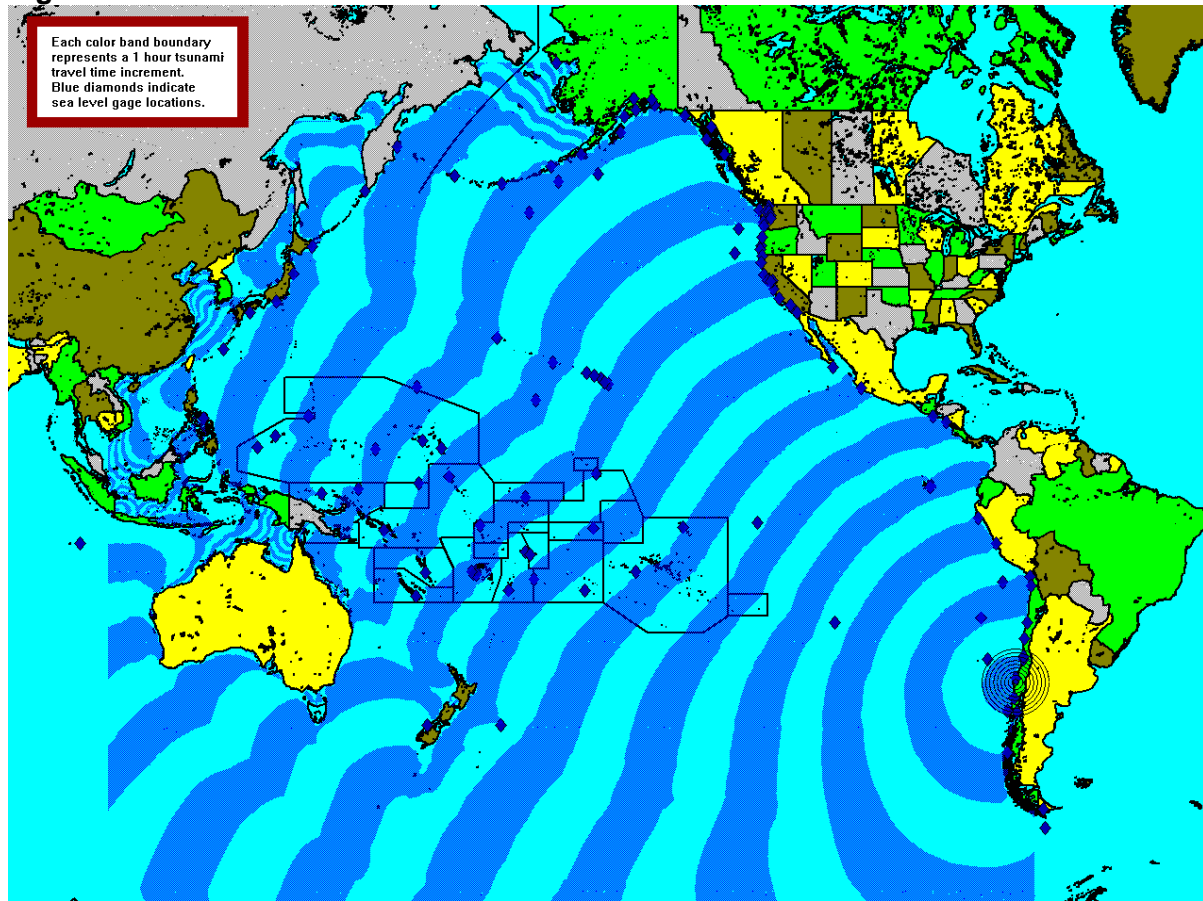
The Jefferson County Emergency Operations Center (EOC) has been activated multiple times to monitor for distant tsunamis from under sea earthquakes near Japan and along the South American coast. The Japanese earthquake at Honshu on March 11, 2011, created a massive tsunami in Japan, but also generated a distant tsunami that hit the Washington coast, including Port Townsend and Fort Worden State Park beaches. As the EOC tracked the tsunami across the Pacific, the City Manager gave orders to evacuate the vulnerable population of the Admiralty Apartments, a low-income residence on the Port Townsend waterfront. The tsunami wave did hit the Washington coast and Port Townsend, but, fortunately, was less than a meter high at its highest spot.

## **Hazard Identification and Vulnerability Assessment**

The Pacific coastal areas and inland waters on the Strait of Juan de Fuca are the most vulnerable to tsunamis generated at a distance or by a local subduction zone earthquake. Distant tsunamis are those that originate so far away that residents of Jefferson County cannot feel the shaking of the earthquake that creates the wave. In most cases, nearby tsunamis will give warning by the shaking of the earthquake creating the wave; in some cases, though, the wave can be generated by a landslide and may not be heard or felt.

Damaging tsunamis striking the Pacific Northwest coast over the past century were generated by distant earthquakes located far across the Pacific basin. These tsunamis are distinguished from earthquakes near the coast, termed *local tsunamis*.

Figure TS-2 shows how long it takes a tsunami to reach the Washington coast from across the ocean<sup>13</sup>. Typically, the Port Townsend coastline and Port Townsend Bay have about 90 minutes before a wave hits once it enters the Strait of Juan de Fuca. A tsunami wave generated by the rupture of the Cascadia fault, off the coast of Washington, will take approximately two hours to reach the Port Townsend area – depending on how and where the rupture occurred. A distant tsunami, such as was generated by the Honshu earthquake, can take seven or eight hours or more to reach Washington’s coast.

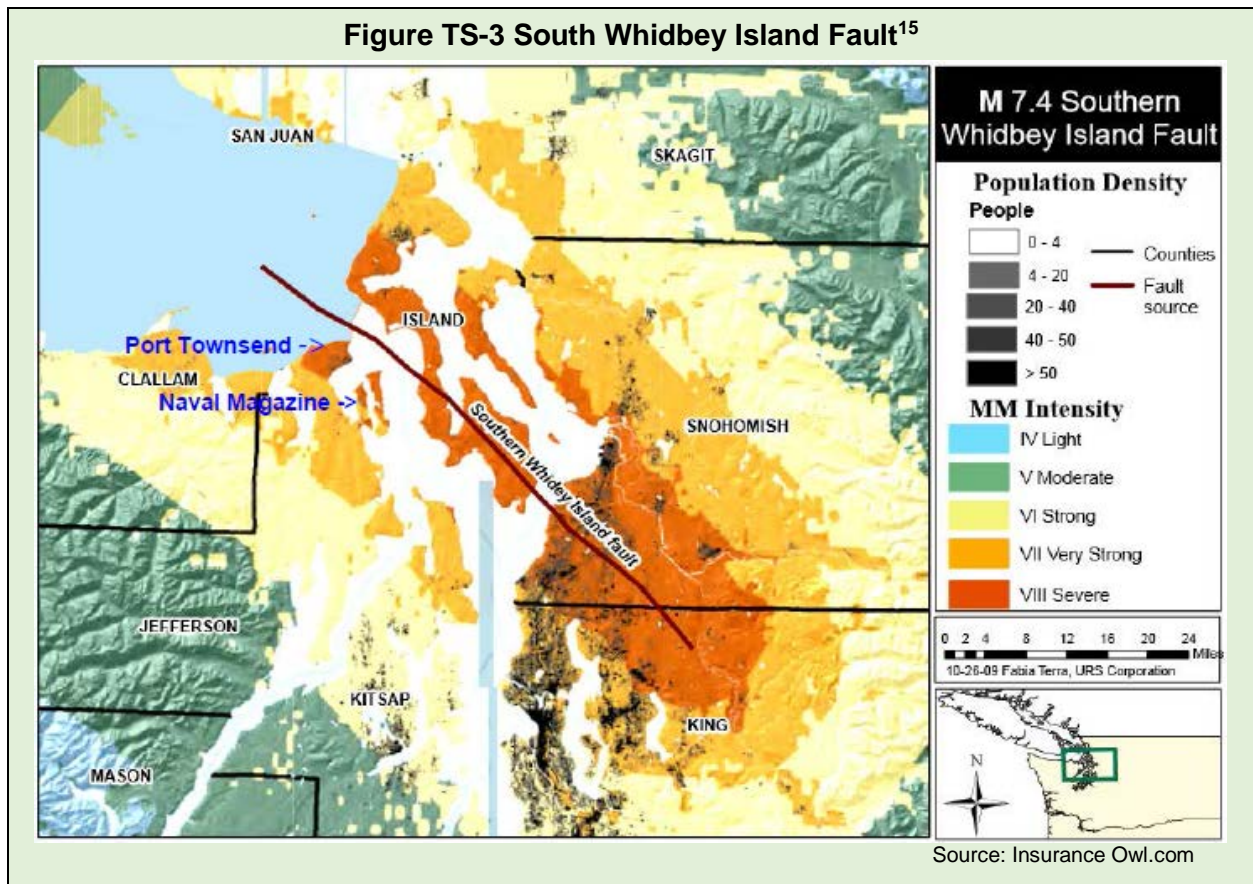
**Figure TS-2 Tsunami ETA Calculator**

Source: Jefferson County Department of Emergency Management

The Jefferson County Risk Report estimates that an earthquake in the Puget Sound along the Seattle fault could generate a tsunami that would reach Port Townsend in twenty (20) minutes.<sup>14</sup>

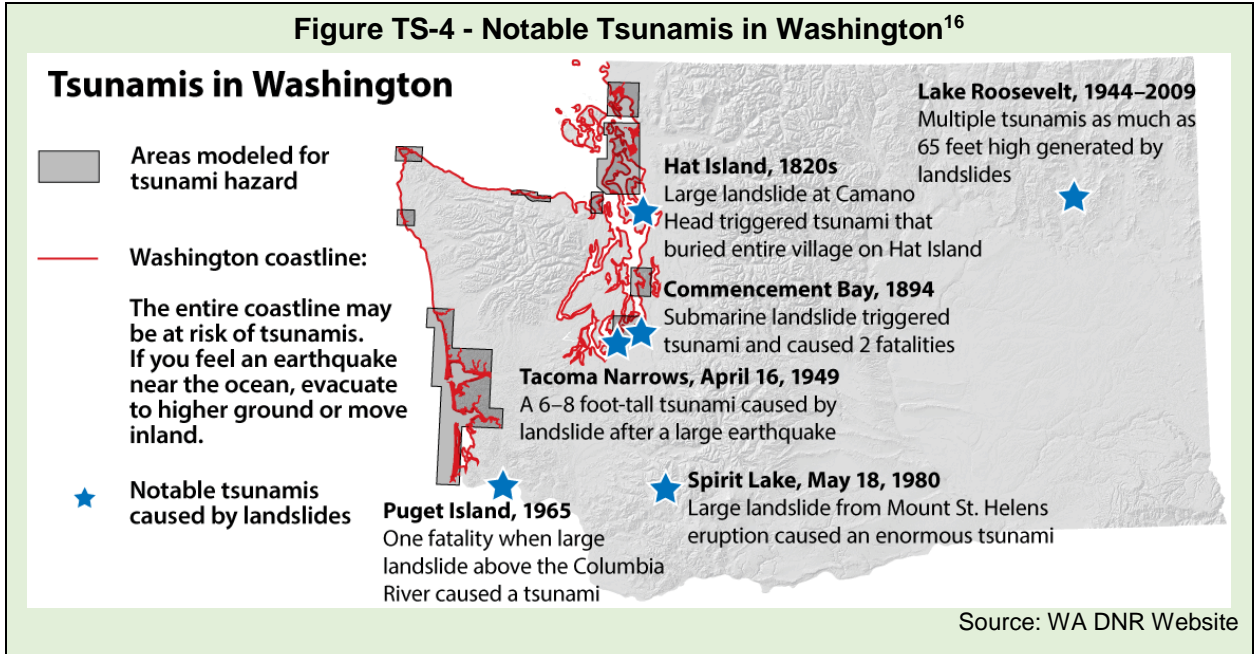
On the other hand, a rupture of the South Whidbey Island Fault or a landslide into the sea from Whidbey Island could cause a significant tsunami that would reach Port Townsend or the Fort Worden beaches in minutes. People on the beaches would still be picking themselves up off the ground when the wave hit. The South Whidbey Island fault is mid-way between Port Townsend and Whidbey Island, a distance of about one and a half miles. Figure TS-3 shows the location of the South Whidbey Island Fault<sup>15</sup>.





It should be noted that all of Port Townsend, half of Marrowstone Island, and the Naval Magazine at Indian Island are all with Zone VIII, that of the most severe intensity. The land surrounding Discovery Bay and both ends of the Hood Canal Bridge are in Zone VII, “Very Strong” shaking. These have the potential to send debris laden tsunamis down Discovery Bay to take out U.S. Hwy 101 and a power substation, and down the Hood Canal to take out the Hood Canal Bridge.

The Washington Department of Natural Resources (DNR) has documented notable tsunamis that have occurred in Washington (Figure TS-4), and is working to model the coastlines for tsunami hazard<sup>16</sup>.



**The Cascadia Subduction Zone Tsunami Generator<sup>17</sup>**



Source: washington.edu

The Cascadia subduction zone is an oceanic tectonic plate (the Juan de Fuca plate—the edge is indicated here by the Juan de Fuca Ridge) that is being pulled and driven (i.e. subducted) beneath a continental plate (the North American plate). Earthquakes along the fault that is the contact between the two plates, termed the interplate thrust or megathrust, may generate local tsunamis in the Pacific Northwest. Except for the 1992 Cape Mendocino earthquake at the southernmost part of the subduction zone, there have been no major earthquakes on the megathrust in historic time.

Some geologists offer that the Cascadia subduction zone is poised between major earthquakes. Therefore, the possibility exists that local tsunamis may someday accompany a major earthquake along the Cascadia megathrust. Pacific coastal areas and inland waters on the Strait of Juan de Fuca are the most vulnerable to tsunamis generated at a distance or by a local subduction zone earthquake.

As a tsunami leaves the deep water of the open ocean and travels into the shallower water near the coast, it transforms. A tsunami travels at a speed that is related to the water depth - hence, as the water depth decreases, the tsunami slows. The tsunami's energy flux, which is dependent on both its wave speed and wave height, remains nearly constant. Consequently, as the tsunami's speed diminishes as it travels into shallower water, its height grows. Because of this shoaling effect, a tsunami, imperceptible at sea, may grow



to be several meters or more in height near the coast. When it finally reaches the coast, a tsunami may appear as a rapidly rising or falling tide or a series of breaking waves.

A tsunami generated by a Cascadian Subduction Zone earthquake directly off the coast of Washington State, could arrive in less than a half hour. Tsunami waves from a Cascadia Subduction Zone earthquake located off the shore of Northern California or Northern British Columbia may reach the coast of Washington State in an hour or less.

Puget Sound is vulnerable to tsunamis generated by local crustal earthquakes or by submarine landslides triggered by earthquakes. Wave oscillations in enclosed or semi-enclosed bodies of water are called seiches. Seiches are caused by earthquake induced land surface waves that generate oscillations in bodies of water, resulting in fluctuations of the water levels causing sloshing from one end to the other. In 1891, an earthquake centered near Port Angeles caused eight-foot waves in Lake Washington.

The death and damage that can be inflicted by a tsunami is notable. The wave action is destructive in itself, however floating debris left after the wave can continue batter coastline structures and development. Boats moored in harbors and marinas often are swamped and sunk, or are destroyed and stranded on the shore. Breakwaters and piers collapse. Storage tanks situated near the waterfront are vulnerable. Port facilities, fishing fleets, and public utilities are frequently the backbone of the economy of the affected areas, and these are the very resources that generally receive the most severe damage.

Until debris can be cleared, wharves and piers rebuilt, utilities restored, and the fishing fleets reconstituted, communities may find themselves without fuel, food and employment. Wherever water transport is a vital means of supply and economic sustainment, disruption of coastal and inland seaports can have far reaching economic effects. Tsunami effects on fishing, mollusks, shore plants and marine and land organisms can be devastating. In addition to the enormous direct destruction caused by the waves themselves, salt water can invade coastal lakes and destroy, at least temporarily the fresh water habitat.

Jefferson County's ocean coastal areas have many miles of cliffs and high banks that slow or retard wave inundation. Lower elevation lands of river and stream outlets, however, do have small communities near their banks.

**Port Townsend:** The National Tsunami Hazard Mitigation Program's Center for Tsunami Inundation Mapping Efforts has developed tsunami models to help jurisdictions along the Southern Washington Coast, and Port Angeles and Port Townsend prepare evacuation plans for a future tsunami. The models use a moment magnitude 9.1 earthquake on the Cascadia Subduction Zone off the Washington coast as the generator of the tsunami. Figure TS-5, below, shows the inundation zone and evacuation routes for the Port Townsend area. City Hall and half of the grocery and hardware stores, and two power substations are within the Port Townsend zone<sup>18</sup>. The police station used to be, but was moved out of the tsunami zone in 2009 with the aid of a FEMA Hazard Mitigation grant.

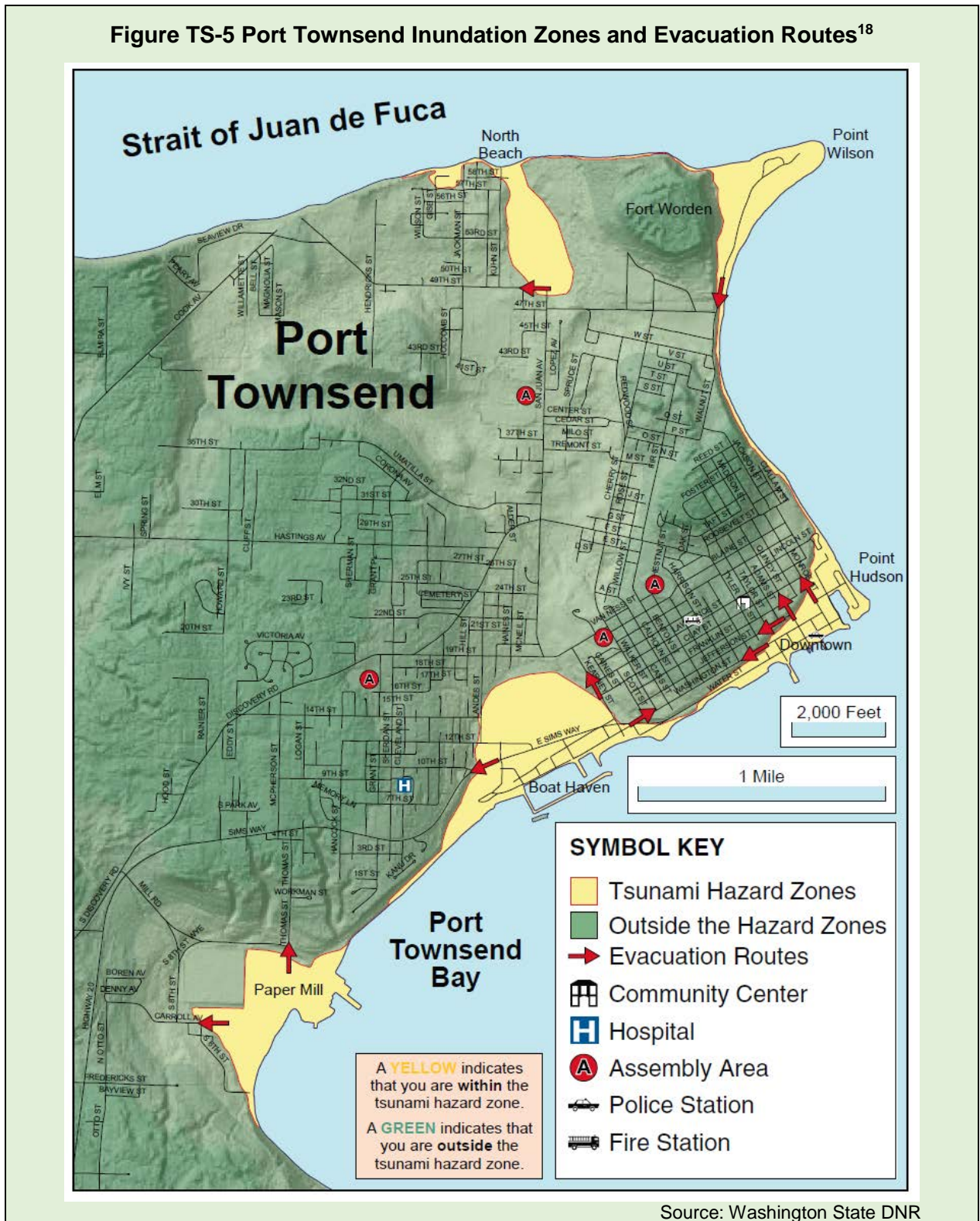
Projects covering these areas have identified at-risk communities (all census designated and incorporated places within one kilometer of the coast) and developed arrival times and wave elevations for them.

For communities on the outer coast, the first wave crest is predicted to arrive between 30 and 60 minutes after the earthquake; in Willapa Bay and Grays Harbor, the first crest is not expected to arrive for more than an hour.

Significant flooding can occur before the first wave crest because a Cascadia Subduction Zone earthquake is expected to lower the ground surface along the coast. Flooding of areas less than six feet above tide stage

is expected immediately. Maximum flooding depth and extent will depend on tide height at the time of tsunami arrival.

Figure TS-5 Port Townsend Inundation Zones and Evacuation Routes<sup>18</sup>



For the Port Angeles and Port Townsend areas, the crest of the first wave is expected within 90 minutes of the earthquake, with significant flooding before the crest.

**West Jefferson County:** Jefferson County’s west end consists of about 27 miles of open ocean frontage, small unincorporated towns, and two Indian tribes: the Quileute and the Hoh. Modeling of the Cascadia fault suggests that tsunami waves in excess of thirty feet high could inundate the shoreline. The Hoh Tribe of Indians have the most vulnerable community with approximately 110 individuals, many of which are still in the inundation zone at the mouth of the Hoh River. They have been working diligently to acquire elevated land around the perimeter of the reservation in order to move their community center and emergency facilities to high ground to give tribe members a place to go during a tsunami emergency.

Figures TS-6 and TS-7 show the recognized tsunami inundation zone for the Hoh Tribe and the Queets area on the Pacific coast<sup>19,20</sup>.

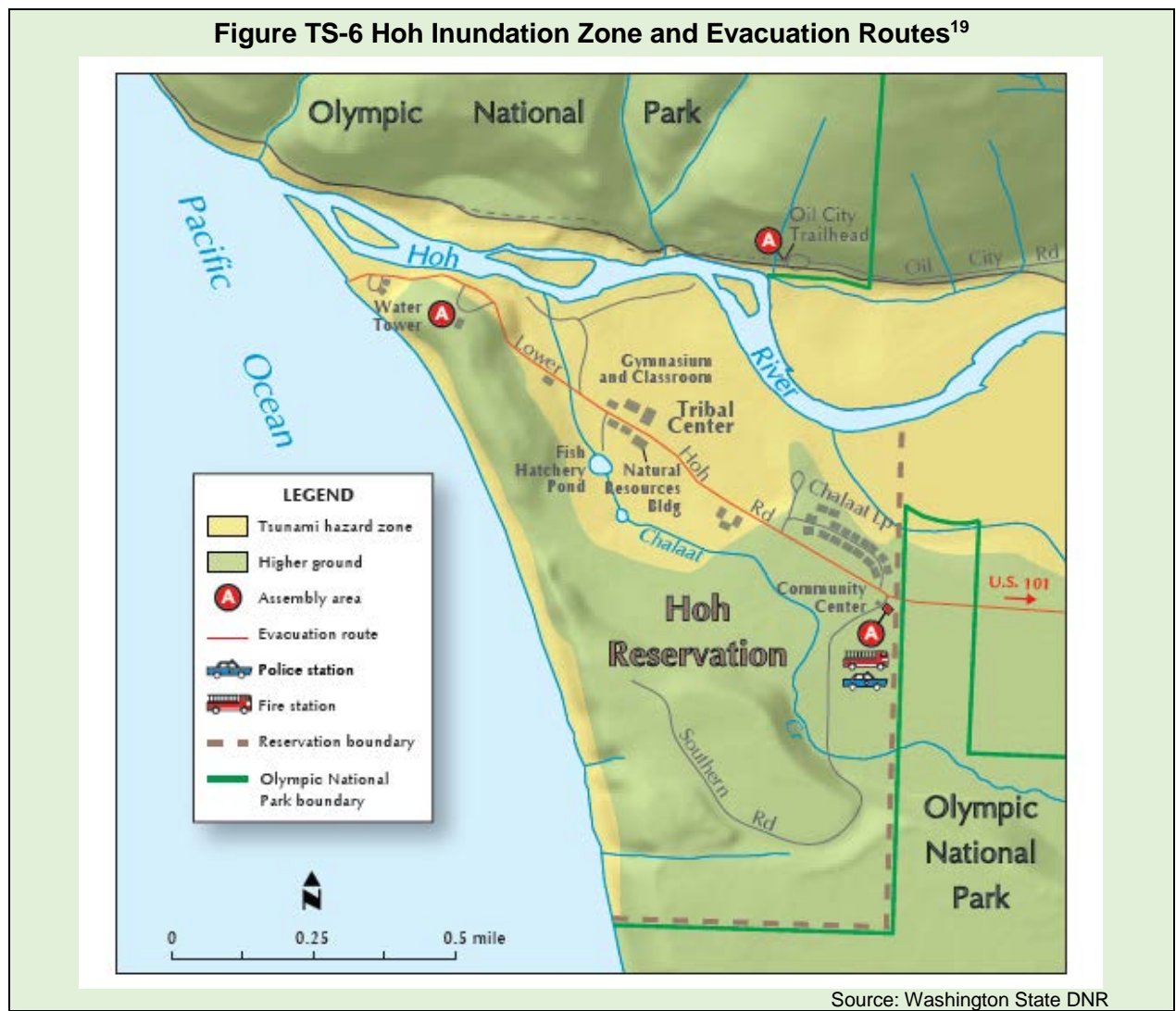
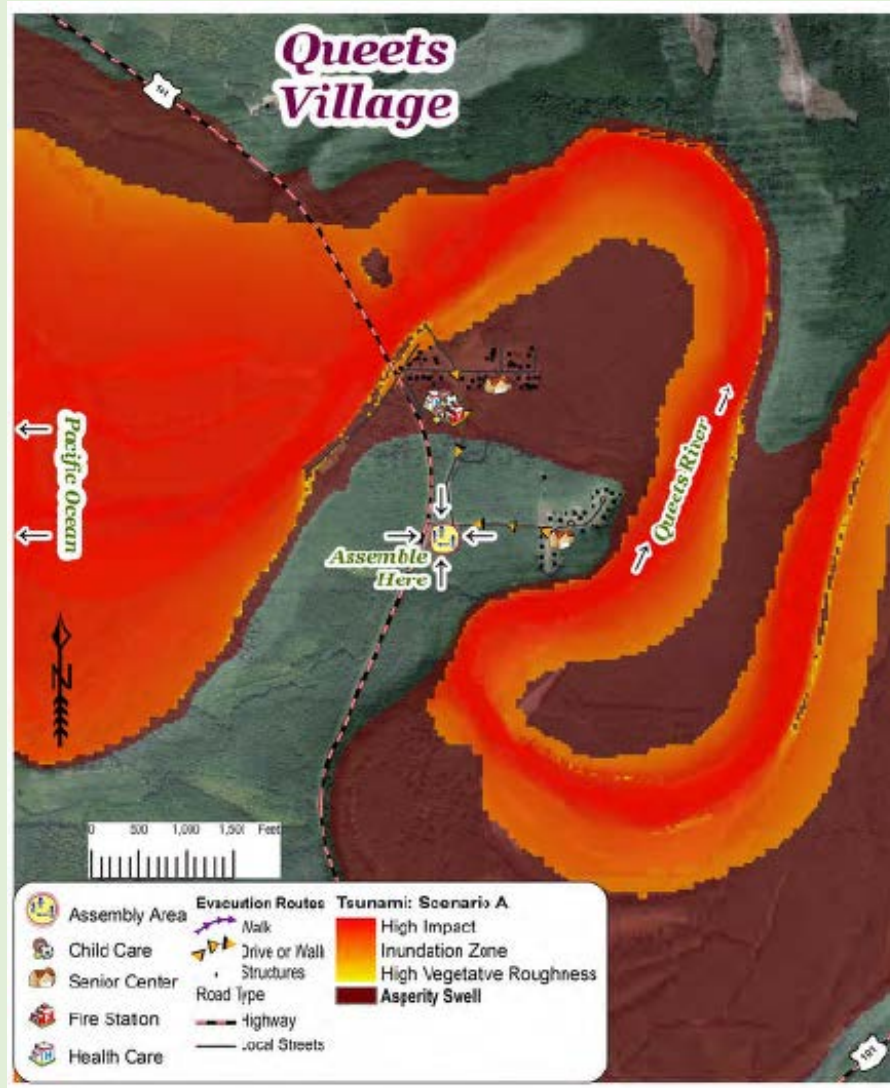




Figure TS-7 Queets Inundation Zone and Evacuation Routes<sup>20</sup>



Source: Washington State DNR

## THE COST OF A CASCADIA-GENERATED TSUNAMI

The *Risk Report for Jefferson County* contains the assessment of the value of buildings that will be damaged or destroyed in a tsunami generated by a Cascadia M9 earthquake. Table TS-2 provides the estimate of buildings and their value in the tsunami zone.<sup>21</sup> While a good way to compare against other areas, such as Port Angeles to understand relative vulnerability, it grossly understates the cost of the tsunami. The simulation scenario values buildings because it can, but it does not factor in that a significant portion of the county’s economic engine is within the tsunami zone, along with 1/3 of Port Townsend’s grocery stores, three-quarters of its financial institutions, a power sub-station, and city hall. The time to recover and the cost of recovery will dwarf the value of the buildings damaged.

**Table TS-2 - Building Exposure to a Cascadia M9 Earthquake-generated Tsunami Along the Jefferson County Coast<sup>21</sup>**

Community	Total Estimated Building Value	Building Value in Tsunami Zone	Total Number of Buildings	Number of Buildings in Tsunami Zone	Percent of Buildings in Tsunami Zone
Port Townsend Area*	\$646,052,977	\$42,185,069	4845	265	5.5%
Hoh Tribe	\$3,119,782	\$3,119,782	35	35	100%
<b>Total</b>	<b>\$649,172,759</b>	<b>\$45,304,851</b>	<b>4,880</b>	<b>298</b>	<b>6.1%</b>

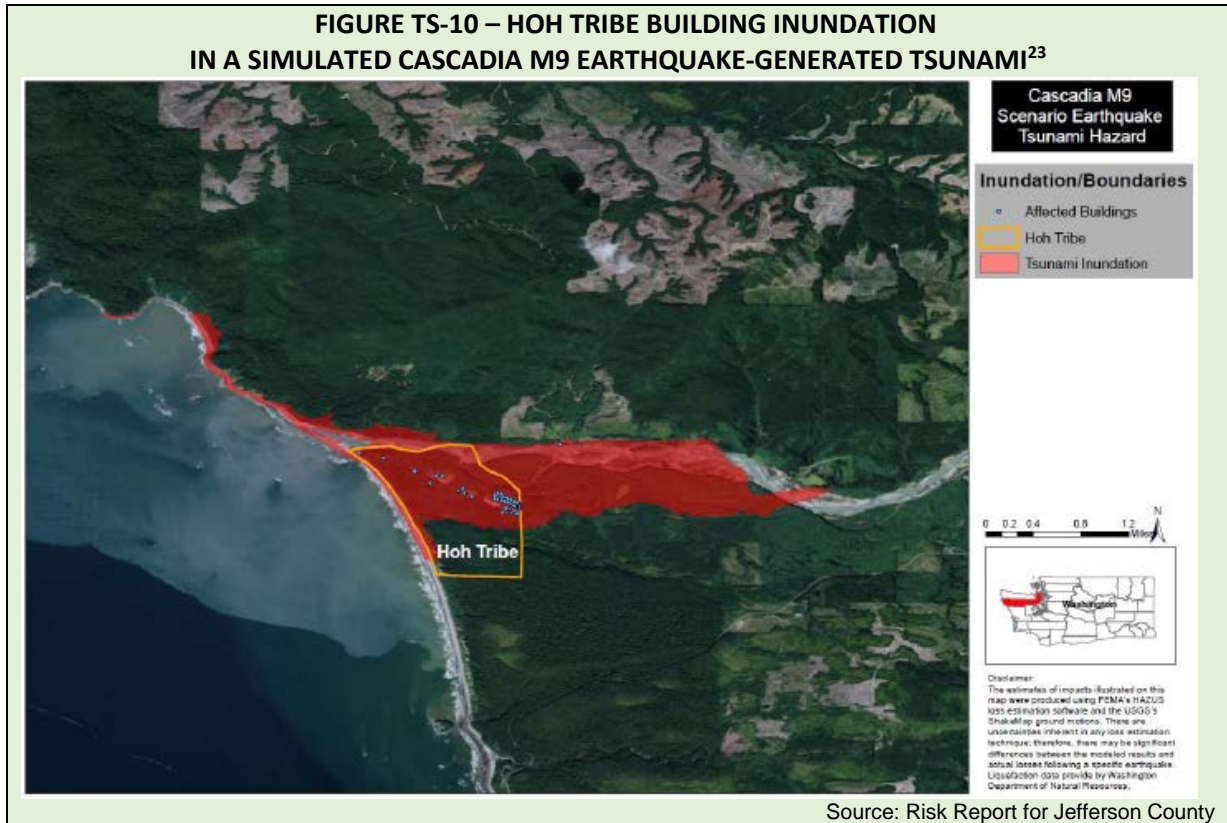
Source: Risk Report for Jefferson County

Figures TS-9 and TS-10 overlay buildings in the predicted tsunami inundation zone for Port Townsend and vicinity and for the Hoh Tribal area with a “red tide” showing the projected limits of the tsunami.<sup>22,23</sup> As of 2015, modeling suggested a maximum of about 7 meters or nearly 23 feet. The two bulges at top and bottom in the middle of the city map are China Lake and Kai Tai Lagoon, respectively. They are at sea level, but San Juan Avenue, which connects them in a straight line has a peak height of twenty-two feet, based on USGS topographic maps. If the tsunami wave height prediction is light, the wave could cut the city in two, taking out the Blue Heron Elementary School along the way. Why could it be light? The simulations are based on an M9 earthquake on the Cascadia fault; nothing says such a subduction zone earthquake couldn’t be of a stronger magnitude.

**FIGURE TS-9 – PORT TOWNSEND BUILDING INUNDATION IN A SIMULATED CASCADIA M9 EARTHQUAKE-GENERATED TSUNAMI<sup>22</sup>**



Source: Risk Report for Jefferson County

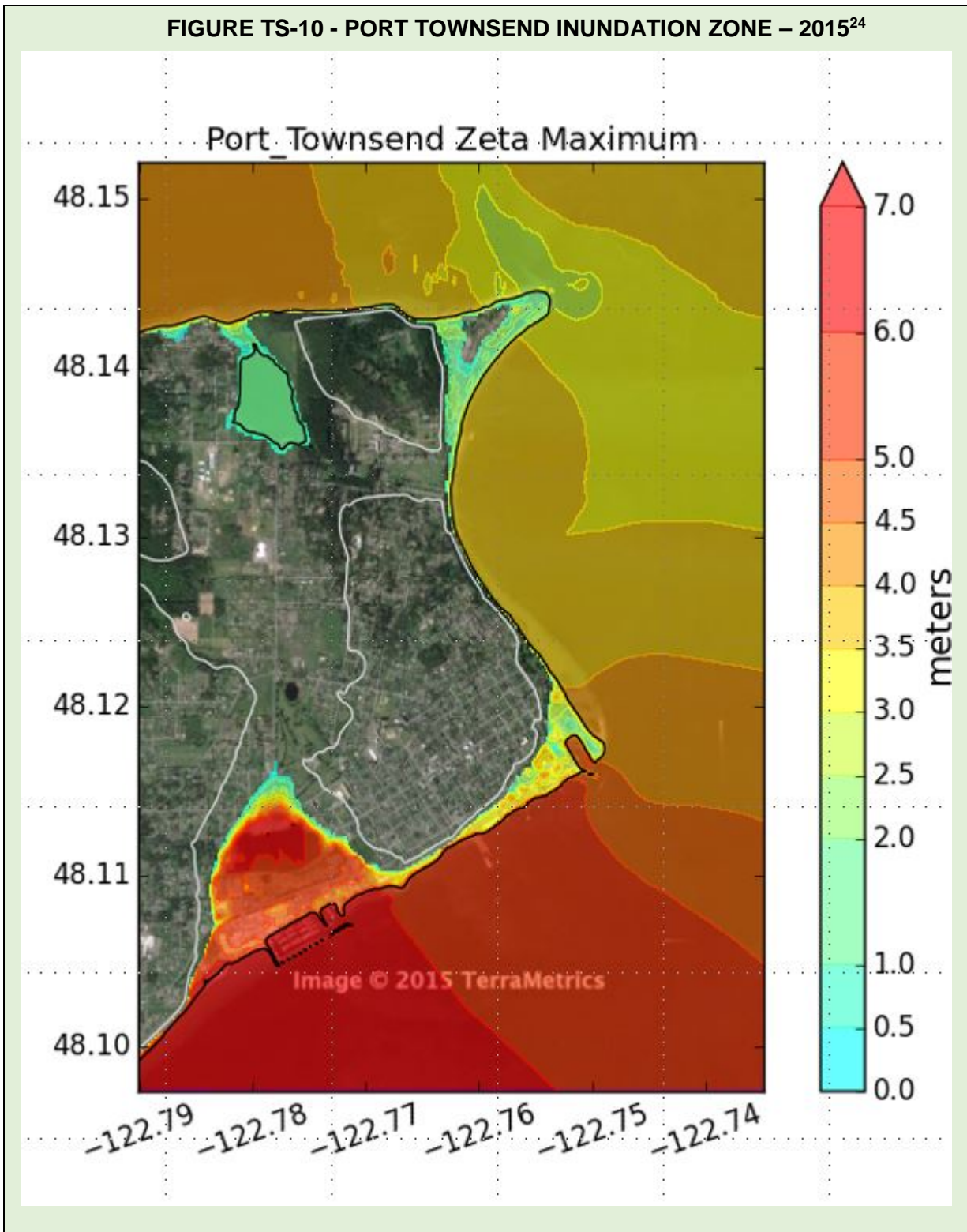


**A LESSON LEARNED FROM THE TOHOKU TSUNAMI (2011)**

Jefferson County evacuation zones have been predicated on high ground being at 50 feet or higher. The latest inundation map (Figure TS-10, 2015) from WA DNR ends with wave heights at seven meters, about 23 feet.<sup>24</sup> Figure TS-11 and the accompanying text from the Pacific Northwest Seismic Network show wave heights of the Tohoku Japan generated by an earthquake of magnitude similar to what we expect from a Cascadia Subduction Zone rupture. In some locations, wave heights reached 40.5 meters or 133 feet, overtopping three story buildings designated as safe for vertical evacuation.<sup>25</sup>



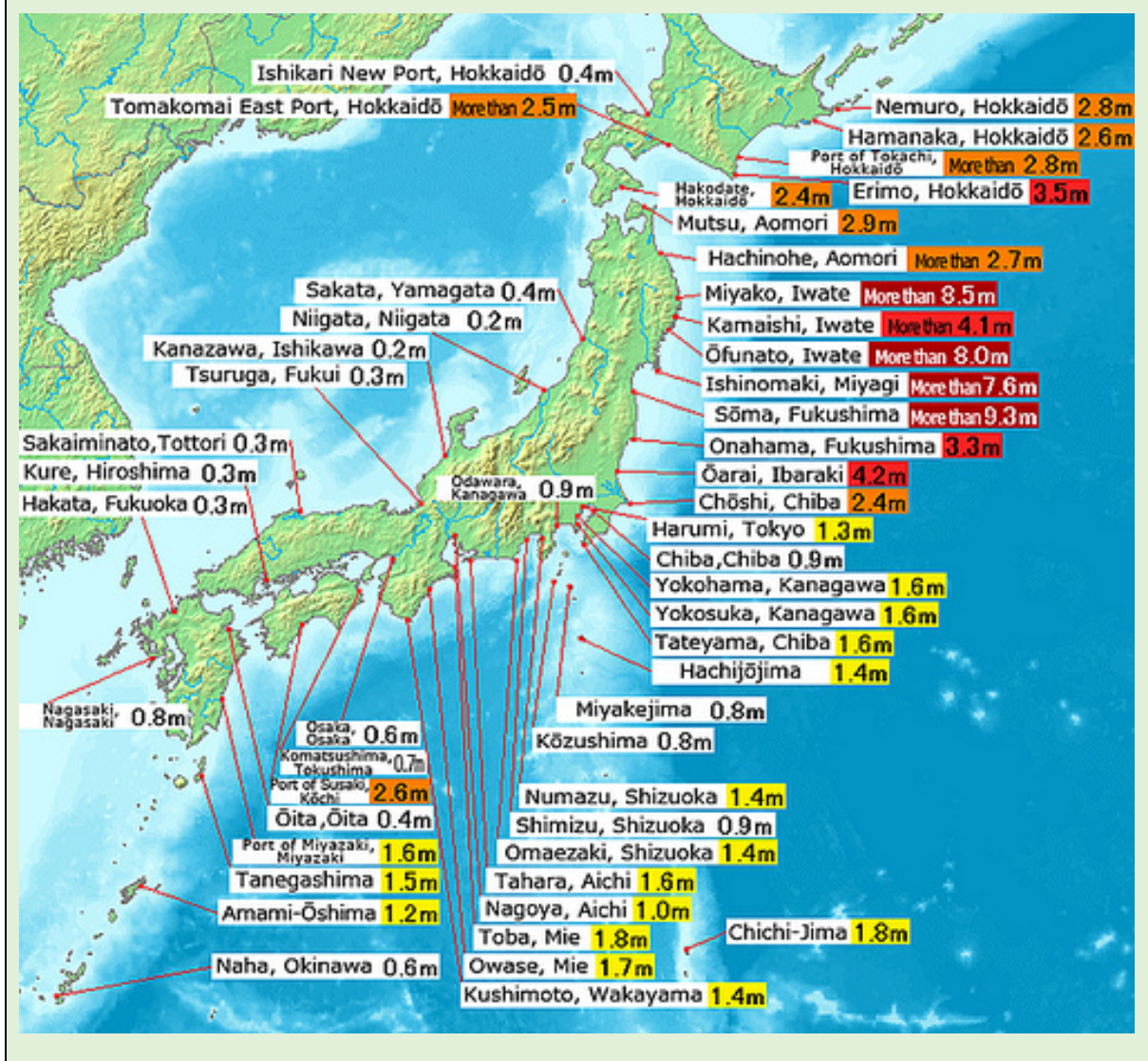
FIGURE TS-10 - PORT TOWNSEND INUNDATION ZONE – 2015<sup>24</sup>





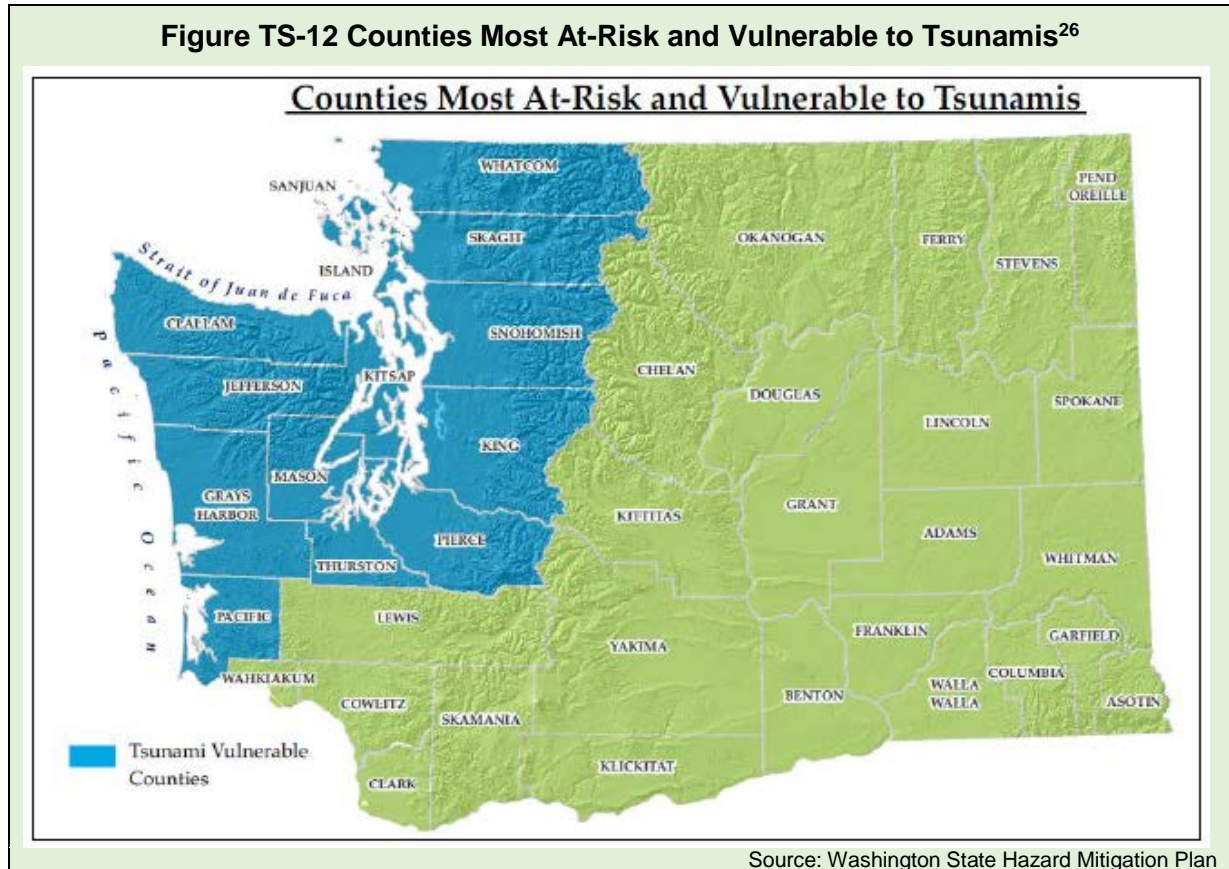
“The Tohoku Japan M 9.1 earthquake on Friday, March 11th, 2011 provided horrifying images to the world of great waves smashing through the best coastal defenses in the world and into the heart of coastal cities. The tsunami in Miyako swirled over the top of three story buildings designated as safe for vertical evacuation. Although the map shows “more than 8.5m”, the maximum wave height in Miyako was reported as reaching 40.5 meters or 133 feet. The flooded Fukushima nuclear power plant lost its primary and secondary power systems that lead to the possibly the worst nuclear catastrophe since World War II. Japanese scientists made a serious mistake in thinking that a few hundred years of history defined the limit of how large earthquakes in the Japan Trench subduction zone could get. The consensus reached was less than M8.5; the "Great East Japan Earthquake" is estimated to have been a M 9.1. Evidence of a large tsunami in the year 869 C.E. had not yet been incorporated into the hazard assessments.<sup>25</sup>”

**FIGURE TS-11 - TOHOKU TSUNAMI WAVE HEIGHTS<sup>25</sup>**



**CONCLUSION**

Jefferson County is considered one of the most at-risk counties for tsunamis in Washington (Figure TS-12)<sup>26</sup>.



Tsunami damage can be minimized through land use planning, preparation, and evacuation. Tsunamis tend to impact the same localities over and over again. Therefore, if tsunamis have damaged an area before, they are likely to do so again. One choice is to avoid living in or using areas with significant tsunami hazard. Alternatively, communities can review land use in these areas so that no critical facilities, such as hospitals and police stations, or high occupancy buildings, such as auditoriums or schools, or petroleum-storage tanks are located where there is tsunami hazard.





If warning is received early enough (two to five hours) which is possible for tsunamis generated at a distance, preventative action can be taken. People can be evacuated; ships can clear harbors or seek a safe anchorage; equipment and vehicles can be moved; and buildings can be boarded up and sandbagged. The time from initiation of an earthquake to a tsunami for local earthquakes, however may be only a few minutes to at most a little more than an hour. Residents in areas susceptible to tsunamis should be made aware of the need to seek high ground if they feel strong shaking. Coastal communities should identify evacuation routes even if they do not have good information about potential

inundation areas. Standard signs have been adopted for use throughout tsunami prone areas on the west coast. These signs have been posted along highways, beach areas, and campgrounds. Brochures with information on tsunamis have also been provided to these areas.

The [U.S. West Coast/Alaska Tsunami Warning Center \(WC/ATWC\)](#) was established in Palmer, Alaska in 1967 as a direct result of the great Alaskan earthquake that occurred in Prince William Sound on March 27, 1964.



Since 1986, it has taken the Center an average of 10 minutes to get a warning out to potentially affected areas. Messages are composed automatically based on earthquake location and are sent to National Weather Service (NWS) offices. The NWS offices forward the message to NOAA Weather Radio, the Emergency Alert System, the Emergency Managers Weather Information Network, and other communication systems available to the public and media.

Coastal areas ranging from Cape Flattery to Long Beach can now receive weather and emergency alert warning information for a radio transmitter site on Mt. Octopus in West Jefferson County. This weather radio site is predicted to help save lives and alert property owners of wind, wave and storm conditions. The Mt. Octopus radio transmitter will also provide residents and visitors critical warnings in case of tsunamis generated by distant earthquakes in the Pacific area.



A transmitter, called AHAB (All Hazard Alert Broadcast), installed at the Port Townsend Boat Haven will also provide information on tsunamis, local weather warnings, and other appropriate emergency warning information for the Port Townsend area.

Photo by Bob Hamlin

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## Tables - TSUNAMI / SEICHE

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TS-1	Recurrence of the “Great Earthquakes” in Washington State
TS-2	Building Exposure to a Cascadia M9 Earthquake-generated Tsunami along the Jefferson County Coast

## Figures - TSUNAMI / SEICHE

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- TS-2 Tsunami ETA Calculator
- TS-3 South Whidbey Island Fault
- TS-4 Notable Tsunamis in Washington
- TS-5 Port Townsend Tsunami Inundation Zone / Evacuation Routes
- TS-6 Hoh Tsunami Inundation Zone / Evacuation Routes
- TS-7 Queets Tsunami Inundation Zone / Evacuation Routes
- TS-8 Inundated Port Townsend Structures for a Cascadia-generated Tsunami (Simulation)
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- TS-12 Counties Most At-Risk and Vulnerable to Tsunamis



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# VOLCANIC EVENT / ASH FALL<sup>1</sup>

## SUMMARY

**The Hazard:** A **volcano** is a rupture in the crust of a planetary-mass object, such as Earth, that allows hot lava, volcanic ash, and gases to escape from a magma chamber below the surface.<sup>2</sup> The hazard can come in the direct form of molten lava, poisonous and corrosive gases, or rock fragments, ash fall, and lightning storms that affects people and equipment. Such an opening forms when melted rock from deep within the Earth (magma) blasts through the surface.

Washington State has five active volcanoes – Mount Baker, Glacier Peak, Mount Rainier, Mount St. Helens, and Mount Adams.<sup>3</sup>

### Impacts and Effects:

- Loss of life
- Loss of property
- Resultant earthquakes
- Potential clouds of carbon dioxide, toxic gases, and regional acid rains
- Flooding, landslides, avalanches, ash falls
- Damage to mechanical and electronic equipment from fine ash falls
- Damage to critical transportation infrastructure
- Destruction of dams
- Disruption of hydroelectric power sources
- Heavy demands on power supplies as heavy ash falls block out light
- Destruction of stream beds and salmon habitat
- Damage or loss of recreation facilities
- Loss of jobs due to damaged equipment

**Previous Occurrences:** Mount St. Helens has been the only one active in the past 30 years with a massive eruption in 1980, followed by dome building eruptions in the 1980-1986 and 2004-2008.<sup>4</sup> It is the last significant volcanic eruption to affect Jefferson County.

**Probability of Future Events:** Low – Washington’s volcanoes will erupt again, as shown by recent activity at Mount St. Helens. There is a 1 in 500 probability that portions of 2 counties will receive 10 centimeters (4 inches) or more of volcanic ash from any Cascades volcano in any given year, and a 1 in 1,000 probability that parts or all of 3 more counties will receive that quantity of ash<sup>5</sup>. Due to prevailing westerly winds, the probability of an annual ash-fall from any major Cascade volcano of one centimeter ranges from 1 in 1000 to 1 in 5000.<sup>6</sup>

Jefferson County also has risk from ash fall from Alaskan volcanoes because the prevailing westerly winds will carry significant ash towards the county. This is affected greatly by the season and how the Jet Stream is shifted at the time.

## Definition

A volcano is an opening in Earth's surface through which lava (molten rock), hot gases, and rock fragments erupt from the earth's interior. Such an opening forms when melted rock from deep within Earth (magma) blasts through the surface.

Volcanoes take many forms according to the chemical composition of their magmas and the conditions under which the magmas are erupted. Most volcanoes are mountains, particularly cone-shaped ones, which were built up around the opening by lava and other materials thrown out during eruptions.

In some eruptions, huge fiery clouds rise over the mountain, and glowing rivers of lava flow down its sides. In other eruptions, red-hot ash and cinders shoot out the mountaintop, and large chunks of hot rock are blasted high into the air. A few eruptions are so violent they blow the mountain apart.

## History of Volcanoes as they Affect Jefferson County<sup>7</sup>

There are no volcanoes in Jefferson County; however, the proximity to potentially active volcanoes in the Cascade Mountains to the east could impact the county. When Mt. St. Helens erupted on May 18, 1980, heavy ash from a west wind blanketed much of Eastern Washington. Subsequent eruptions on May 25 and June 12 similarly affected Western Washington, although to a lesser degree.

Eruptions of any of the active volcanoes in Western Washington and Oregon could significantly affect travel, tourism and air quality conditions in Jefferson County. During the 1980 eruption, for example, aircraft were diverted from commercial routes downstream because the pumice in the air could damage engines and possible cause them to quit.<sup>8</sup>

Figure VO-1 shows eruptions occurring in the Cascade Range during the past 4,000 years<sup>9</sup>. Figure VO-2 shows volcanos in Alaska and British Columbia. White triangles with an "U" inside designate unmonitored volcanoes, while green triangles designate monitored ones<sup>10</sup>. Table VO-1 lists the volcanoes on the map in Figure VO-2 and identifies if they are active or not<sup>11</sup>.

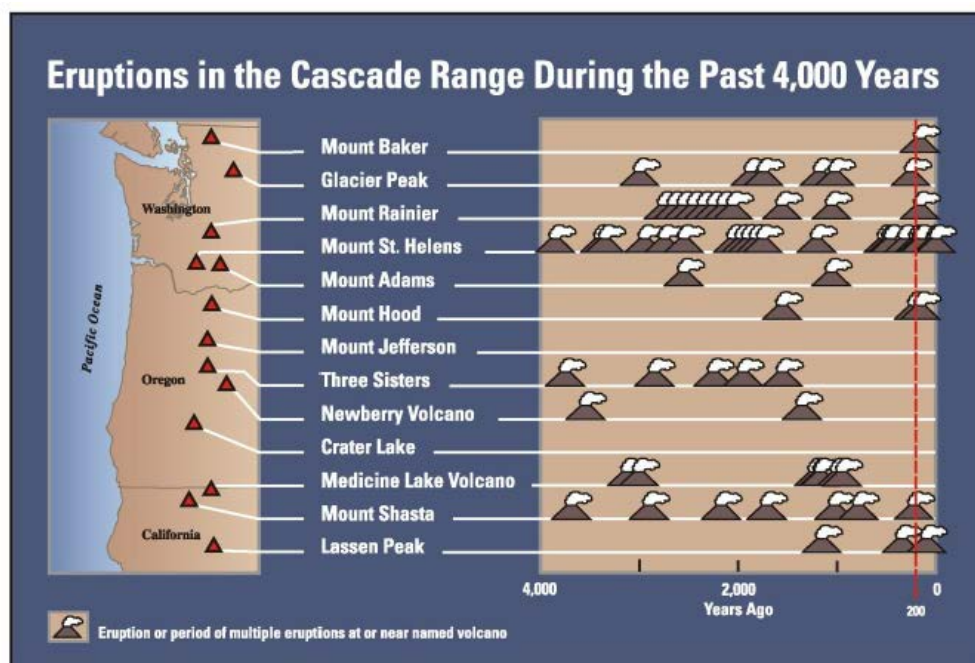


Figure VO-1 Eruptions in the Cascade Range During the Past 4,000 Years<sup>9</sup>

**ALASKA VOLCANO MAP**

**Figure VO-2 Alaskan Volcano Map<sup>10</sup>**

## Hazard Identification and Vulnerability Assessment

Volcanologists and geologists define Mounts Baker, Rainier, Hood, and St. Helens as active volcanoes. Even Glacier Peak, long thought to have been without an eruption for over 10,000 years is now known to have erupted as recently as a thousand years and possibly as late as the 17<sup>th</sup> century. Mount Adams is also capable of renewed activity. Seven separate hazards can be associated with volcanoes. They include earthquakes, lava flows, mud flows, ash flows, rock flows, ejecta, and ash falls.

Volcanic hazards can occur with or without an actual eruption. Earthquakes associated with volcanic activity can cause landslides and avalanches in the areas surrounding the actual volcanic sight. With proper wind conditions, ash deposits could be deposited from all of Washington's volcanoes and from several of those in Oregon. Depending on the size of the eruption and the time of year, the ash could: clog drainage channels; cause electrical short circuits; drift onto roadways; collapse roofs of houses and other buildings, cause skin and eye irritation to the general population and or respiratory distress to the aged, young and infirm; clog engines and air filters, and create acid rain.

In addition, it can disrupt radio, television and telephone transmissions. Since the ash remains on the surface, it can be resuspended in the atmosphere when disrupted by wind or human activities. Heavy ash-fall blots out light. Sudden heavy demand for electric light and air conditioning may cause a drain on power supplies, leading to a partial or full power failure. Under normal wind conditions, the ash would move into eastern Washington. In a south or southeasterly wind, Jefferson County could be affected.

**Table VO-1 Alphabetic List of Alaskan Volcanoes**

Below is an alphabetical list of volcanoes. These links will take you to information specific to that volcano. Each volcano has descriptions, images, maps, bibliography, and eruption history.

🔴 indicates a volcano is historically active.

✳ indicates a volcano was active in the Holocene.

▪ indicates a volcano has been active within the last 2 million years, but not within the last 10,000 years.

A - G	H - Q	R - Z
<ul style="list-style-type: none"> <li>✳ Adagdak</li> <li>🔴 Akutan                             <ul style="list-style-type: none"> <li>▪ Alagogshak</li> </ul> </li> <li>🔴 Amak</li> <li>✳ Amchixtam Chaxsxii</li> <li>🔴 Amukta                             <ul style="list-style-type: none"> <li>▪ Andrew Bay volcano</li> </ul> </li> <li>🔴 Aniakchak</li> <li>🔴 Atka</li> <li>🔴 Augustine                             <ul style="list-style-type: none"> <li>▪ Basalt of Gertrude Creek</li> <li>▪ Behm Canal-Rudyerd Bay</li> </ul> </li> <li>✳ Black Peak                             <ul style="list-style-type: none"> <li>▪ Blue Mtn</li> </ul> </li> <li>✳ Bobrof</li> <li>🔴 Bogoslof</li> <li>✳ Buldir</li> <li>✳ Buzzard Creek                             <ul style="list-style-type: none"> <li>▪ Camille Cone</li> <li>▪ Capital</li> </ul> </li> <li>🔴 Carlisle</li> <li>✳ Chagulak</li> <li>🔴 Chiginagak</li> <li>✳ Churchill, Mt</li> <li>🔴 Cleveland                             <ul style="list-style-type: none"> <li>▪ Cone 3110</li> <li>▪ Cone 3601</li> </ul> </li> <li>✳ Dana                             <ul style="list-style-type: none"> <li>▪ Davidof</li> </ul> </li> <li>✳ Denison</li> <li>✳ Devils Desk                             <ul style="list-style-type: none"> <li>▪ Double Glacier</li> </ul> </li> <li>🔴 Douglas                             <ul style="list-style-type: none"> <li>▪ Drum</li> </ul> </li> <li>✳ Duncan Canal</li> <li>🔴 Dutton</li> </ul>	<ul style="list-style-type: none"> <li>✳ Hayes</li> <li>✳ Herbert</li> <li>🔴 Iliamna</li> <li>✳ Imuruk Lake Volc Field</li> <li>✳ Ingakslugwat Hills                             <ul style="list-style-type: none"> <li>▪ Ingenstrem Depression</li> </ul> </li> <li>Volcanic Field                             <ul style="list-style-type: none"> <li>▪ Ingrisarak Mtn</li> <li>▪ Iron Trig cone</li> <li>▪ Isanotski</li> </ul> </li> <li>🔴 Iskut-Unuk River cones                             <ul style="list-style-type: none"> <li>▪ Jarvis</li> <li>▪ Jumbo Dome</li> </ul> </li> <li>🔴 Kagamil</li> <li>✳ Kaguyak</li> <li>🔴 Kanaga</li> <li>🔴 Kasatochi</li> <li>🔴 Katmai                             <ul style="list-style-type: none"> <li>▪ Kejulik</li> </ul> </li> <li>✳ Kialagvik</li> <li>🔴 Kiska</li> <li>✳ Klawasi Group                             <ul style="list-style-type: none"> <li>▪ Knob 1000</li> <li>▪ Kochilagok Hill</li> </ul> </li> <li>✳ Koniuji                             <ul style="list-style-type: none"> <li>▪ Kookooligit Mountains</li> </ul> </li> <li>🔴 Korovin                             <ul style="list-style-type: none"> <li>▪ Koyuk-Buckland volcanics</li> </ul> </li> <li>🔴 Kukak</li> <li>🔴 Kupreanof</li> <li>🔴 Little Sitkin                             <ul style="list-style-type: none"> <li>▪ Lone basalt</li> </ul> </li> <li>✳ Lost Jim Cone</li> <li>🔴 Mageik</li> <li>🔴 Makushin</li> <li>🔴 Martin</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rainbow River cone</li> <li>🔴 Recheshnoi</li> <li>🔴 Redoubt</li> <li>✳ Roundtop                             <ul style="list-style-type: none"> <li>▪ Sanford</li> </ul> </li> <li>🔴 Seguam</li> <li>🔴 Segula</li> <li>🔴 Semisopochnoi                             <ul style="list-style-type: none"> <li>▪ Sergief</li> </ul> </li> <li>🔴 Shishaldin                             <ul style="list-style-type: none"> <li>▪ Skookum Creek</li> </ul> </li> <li>🔴 Snowy</li> <li>🔴 Spurr                             <ul style="list-style-type: none"> <li>▪ St. George volcanic field ✳</li> </ul> </li> <li>St. Michael</li> <li>✳ St. Paul Island</li> <li>✳ Steller                             <ul style="list-style-type: none"> <li>▪ Stepovak Bay 1</li> </ul> </li> <li>✳ Stepovak Bay 2</li> <li>✳ Stepovak Bay 3</li> <li>✳ Stepovak Bay 4</li> <li>✳ Suemez Island</li> <li>✳ Table Top Mtn</li> <li>✳ Takawangha</li> <li>✳ Tana                             <ul style="list-style-type: none"> <li>▪ Tanada Peak</li> </ul> </li> <li>🔴 Tanaga</li> <li>✳ Tievak Strait                             <ul style="list-style-type: none"> <li>▪ Togiak volcanics</li> <li>▪ Trader Mtn</li> </ul> </li> <li>🔴 Trident</li> <li>🔴 Ugashik-Peulik</li> <li>🔴 Ukinrek Maars</li> <li>✳ Uliaga                             <ul style="list-style-type: none"> <li>▪ Ungulungwak Hill-Ingrichuak Hill</li> </ul> </li> </ul>

<ul style="list-style-type: none"> <li>✱ Edgecumbe</li> <li>⚠ Emmons Lake Volcanic Center                         <ul style="list-style-type: none"> <li>● Espenberg</li> </ul> </li> <li>⚠ Fisher                         <ul style="list-style-type: none"> <li>● Folsoms Bluff</li> </ul> </li> <li>⚠ Fourpeaked</li> <li>✱ Frosty</li> <li>⚠ Gareloi                         <ul style="list-style-type: none"> <li>● Gas Rocks, the</li> </ul> </li> <li>⚠ Gilbert                         <ul style="list-style-type: none"> <li>● Gordon</li> <li>● Gosling Cone</li> </ul> </li> <li>⚠ Great Sitkin</li> <li>⚠ Griggs</li> </ul>	<ul style="list-style-type: none"> <li>✱ Moffett                         <ul style="list-style-type: none"> <li>● Monogenetic QT vents of WWVF</li> <li>● Morzhovoi</li> <li>● Nelson Island</li> </ul> </li> <li>⚠ Novarupta                         <ul style="list-style-type: none"> <li>● Nunivak Island</li> </ul> </li> <li>● Nushkolic Mountain volcanic field</li> <li>⚠ Okmok</li> <li>⚠ Pavlof</li> <li>✱ Pavlof Sister                         <ul style="list-style-type: none"> <li>● Prindle Volcano</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Unimak 5270</li> <li>✱ Unnamed (near Ukinrek Maars)</li> <li>⚠ Veniaminof</li> <li>⚠ Vsevidof</li> <li>⚠ Westdahl                         <ul style="list-style-type: none"> <li>● Western Cones</li> </ul> </li> <li>✱ Wide Bay cone</li> <li>⚠ Wrangell</li> <li>✱ Yantarni</li> <li>⚠ Yunaska</li> </ul>
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The following chart (Figure VO-3) shows the potential tephra hazard from any major Cascade volcano.<sup>12</sup> Under those circumstances, most of Jefferson County would be subject to a Tephra hazard. Tephra is the heated rocks that are shot out of the volcano. Large heavy ones fall close to the volcano; small light ones become the volcanic ash that can float in the air for hundreds, even thousands of miles.

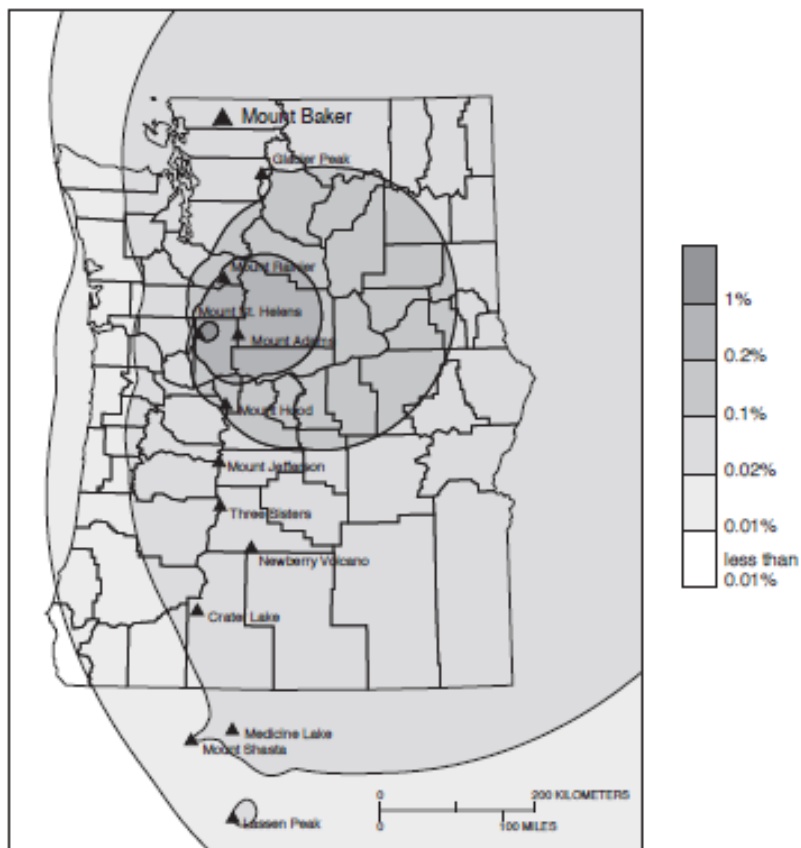


Figure VO-3 Annual Probability of 1 cm or more of Tephra Accumulation from any major Cascade Volcano



In studying Mount Rainier’s active eruptive history, volcanologists and geologists know that it will erupt again. Since the exact type and scale of the eruption(s) cannot be predicted, an awareness of the hazards of ash deposits must be communicated to Jefferson County residents. The hazard is considered “low”; however, the potential for eruptions and the potential results remain.

United States Geologic Survey (USGS) volcanologists and Department of Natural Resources (DNR) geologists identify Mount Rainier as being an active eruptive volcano. From the magnitude of past events it is surmised that the consequences of a lahar (mudflow) or debris flow down the populated river valleys near Mount Rainier will be catastrophic and will potentially result in a tremendous loss of life and property. New studies show that the process of geothermal hydroalteration is unevenly weakening the inside of Mount Rainier. This is a process whereby the slopes of the mountain are being internally eaten away by hot, acidic water, which makes the slopes more susceptible for failure, increasing both the possibility and risk of lahars.

Washington State areas including King, Pierce, and Thurston County have much higher risk of loss of life and property than Jefferson County. Jefferson County’s location with respect to the active volcanoes would limit the number of hazards, however impacts would be felt. The economic, cultural and transportation impacts that would be experienced in Jefferson County, however, would be severe if such an eruption were to occur on Mount Rainier. Most certainly, Interstate 5 and Interstate 90 would be closed, thus disrupting key routes for trade and travel. Ash and some debris could fall on Jefferson County depending on prevailing winds at the time. Jefferson County could serve as a haven for displaced residents for not only days, but perhaps for decades to come, thus impacting the infrastructure and resources of the County. Puget Sound fishing resources and economic foundations of the timber and recreation industries could be impacted for decades. The tourism industry and economic benefits derived could also be affected for Jefferson County.

## Climate Change

It is easy to conclude that volcanoes can disrupt the earth’s climate for reasonably long periods – in human terms. The “Little Ice Age” is said to have been a function of increased volcanism during the periods from 1257-1300 AD and 1400-1455 AD that was sustained for many centuries by sea ice/ocean feedback.<sup>13</sup> Now there are theories that volcanism can be stimulated by global warming.

The theories, finding new support from research in Iceland, state that superheated rock kept under pressure by the weight of glaciers can become magma when glaciers melt due to global warming and relieve some of the pressure on the rocks. The evidence cited is that glacier melting in Iceland will cause the island nation to rise 1.57 inches per year in the next decade.<sup>14</sup>

“As the glaciers melt, the pressure on the underlying rocks decreases,” Compton said in an e-mail to TIME. “Rocks at very high temperatures may stay in their solid phase if the pressure is high enough. As you reduce the pressure, you effectively lower the melting temperature.” The result is a softer, more molten subsurface, which increases the amount of eruptive material lying around and makes it easier for more deeply buried magma chambers to escape their confinement and blow the whole mess through the surface.<sup>15</sup>

Iceland is estimated to be losing 11 billion tons of ice weight per year. At the current pace, the researchers predict, the uplift rate in parts of Iceland will rise to 1.57 in. (40 mm) per year by the middle of the next decade, liberating more calderas and leading to one Eyjafjallajökull-scale blow

every seven years. In 2010 the volcanic caldera under the Eyjafjallajökull ice cap in southern Iceland erupted for three weeks from late March to mid-April and spreading ash across vast swaths of Europe. The continent was socked in for a week, shutting down most commercial flights.<sup>16</sup>

The idea that reduced ice cover in a volcanic area can actually lead to an increase in volcanism is in some dispute. The Plan cites a recent article that attributes the cause to reduced ice cover lowering the overburden pressure on magma chambers, softening the magma, leading to more eruptive behavior. However, it is not clear that softer magma under reduced pressure would result in more eruptions. Other scientists have added the idea that reduced pressure would also lead to increased gas production from the liquid magma, thus causing an increase in local chamber pressures.<sup>17</sup>

However, a mechanism that is well established is that the ejecta from an eruption lead to a temporary globally averaged cooling lasting typically 3 years, depending on the nature of the particles and the altitude to which the eruption projects them. Larger particles precipitate out quickly (days to weeks), but smaller particles diminish incoming solar radiation and ejected sulfur forms sulfur dioxide which, if it reaches the stratosphere creates sulfuric acid aerosols that also diminish solar radiation. These cooling effects overwhelm the climate-warming effects associated with the volcanic ejection of carbon dioxide, methane and other greenhouse-enhancing gases.<sup>18</sup>

Research indicates that the Indonesian volcano, Somalás, erupted with a magnitude 7 (out of 8) on the Volcanic Explosivity Index (VEI) in 1258 C.E., thus causing the medieval “year without summer”.<sup>19</sup> This was on the order of magnitude of the Tambora eruption in 1815, and larger than the Krakatoa eruption.

Figure VO-4 illustrates the correlation between the VEI and the volume of ejecta.<sup>20</sup> Table VO-2 displays the classification schema for the VEI.<sup>21</sup>

The net impact of climate change on volcanoes remains in considerable doubt. Increased rates of ice loss driven by climate change are probably not sufficient to cause a marked change in what is already a very sporadic and unpredictable rate of local and regional volcanic activity. However, increases in more active volcanic areas, particularly Iceland, may increase the likelihood for Jefferson County to be affected by a more globally-felt cooling event. This could have local consequences, both positive and negative, even though the cooling would only last a few years. It is important to note that this temporary cooling would be followed by a more rapid rate of globally averaged warming as the climate returns to the warming trends established prior to any single volcanic eruption.<sup>22</sup>

## Conclusion

Emergency Plans must advise people of potential hazards. Being aware of the potential hazards and responding appropriately will help mitigate the loss of life and could potentially help reduce losses of property in the eventuality of a volcanic eruption. Emergency plans must be tested and practiced ahead of time and used without hesitation when a volcano threatens to erupt.

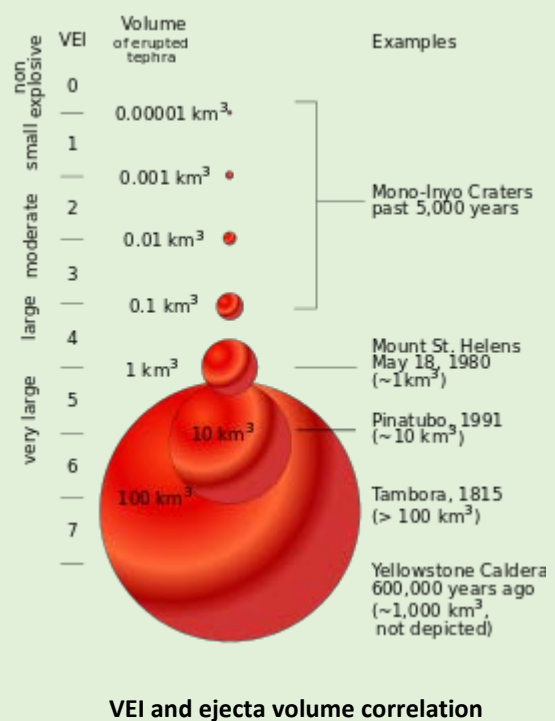
Scientists and public officials must announce warnings early and clearly. The Cascades Volcano Observatory in Vancouver, Washington, monitors and assesses hazards from the volcanoes of the Cascade Range of Washington, Oregon, and California. Seismic monitoring is shared with the USGS center in Menlo Park, California, (for northern California) and the [Geophysics Program of the University of Washington in Seattle](#) (for Washington and Oregon). CVO also is home to the Volcano Disaster Assistance Program.

The Volcano Disaster Assistance Program, home-based in Vancouver, Washington, was formed in the mid-1980s to respond to volcanoes in all parts of the world. An experienced team of USGS and other scientists can rapidly respond to developing volcanic crises with a state-of-the-art portable cache of monitoring equipment. VDAP has proven to be effective in saving lives and property by assistance provided to local scientists for determining the nature and possible consequences of volcanic unrest and communicating eruption forecasts and hazard-mitigation information to local authorities.

**Figure VO-4 - Volcanic Explosivity Index<sup>18</sup>**

The **Volcanic Explosivity Index (VEI)** is a relative measure of the explosiveness of volcanic eruptions. It was devised by Chris Newhall of the United States Geological Survey and Stephen Self at the University of Hawaii in 1982.

Volume of products, eruption cloud height, and qualitative observations (using terms ranging from "gentle" to "mega-colossal") are used to determine the explosivity value. The scale is open-ended with the largest volcanoes in history given magnitude 8. A value of 0 is given for non-explosive eruptions, defined as less than 10,000 m<sup>3</sup> (350,000 cu ft) of tephra ejected; and 8 representing a mega-colossal explosive eruption that can eject 1.0×10<sup>12</sup> m<sup>3</sup> (240 cubic miles) of tephra and have a cloud column height of over 20 km (12 mi). The scale is logarithmic, with each interval on the scale representing a tenfold increase in observed ejecta criteria, with the exception of between VEI 0, VEI 1 and VEI 2.



Source: Wikipedia

**Table VO-2 – Volcanic Explosivity Classification<sup>19</sup>**

VEI	Ejecta volume (bulk)	Classification	Description	Plume	Frequency	Tropospheric injection	Stratospheric injection <sup>[2]</sup>
<b>Examples</b>							
0	< 10 <sup>4</sup> m <sup>3</sup>	Hawaiian	Effusive	< 100 m	continuous	negligible	none
		Kīlauea, Piton de la Fournaise, Erebus					
1	> 10 <sup>4</sup> m <sup>3</sup>	Hawaiian / Strombolian	Gentle	100 m–1 km	fortnightly	minor	none
		Nyiragongo (2002), Raoul Island (2006), Stromboli (continuous since Roman times to present)					
2	> 10 <sup>6</sup> m <sup>3</sup>	Strombolian / Vulcanian	Explosive	1–5 km	monthly	moderate	none
		Unzen (1792), Cumbre Vieja (1949), Galeras (1993), Sinabung (2010)					
3	> 10 <sup>7</sup> m <sup>3</sup>	Vulcanian / Peléan/Sub-Plinian	Catastrophic	3–15 km	3 months	substantial	possible
		Nevado del Ruiz (1985), Lassen Peak (1915), Soufrière Hills (1995), Nabro (2011)					
4	> 0.1 km <sup>3</sup>	Peléan / Plinian/Sub-Plinian	Cataclysmic	> 10 km (Plinian or sub-Plinian)	18 months	substantial	definite
		Mayon (1814), Pelée (1902), Galunggung (1982), Eyjafjallajökull (2010)					
5	> 1 km <sup>3</sup>	Peléan/Plinian	Paroxysmic	> 10 km (Plinian)	12 years	substantial	significant
		Vesuvius (79), Fuji (1707), Mount Tarawera (1886), St. Helens (1980), Puyehue (2011)					
6	> 10 km <sup>3</sup>	Plinian / Ultra-Plinian	Colossal	> 20 km	50 - 100 yrs	substantial	substantial
		Laacher See (c. 12,900 BC), Veniaminof (c. 1750 BC), Huaynaputina (1600), Krakatoa (1883), Novarupta (1912), Pinatubo (1991)					
7	> 100 km <sup>3</sup>	Ultra-Plinian	Super-colossal	> 20 km	500 - 1,000 yrs	substantial	substantial
		Mazama (c. 5600 BC), Thera (c. 1620 BC), Taupo (180), Baekdu (1000), Samalas (Mount Rinjani) (1257), Tambora (1815)					
8	> 1000 km <sup>3</sup>	Ultra-Plinian	Mega-colossal	> 20 km	> 50,000 yrs <sup>[3][4]</sup>	vast	vast
		La Garita Caldera (26.3 Ma), Yellowstone (640,000 BC), Toba (74,000 BC), Taupo (24,500 BC)					

Source: Wikipedia

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## Tables - VOLCANO

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- VO-1 Alphabetical List of Alaskan Volcanoes
- VO-2 Volcanic Explosivity Classification

## Figures - VOLCANO

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- VO-1 Eruptions in the Cascade Range During the Past 4,000 Years
- VO-2 Alaska Volcano Map
- VO-3 Total Cascade Tephra Hazards
- VO-4 Volcanic Explosivity Index



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# WILDFIRE / FOREST / URBAN INTERFACE<sup>1</sup>

## SUMMARY

**The Hazard:** Forest and wildland fires are the uncontrolled destruction of forested and wild lands by fire caused by natural or human-made events. Forest and wildland fires occur primarily in undeveloped areas, although there are significant pockets of residences within Jefferson County woodlands<sup>2</sup>.

### Impacts and Effects:

- Loss of civilian lives and firefighters
- Loss of homes and businesses
- Loss of crops and livestock
- Destruction of wildlife habitat and watersheds
- Damage to salmon habitat
- Damage or total loss of scenic vistas and recreation facilities
- Destruction of timber resources
- Loss of jobs due to destroyed and damaged equipment and facilities
- Decreased tourism
- High costs to fight fires
- Fire and emergency response teams unable to meet “routine” obligations and fight wildland fires simultaneously
- Vulnerability to flooding increases

**Previous Occurrences:** According to the National Fire Information Reporting System (NFIRS), Jefferson County averages 5 – 10 acres of wildland fires every year. The last major wildfire, the Chimney Peak fire, occurred in 1981

**Probability of Future Events:** High – An annually recurring dry season combined with encroaching residential development is resulting in a regular brush fire season. So far, the rapid response of rural fire departments has kept the impact of these fires to a minimum.

## Definition

Forest and wildland fires are the uncontrolled destruction of forested and wild lands by fire caused by natural or human-made events. Forest and wildland fires occur primarily in undeveloped areas.

Interface fires are a recent phenomenon that occurs in developed forest and wildlands, only partially cleared, and occupied by structural development. In interface fires people, homes and small businesses intermingle with the wildland and forest areas.

When weather conditions are dry and fuels are abundant, rapidly spreading fires can cause significant loss of life and property.

## History of Fires as it Affects Jefferson County

Jefferson County has had an active history of wildland fires during the past millennium. The fact that the oldest of old-growth timber stands are rare attests to the fact that most of the area has burned and re-burned many times during the past 1000 years. Stands of trees older than 500 years do not occur except in small patches or scattered trees found in moist draws and stream bottoms at the headwaters of a few creeks and rivers.

It is difficult to trace the fire history of this area back more than 350 years. However, old-growth trees and fire scars suggest fires about 450, 480, 540 and 670 years ago. Historically, wildland fires were not considered a hazard. Fire is a normal part of most forest and range ecosystems. Fires historically burned on a fairly regular cycle.

The burning cycle in western Washington appears to be about every 100 – 150 years. A preponderance of evidence, however, has been obliterated by logging, major windstorms that toppled older trees, and more recent fires in the areas. Recorded history of fires in the area, however, indicates Jefferson County has had an active history of fires. As communities expand farther and farther into forested lands, and the desire to maintain the wilderness ambiance, interface fires are becoming a significant hazard, having the potential for loss of life and destruction of property.

“The occurrence of wildfires on the Olympic peninsula is closely tied to climate. It appears that the pattern of fires has been as variable as the pattern of past climates. Some periods have had stand destroying fires, others have had almost none. Still other periods may have had a pattern of high fire frequency but low fire intensity. **Because of this variability and the many factors involved, one aspect of the fire history of the Olympics seems certain: one cannot characterize the fire patterns of one period by knowing what it is in another.**”<sup>3</sup>

Table WF-1, below, details some of the history and more interesting wildland fires that have affected Jefferson County.

**Table WF-1 Representative Wildland Fires That Affected Jefferson County**

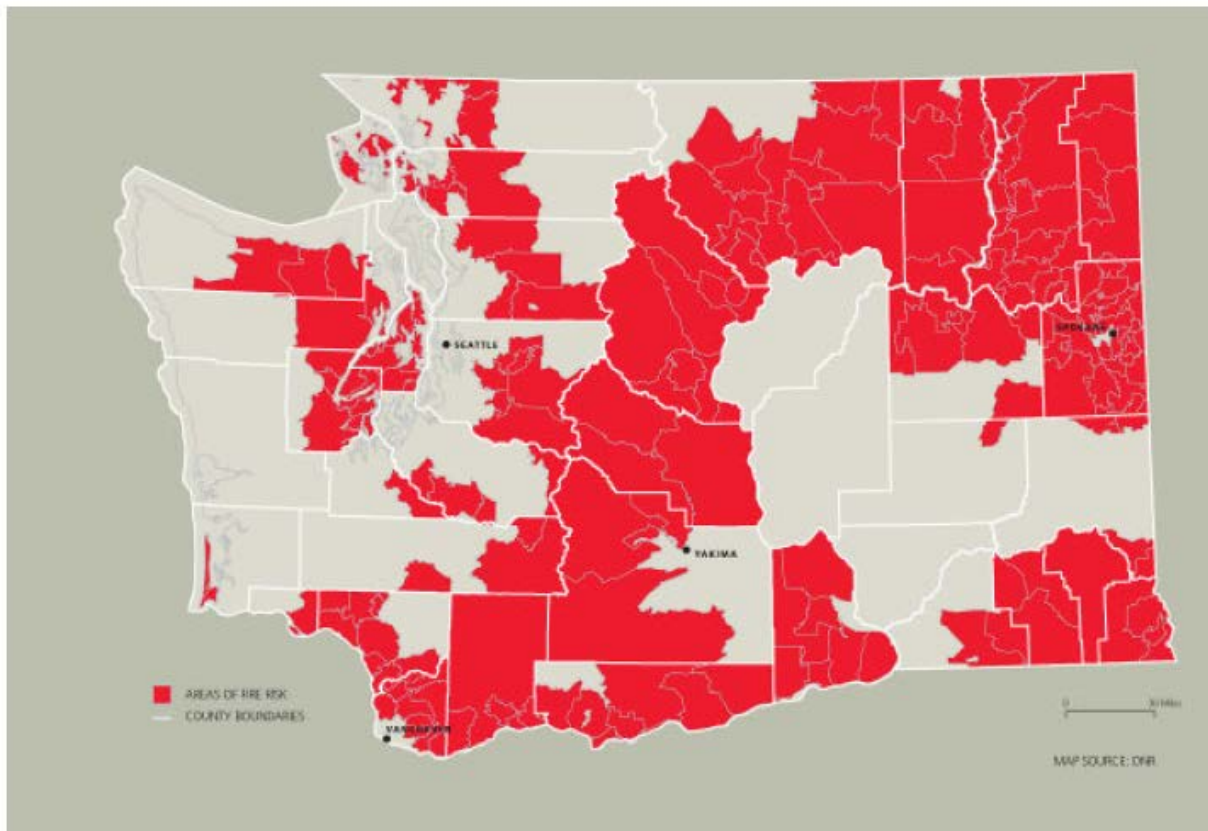
<i>Date</i>	<i>Identifier</i>	<i>Particulars</i>
7200 – 8700 years ago	Lower Hoh River Drainage	Layer of charcoal underneath dated 6800 year old ash <sup>4</sup> .
~1308	Olympic Peninsula	At the end of the Medieval Optimum and start of the Little Ice Age; burned half of the Olympic Peninsula <sup>5</sup> .
~1448 - 1538	Mid-elevations of the Olympic Peninsula <sup>6</sup>	
~1668 & 1701	Last of the Big Fires	Burned over one million acres <sup>7</sup> .
~1720 - 1850	Virtually no fires.	End of Little Ice Age; Climate cool and wet <sup>8</sup> .
Sept 1864	Ludlow – Quilcene Fire	Several thousand acres on Mt. Walker, Mt. Turner, and Quilcene Ridge fanned by a high east wind <sup>9</sup> .

<b><i>Date</i></b>	<b><i>Identifier</i></b>	<b><i>Particulars</i></b>
1868	Multiple smaller fires.	Drought was severe. Driest June, July, August and September for the 58-year record up to that time. Worst fire season since early 1700's <sup>10</sup> .
1885	Neilton Burn	2000 acres near Lake Quinault <sup>11</sup> .
1890	Quilcene Fire	Land clearing burns near Sequim got out of control. Fire survived the winter smoldering in stumps. Restarted in in the spring and burned south, covering 30,000 acres <sup>12</sup> .
1902	The Forest Fires of 1902	Many fires in Washington and Oregon. One fire or series of fires followed the Washington coast, jumping the Quinault, Raft, Queets, Clearwater, Hoh, Quillayute rivers, and swung around Lake Ozette and died out before it reached the Sooes <sup>13</sup> . The worst fire season in 275 years; worse than the 1868 season <sup>14</sup> .
1918	Dosewallips & Duckabush Fires <sup>15</sup>	Dosewallips Fire – 2665 acres Duckabush Fire – 4810 acres
1924-1925	Green Mountain, Mt. Zion, Snow Creek Fires <sup>16</sup>	Discovery Bay (1924) 5000 acres Snow Creek Fire (1924) 3100 acres Green Mt. Fire (1925) 9615 acres Snow Creek Fire (1925) 3825 acres
1929	Interorrem Fire	85 Lightning strikes; 8,602 acres in the lower Duckabush drainage. <sup>17</sup>
1939	Deep Creek Fire	13,000 acres of which 3460 were in the Olympic National Forest <sup>18</sup>
1978	Hoh Fire	Caused by Lightening. Discovered 13 days after ignition in Olympic National Forest; 1,050 Acres <sup>19</sup>
1981	Chimney Fire	500+ Acres <sup>20</sup>
August 2015	Sunnyside Road, Mason County	59 acres along a power corridor. Threatened BPA transmission line; cuts power to more than 2000 Jefferson County PUD customers <sup>21</sup> .
August 2016	Olympic Forest Fires	Four separate fires totaling 956 acres as of August 22 <sup>nd</sup> , 2016 <sup>22</sup> .

## Hazard Identification and Vulnerability Assessment

The Washington Department of Natural Resources and its federal and local partners determined that 181 communities are at high risk for wilderness fires after evaluating them for fire behavior potential, fire protection capability, and risk to social, cultural and community resources. Risk factors included area fire history, type and density of vegetative fuels, extreme weather conditions, topography, number and density of structures and their distance from fuels, location of municipal watershed, and likely loss of housing or business. The evaluation used the criteria in the wildfire hazard severity analysis of the National Fire Protection Association’s NFPA 299 Standard for Protection of Life and Property from Wildfire, 1997 Edition. Figure WF-1 shows the areas at high risk for fires within each county.<sup>23</sup>

**Figure WF-1 Areas of High Fire Risk (2002)<sup>23</sup>**



Source: *Progress Report on the National Fire Plan in Washington State*, Department of Natural Resources, September 2002.

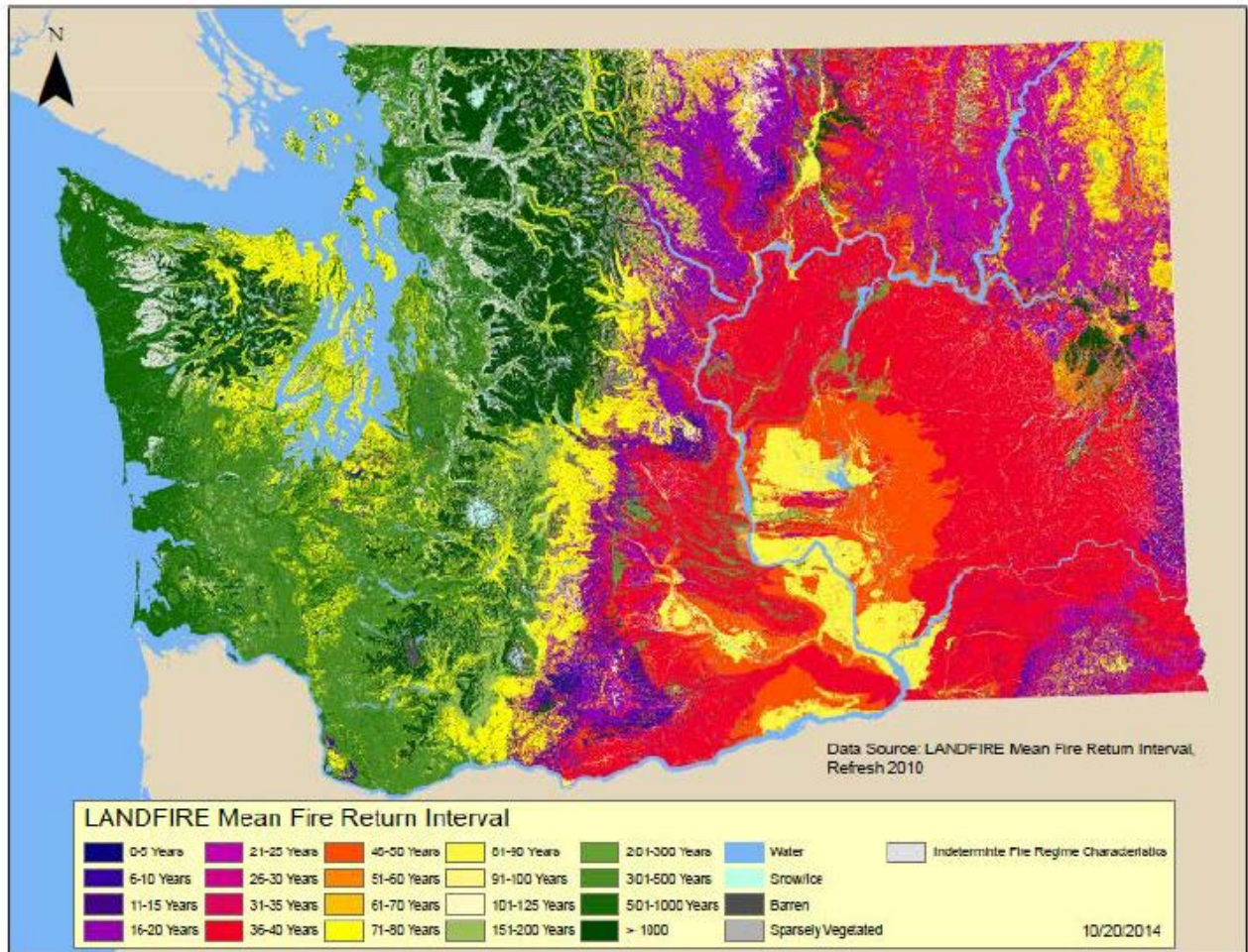
As seen from the map preceding, Jefferson County is among the counties in which the wildfire threat is high. Jefferson County communities that are on the list of areas at high risk for urban interface wildfires are: Brinnon, Port Hadlock, Port Townsend, and Quilcene.

In 2016, however, the focus of the WA DNR is on the Wildland Urban Interface Communities at risk based on a statistical mean return rate for fires, which excludes Jefferson County communities that are in



rural areas. Figure WF-2 shows the LandFire Mean Fire Return Interval throughout the state. East Jefferson county is yellow, which is “71-80 years.<sup>24</sup>” This is underscored by the apocryphal joking of local firefighters that the Olympic Peninsula is known as the “Silicon Forest” – not because of technology companies, but rather because it will not burn.

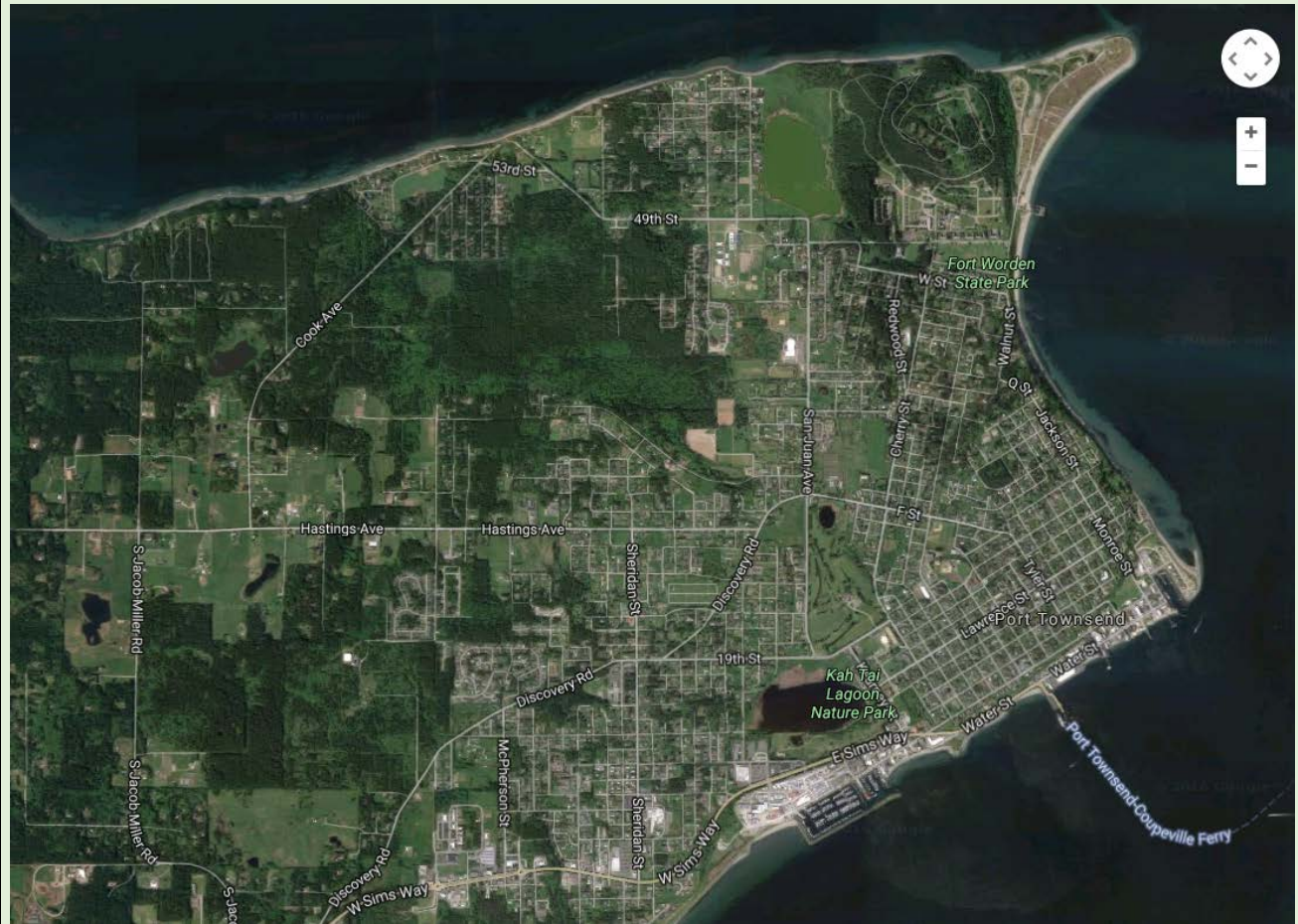
**Figure WF-2 LANDFIRE Mean Fire Return Interval<sup>24</sup>**



The uncomfortable fact is that Jefferson County and its populated communities are integrated with the surrounding forest. Wildland – Urban Interfaces (WUI) exist in a multiplicity of areas because Homeowners Associations, developers, etc. carve out communities while leaving extensive trees among and around the dwellings. The Mean Fire Return Interval is meaningless because increasingly forest fires are caused by human carelessness and can override natural checks and balances. Meanwhile, because of historical reasons, the ownership of DNR protected land is a checkerboard with privately own land, thus making it vulnerable to fires started on private lands. Figure WF-3, below, is a google earth view of the City of Port Townsend to show how the wildland-urban interface is intermixed throughout the City.<sup>25</sup> Table WF-2, below, is a gallery of recent WUI fires that impacted Jefferson County.



**Figure WF-3 - Wildland – Urban Interface throughout Port Townsend<sup>25</sup>**



The city is on a peninsula with the city limits being at Jacob Miller Road, which is labeled on the left side of the map.

**Table WF-2 Gallery of Selected Recent Jefferson County WUI Fires**



**08/20/2016 Recreational Fire Leads to Wildfire.**

“East Jefferson Fire Rescue crews at 7:50 a.m. Saturday, Aug. 20 responded to a brush fire, 15 by 20 feet in size, in the 400 block of Four Corners Road. Neighbors stated that a man had been burning Friday night in a homemade, half-barrel fireplace, which was found within the burn area, according to EJFR. Investigators believe a spark from that barrel ignited the brush fire.” Courtesy photo by Bill Beezley, East Jefferson Fire Rescue<sup>26</sup>.



**09/02/2015 Fire in Mason County Cuts Electric Service to Over 2000 Jefferson County Customers.**

“More than 2,000 electricity customers in Jefferson County were without power on Thursday, Aug. 28 as a result of two separate incidents, including a wildfire under a Bonneville Power Administration (BPA) transmission line in Mason County. The Sunnyside Road Fire, which is on state Department of Natural Resources (DNR) land, had consumed about 59 acres in the Skokomish Valley as of Monday, Aug. 31, according to Joe Miles, a spokesperson for DNR. Multiple agencies responded to fight the blaze; 68 personnel battled the fire, which as of Monday was contained. Cause of the fire is still unknown.” By Leader Staff<sup>27</sup>.





**Beckett Point Fire – 09/05/2011**

“Firefighters on Sept. 5 kept this fireworks-induced wildfire from reaching homes on Beckett Point (the sea-level cabin community’s southern edge, which is to the right) and the homes tucked into the tree line along Beckett Point Road. The fire started at about 3 p.m. on Monday, a result of kids playing with fireworks. Fickle winds fanned it to about 21 acres. It was 70 percent contained by 7 p.m. (This was the fire’s calm section.) Soon after, a helicopter began dropping water along ridge-top brush and trees.” Photo by James Robinson<sup>28</sup>

Jefferson County and Port Townsend are served by 5 active fire districts, all with mutual aid agreements. During any fire incident, the incident commander can ask for units from any of the districts. At such times, units not involved redeploy to cover the areas left exposed by units fighting the wildfire. This “floating battalion” allows all of the districts to put more equipment on a fire and still have coverage in their home district. In the Beckett Point fire, for example, engines from three districts responded directly to the fire, Jefferson County Emergency Management set up an Incident Command Post for communications at the fire, and mutual aid partners extended coverage to those districts whose equipment responded to the fire.

Jefferson County’s fire season usually runs from mid-May through October. Any prolonged period without significant precipitation presents a potentially dangerous situation, particularly if strong dry, east winds prevail. The probability of a forest fire or an interface fire in any one location depends on fuel conditions, topography, the time of year, the past weather conditions, and if there is human activity such as debris burning, camping, etc., which are taking place.

The combination of a dryer climate along with a plethora of illegal meth labs hidden in the wildlands has resulted in an increase the number and severity of urban interface fires. In addition, as the buildable space in the towns and city are used up, numerous housing developments are being created in the unincorporated portion of the county.

Washington State fires responded to by city and county fire departments were largely started by human causes. Included in the list of human causes are cigarettes, fireworks, and outdoor burning. Wildland fires started by heat spark ember of flames caused the largest dollar loss, followed by debris burning and cigarettes. Loss per incident for debris fires is three times higher than any other fire cause.

Short-term loss caused by fires is the complete destruction of valuable resources such as timber, wildlife, habitat, scenic vistas, and watersheds. Vulnerability to flooding increases due to the destruction of watersheds. Long-term effects are reduced amounts of timber for building and recreation areas.

Home building near forests and wildlands increases the loss from fires. There is a trend for families to move into more rural and forested areas. Many homes are built with an effort to maintain the scenic aspects of the surrounding area. These areas are farther from firefighting assets. Frequently, there is little clearance of vegetation resulting in a lack of defensible space.



09/05/2011 On Sept. 5<sup>th</sup> firefighters came over the ridge to keep flames from reaching the houses on the ridge overlooking Beckett Point. Photo by James Robinson of the Leader

Narrow access roads frequently found in these areas interfere with fire suppression efforts. Frequently roads are so narrow that standard sized fire apparatus cannot adequately turn around or pass on the roads. More diverse fire apparatus such as brush rigs and smaller engines are needed. Smaller fire districts may not be able to financially support these additional requirements.

## Climate Change

“The Olympic Mountains are generally wetter than other parts of the state and have been less prone to wildfires. However, it is expected that warmer summer temperatures, higher evaporation rates, and declines in soil moisture will increase wildfire risk on the Peninsula<sup>29</sup>. The fire season will also lengthen due primarily to earlier snowmelt. One set of projections expects a 150% - 1,000% increase in annual area burned in forests west of the Cascades by the end of the century<sup>30</sup>. When it comes to wildfire, the risk to property and people is determined primarily by the amount of development along the wildland/urban interface. In both Jefferson and Clallam County 24% of that interface is developed<sup>31</sup> and this includes 14,686 homes in Clallam County and 10,475 homes in Jefferson County (in 2013).<sup>32</sup>”

## Conclusion

Jefferson County, the City of Port Townsend, and the unincorporated towns of Brinnon, Port Hadlock, and Quilcene are all considered at high risk for urban interface wildfire – at least by the local fire districts. The commingling of residential enclaves adjacent to and among forested areas also means that these areas are highly vulnerable.

A number of activities can be undertaken which will reduce the actual numbers of fires and resulting loss of fires.

- Forest fire education and enforcement programs must be emphasized to include early reporting of fires
- Effective early fire detection and emergency communication systems are essential
- Effective early warning systems are essential to notify local inhabitants and persons in the area of the fire. An evacuation plan detailing primary and alternate escape routes should be developed if possible.
- Fire-safe development planning should be undertaken by jurisdictions to include:
  - Sufficient fuel free areas around structures
  - Fire resistant roofing materials
  - Adequate two-way routes and turnaround areas for emergency vehicles
  - An adequate water supply
  - Development of local ordinances to control human caused fires
- Road closures should be increased during peak fire periods to reduce access to fire prone areas

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## Tables - WILDFIRE (Forest – Urban Interface)

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WF-1	Representative Wildland Fires That Affected Jefferson County
WF-2	Gallery of Selected Recent Jefferson County WUI Fires

## Figures - WILDFIRE (Forest – Urban Interface)

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WF-1	Areas of High Fire Risk (2002)
WF-2	LandFire Mean Fire Return Interval – 2014
WF-3	Wildland – Urban Interface throughout Port Townsend

# WINTER STORM<sup>1</sup>

## SUMMARY

**The Hazard:** The National Weather Service defines a winter storm as having significant snowfall, ice, and/or freezing rain; the quantity of precipitation varies by elevation<sup>2</sup>. Heavy snowfall is 4 inches or more in a 12-hour period, or 6 inches or more in a 24-hour period in non-mountainous areas; and 12 inches or more in a 12-hour period or 18 inches or more in a 24-hour period in mountainous areas<sup>3</sup>.

### Impacts and Effects:

- Loss of life
- Damage to homes and businesses
- Damage to critical transportation infrastructure
- Loss of timber resources
- Emergency responses are delayed
- Damage or loss of recreation facilities
- Disruption of utilities
- Loss of jobs due to damaged equipment and facilities
- School closures
- Business closures resulting in economic impacts

**Previous Occurrences:** Although Jefferson County gets a few days of snow every year, the last snow storm justifying a disaster declaration was in December, 1955. In 1991, the area received an “Arctic Express Blizzard”. Disaster declarations were made for severe winter storms in 2006 and 2007, but these were primarily due to wind, flooding and mudslides. In 2009, snow storms set record levels, thus resulting in Public Assistance (PA) being made available due to extraordinary costs of snow removal incurred by municipalities.

**Probability of Future Events:** High – The State of Washington Hazard Mitigation Plan puts the probability of a severe winter storm in Jefferson County at “125%” – intending to mean that the county experiences more than one storm every year<sup>4</sup>. Most of the time, it manifests as damaging winds and rain, although it can be as ice or snow.

### History of Severe Winter Storms Affecting Jefferson County

Most storms move into Washington from the Pacific Ocean with a southwest to northeast airflow. Maritime air reaching the Olympic Mountains rises upwards and cools. As this airflow reaches higher elevations and cools, there is less ability to hold moisture and precipitation occurs.

### ***History of Storms Affecting Jefferson County's People and Economic Activity<sup>5</sup>***

- 1940** - High Winds (Tacoma Narrows Bridge blown down)
- 1950** – Blizzard
- 1961** – Snowstorm
- 1962** – Columbus Day Storm
- 1964** – Snowstorms
- 1979** – High Winds & Rain (Hood Canal Bridge destroyed)
- 1981** – Windstorm
- 1991** – Arctic Express Blizzard
- 1993** – Inauguration Day Windstorm
- 1995** – Wind and rainstorms
- 1997** – Snow, wind and snowmelt
- 2003** – Severe Storm & flooding
- 2006** – Severe winter storm, landslides & mudslides
- 2007** – Severe storm, flooding, landslides & mudslides
- 2009** – Severe winter storm, landslides, mudslides and flooding
- 2009** – Severe winter storm with record and near-

Jefferson County is subject to several severe local storms each year. These storms have included high wind, snow, ice, rain, and hail. Snowstorms or blizzards are the most likely and potentially devastating phenomena, with the ability to isolate people from emergency services and to interrupt utility services and other lifelines. In 1996-1997, snowstorms were also associated with other natural hazards such as flooding and landslides. Ice storms can occur when rain falls out of the warm moist upper layer atmosphere into a dry layer with freezing or sub-freezing air near the ground. Rain freezes on contact with the cold ground and accumulates on exposed surfaces – as illustrated by Figure WS-1, a frozen Haller Fountain<sup>6</sup>.

*Snow Storms – Winter Storm* – The National Weather Service defines a winter storm as having significant snowfall, ice, and/or freezing rain; the quantity of precipitation varies by elevation. Heavy snowfall is 4 inches or more in a 12-hour period, or 6 inches or more in a 24-hour period in non-mountainous areas; and 12 inches or more in a 12-hour

period or 18 inches or more in a 24-hour period in mountainous areas<sup>7</sup>. Figure WS-2 shows Port Townsend after 12” of snow fell in a single day in 1955<sup>8</sup>.

Areas most vulnerable to winter storms are those affected by convergence of dry, cold air from the interior of the North American continent, and warm, moist air off the Pacific Ocean. Typically, significant winter storms occur during the transition between cold and warm periods.

Counties considered most vulnerable to winter storm are 1) those most affected by conditions that lead to such storms, as described above, **and** 2) those with a recurrence rate of 50 percent, meaning the county experiences at least one damaging winter storm event every two years. If damaging wind storms are separated out, Jefferson County does not meet that criteria.

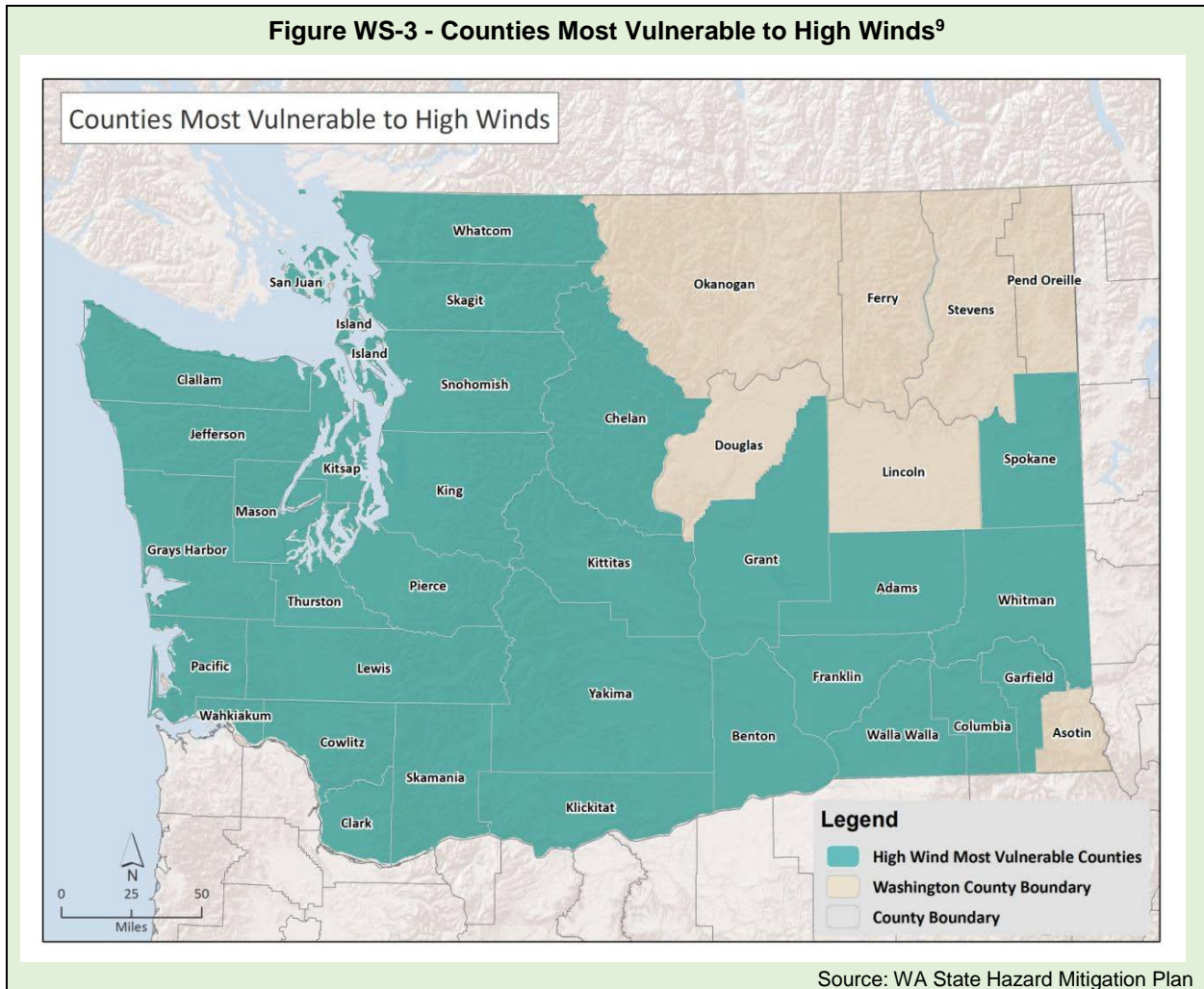
## **HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT**

All areas of the County are vulnerable to various severe local storms. Western Washington has had an average of 11.4 inches of snowfall annually over the past 30 years. Windstorms generally occur between October and April as well. Power outages are common as a result of these storms. Road travel is often treacherous due to snow, ice, and fallen trees. As a result, schools are often closed and local businesses are impacted. Emergency responses can be delayed.

The general effects of most severe local storms are immobility and loss of electrical power and telephone service. Physical damage to homes and businesses can occur from wind damage, accumulation of snow,

ice, and hail. Even a small accumulation of snow can wreak havoc on transportation systems due to a lack of snow clearing equipment and experienced drivers.

If damaging wind storms are included in the winter storms, Jefferson County is considered among the most vulnerable to storms. Counties considered most vulnerable to high winds are 1) those most affected by conditions that lead to high winds, as described above, **and** 2) those with a high wind recurrence rate of 100 percent, meaning the county experiences at least one damaging high wind event every year. Counties that meet both criteria are highlighted in Figure WS-3, below<sup>9</sup>.



Jefferson County is considered among the most vulnerable to high winds because it is affected by conditions leading to high winds, and has a recurrence rate of “125%”. A recurrence rate greater than 100% means that Jefferson County has more than one damaging wind storm a year.

If damaging winds are excluded from the winter storms, Jefferson County is not considered vulnerable to winter storms. Areas most vulnerable to winter storms are those affected by convergence of dry, cold air from the interior of the North American continent, and warm, moist air off the Pacific Ocean. Typically, significant winter storms occur during the transition between cold and warm periods.

Counties considered most vulnerable to winter storm are 1) those most affected by conditions that lead to such storms, as described above, and 2) those with a recurrence rate of 50 percent, meaning the county experiences at least one damaging winter storm event every two years. Figure WS-4 highlights the counties that meet that criteria<sup>10</sup>.

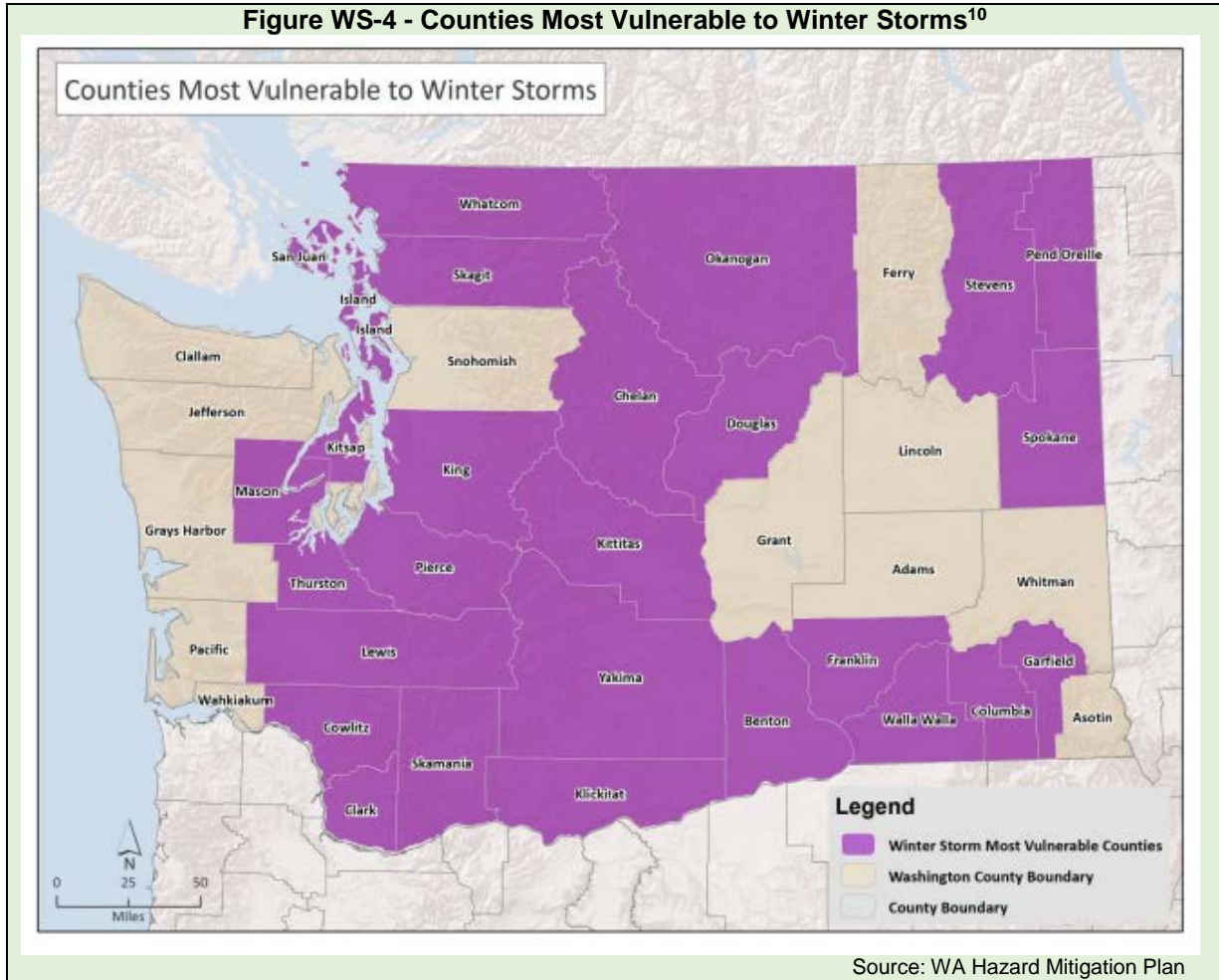


Table WS-1, “*Severe Winter Storms Affecting Western Washington*”, details the significant winter storms that have impacted Jefferson County.<sup>11</sup> It includes both those that were declared emergencies and those that were of significance, but were not declared, either because it was before declarations were available as a tool or because they did not meet the criteria for a national declaration.



**Figure WS-1: Ice dresses up Haller Fountain in Port Townsend on an unusually cold day.<sup>6</sup>**



Source: Port Townsend An Illustrated History...



**Figure WS-2 - Port Townsend’s Water Street in 1955<sup>8</sup>**



**Water Street, December 1955.**—This is some of the aftermath of "12 inches or more" of snow that fell in the city (more in the outlying areas) on Dec. 22. Of particular interest is the lack of traffic by today's standards. This also is a nice view of the Eisenbeis Building (owned by Olympic Hardware & Furniture Co.) just before the large bays were removed from the front in a drastic remodeling

project the following July. Fissures caused by the sagging bays had effected rain-water leaks and unwanted "ventilation" in the upstairs apartments, said E. A. Witheridge of the hardware co. Pedestrians are beer distributor Ray Lundgren (back to camera) and Forrest (Frosty) Miller, examining the snow. George Mueller operated Olberg's Shoe Store, down the street at left.

Source: Port Townsend An Illustrated History...

<b>Table WS-1 - Severe Winter Storms Affecting Western Washington<sup>11</sup></b> <b>(Disaster Declaration Number in Italics if Jefferson County was Included.)</b>		
<b>Date</b>	<b>Storm Type</b>	<b>Description</b>
January 6, 1880	Major Snow Storm	Major Snow Storm; 4 feet of snow; drifts up to 10 feet high.
January 1893	Major Snow Storm	Major Snow Storm
February 3, 1916	Snowstorm and wind	Thirty point five inches of snow fell in 24 hours and 2 to 4 feet in other parts of Western Washington. In January and February Seattle received 58 inches of snow
December 25, 1919	Major Snow Storm	
November 7, 1940	Wind	Tacoma Narrows Bridge collapsed due to induced vibrations from 40 miles per hour winds.
January 1950	Snowstorm and wind	Blizzard dumped 21 inches of snow on Seattle and killed 13 people in the Puget Sound region. The winter of 1949-50 was the coldest recorded in Seattle with average temperatures of 34.4 degrees.
December 22, 1955	Snowstorm	Twelve inches of snow in Port Townsend.
November 1958	Wind	High winds in Western Washington.
October 1962	Columbus Day Wind Storm	<b><i>(Maj #137)</i></b> Columbus Day Storm struck from northern California to British Columbia and is the windstorm to which all others are compared. Recorded winds gusts were 150 miles per hour in Naselle, 100 in Renton, 92 in Bellingham and Vancouver, and 88 in Tacoma. Federal disaster number 137 was assigned for the event.
December 28-29 1968	Major Ice Storm	
February 1979	Wind	Hood Canal Bridge destroyed by windstorm.
December 1979	Major Winter Storms	<b><i>(Maj. 612)</i></b> Storms/ high tides / mudslides / flooding
November 1981	Wind	High winds in Western and Eastern Washington.
January 1986	Major Winter Storm	<b><i>(Maj. #757)</i></b> - Severe storms / flooding

November 1990	Severe Wind and flooding	<b>(Maj. #883)</b> The Lake Washington floating bridge sank, killing two and causing \$250 million in damages.
January 20, 1993	Wind	Inauguration Day Storm damaged homes, businesses, and public utilities leaving thousands without power for days from Longview to Bellingham. The state EOC coordinated resources. The National Guard provided generator power and equipment. The Energy Office priorities power restoration. The American Red Cross sheltered 600 people and fed 3,200 meals. Department of Transportation and State Patrol coordinated transportation routes and road closures. Federal Disaster Number 981 was assigned for the event.
November - December 1995	Rain, flood, and wind	<b>(Maj. #1079)</b> Storms, starting in California generated winds of 100 miles per hour, continued north causing three states, including Washington, to issue disaster proclamations. Federal Disaster Number 1079 was issued for the incident.
February 7, 1996	Rain and flood	The Washington State Emergency Operations Center (EOC) activated to handle severe floods covering state. These were considered the most destructive and costly in state history and 19 counties were covered under a Presidential disaster declaration. Three people were killed. Total damages were estimated at \$400 million, an estimated 691 homes destroyed and 4,564 damaged. The EOC remained activated through February 23. Federal Disaster Number 1100 was issued for the incident.
April 24, 1996	Rain, flood, and wind	The state EOC activated because the state was covered with flooding rivers and high wind warnings. Six counties declared states of emergency. The EOC remained activated until April 25.
November 19, 1996	Ice storm	The state EOC activated in response to storm conditions around the state. The city of Spokane and Spokane County declared an emergency, and 100,000 customers were without power for nearly two weeks. In Puget Sound 50,000 customers were without power as well as thousand others across the state. There were 4 deaths and \$22 million in damages. The EOC remained activated until December 1. Federal Disaster Number 1152 was issued for the storm.

December 4, 1996	Winter storm, ice, wind, and gale warning	The state EOC activated in response to storms rushing across the state, which caused road closures and power outages. Pend Oreille County declared an emergency because of snow and power outages. The Governor proclaimed emergencies for Pend Oreille and Spokane Counties. The EOC remained activated until December 5. This storm was part of Federal Disaster Number 1152.
December 26, 1996	Winter storm, wind, gale warning, flood, landslide, and avalanche	<b>(Maj. #1159)</b> The state EOC activated in response to storm fronts pushing across the state causing structures to collapse under the heavy weight of snow, road closures, power outages, landslides, and 20 weather related deaths. The Governor declared emergencies for 37 counties - only Douglas and Franklin Counties were not included. The Washington National Guard had 110 personnel on active duty. The EOC remained activated until January 15, 1997. Federal Disaster Number 1159 was issued for the storm.
January 31, 1997	Rain and flood	The state EOC activated in response to lowland floods in Walla Walla, Asotin, and Columbia Counties. Flood warnings were in effect for Klickitat and Columbia Rivers. The EOC remained activated until February 1. This incident was part of Federal Disaster Number 1159.
March 18, 1997	Rain and flood	<b>(Maj. #1172)</b> The state EOC activated in response to widespread flooding throughout Washington State and remained activated until March 26.
October 29, 1997	Rain and wind	Heavy rain and gusty winds passed over the state on October 29 especially the southern Cascade Range. The EOC activated on October 30 in response to floods. Flood warnings were in effect for 11 Western Washington rivers and watches for all rivers in five western counties. The EOC remained activated until October 31.
January 11, 1998	Winter storm and flood	The state EOC activated on January 14 in response to storms affecting Lewis, Mason, Thurston, and Pierce Counties. The EOC remained activated until January 19.
November 19, 1998	Winter storm	The state EOC activated for problems associated with forecast high winds. Winds of 80 miles per hour were recorded toppling trees and causing power outages to 15,000 customers. The EOC remained activated until November 23.

December 29, 1998	Winter storm	The state EOC activated in response to flooding threat caused by heavy rain and mountain snow melt. Stevens and Snoqualmie passes were closed due to avalanche hazard. Stranded holiday travelers unable to go over Snoqualmie Pass caused Kittitas County to declare an emergency. Nisqually river flooding caused evacuation of 45 residents of a McKenna nursing home. In Cathlamet, 400 residents were without water causing Wahkiakum County to declare an emergency. Pullman declared an emergency because of flooding. The EOC remained activated until December 31.
October 27, 1999	Wind	A strong Pacific frontal system moved across Washington causing power and phone outages. Marine storm and coastal flood warnings were issued for the coast. One citizen died when a tree fell on them. The EOC remained activated until March 28.
November 9, 1999	Rain and flood	The state EOC activated on November 12 because of weather conditions in Western Washington. The Skagit River rose to six feet above flood stage. Flooding was most severe in Hamilton. Two shelters were opened for evacuees. The EOC remained activated until November 13.
December 14, 1999	Rain and flood	The state EOC activated on December 15 in response to widespread flooding in Western Washington. A tropical weather system brought in heavy rain and caused snowmelt and flooding. Emergency declarations were issued in Grays Harbor, Jefferson, Skamania, and Wahkiakum Counties. Sixteen counties were impacted by the weather system. The EOC remained activated until December 18.
October 2003	Severe Storms and Flooding	<b>(DR 1499)</b> - Chelan, Clallam, Grays Harbor, Island, <b>Jefferson</b> , King, Kitsap, Mason, Okanogan, Pierce, San Juan, Skagit, Snohomish, Thurston, and Whatcom Counties
January 27 to February 4, 2006	Severe Storms, Flooding, Tidal Surge, Landslides, and Mudslides	<b>(DR 1641)</b> - <b>Clallam</b> , Grays Harbor, Island, <b>Jefferson</b> , <b>Kitsap</b> , <b>Mason</b> , Pacific, Pend Oreille, San Juan, Snohomish, and Wahkiakum Counties
November 2-11, 2006	Severe Storms, Flooding, Landslides, and Mudslides	<b>(DR 1671)</b> - All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program.

December 14-15, 2006	Severe Winter Storm, Landslides, and Mudslides	<b>(DR 1682)</b> - All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program
December 1 - 17, 2007	Severe Storms and Flooding	<b>(DR 1743)</b> - <b>Clallam</b> , Grays Harbor, <b>Jefferson</b> , King, <b>Kitsap</b> , Lewis, <b>Mason</b> , Pacific, Skagit, Snohomish, Thurston and Wahkiakum Counties
December 2008 / January 2009	Severe Winter Storm, Flooding, Landslides, & Mudslides. Record Snowfall	<b>(DR1817)</b> Public Assistance made available to Jefferson County and the City of Port Townsend because of extraordinary costs of snow removal.
March 2009	Severe Winter Storm	<b>(DR1825)</b> Severe Winter Storm and Record and Near Record Snow
October 2015	Severe Windstorm	<b>(DR4242)</b> Severe Windstorm
January 2016	Severe Windstorm	<b>(DR4249)</b> Severe Storms, Straight-line Winds, Flooding, Landslides, and Mudslides
February 2016	Severe Windstorm	<b>(DR4253)</b> Severe Winter Storm, Straight-Line Winds, Flooding, Landslides, Mudslides, and a Tornado

## Climate Change

Warming temperatures imply more rain over snow events reducing the snowpack and creating a change in the character of the Olympics water storage. There will be more heavy rainfall events during the winter with commensurate opportunities for flooding and mudslides.

**Table WS-2 – Precipitations: Trends and Extremes<sup>12</sup>**

Precipitation	Observed Changes	Future Projections
<b>Averages</b> (for Pacific Northwest)	No significant changes in average amount; Region-wide decrease in snowpack.	Little average annual change – with dryer summers (-6% to -8% average decrease). Continued declining snowpack with significant loss of snowpack in Olympics by 2080 .
<b>Extremes</b>	Ambiguous	More heavy rainfall events: 13% ( ± 7%) increase in days with > 1 inch of rain.

Source: NOPRCD Report



## **Conclusion**

Jefferson County is at high risk for wind storms and coastal flooding, but not recognized as being at high risk for winter storms, as defined by the weather services.

Severe local storms are probably the most common widespread hazard. They affect the entire county area when they occur. These types of storms can quickly overwhelm county resources. Citizens should be prepared for these storms; family plans should be developed, disaster kits should be assembled, and every family member should be taught how to shut off utilities to prevent damage from abrupt resumption and to prevent damage from freezing and breaking pipes. Initiating early dismissal from schools and businesses is an effective mitigation measure and should be encouraged.

Local jurisdiction plans should provide a priority for road and street clearance, provision of emergency services, mutual aid with other public entities, and procedures for requesting state and federal aid if needed. The public should be given information on emergency preparedness and self-help to prepare for better response during severe storms.

## References – WINTER STORM

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## Tables - WINTER STORM

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- WS-1 Severe Winter Storms Affecting Western Washington  
 WS-2 Precipitations: Trends and Extremes

## Figures - WINTER STORM

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- WS-1 Ice dresses up Haller Fountain in Port Townsend on an unusually cold day.  
 WS-2 Port Townsend’s Water Street in 1955.  
 WS-3 Counties Most Vulnerable to High Winds  
 WS-4 Counties Most Vulnerable to Winter Storms

# MAN-MADE HAZARD IDENTIFICATION

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# Man-Made Hazard Identification

The original scope of the Jefferson County Hazard Identification and Vulnerability Assessment (HIVA) was to be an “Natural Hazard” assessment. Since many of the natural hazard risks we face are a function of man-made hazards or events, we have included those in this plan. The objective is to evolve the *Natural Hazard Mitigation Plan* into a full *All Hazard Mitigation Plan* and use it to improve Jefferson County’s ability to deal with the full spectrum of natural and man-made hazards.

## AIRCRAFT MISHAP (Commercial / Civil / Military)

### SUMMARY

**The Hazard:** This type of hazard is the failure of an aircraft to suspend itself in flight due to mechanical or human error resulting in a collision with the ground.<sup>1</sup>

#### Impacts and Effects:

- Possible loss of life
- Possible injuries to aircraft occupants and to people on the ground
- Loss of aircraft
- Loss of property on the ground at the crash site
- Increased danger of fires

#### Previous Occurrences:

- **March 21, 1975.** An Air Force C141 crashes into the Olympic Mountains near Quilcene Washington. The presumed crash site of an Air Force C141 Starlifter was in a rugged, roadless section of the Olympic Mountains. The four-engine jet of the Air Force Military Airlift Command was carrying 16 persons, including a crew of 10 based at McChord Air Force Base near Tacoma, and six passengers. The plane was on a flight from Yokota Air Base in Japan to McChord.<sup>2</sup>
- **In 2007,** a small private aircraft experienced a low-impact crash on landing at the Jefferson County airport. There were no injuries. Pilot claimed a gust of wind caused momentary loss of control resulting in the wingtip touching the ground and spinning the aircraft around.<sup>3</sup>
- **July 29, 2013.** The pilot of a small aircraft that crashed while attempting to land over the weekend was due to be released late Monday. The small yellow plane, a vintage Piper PA-18-135 Super Cub, crashed in a field off Center Road while attempting to land Saturday after the pilot, Gerald Ryder, determined he did not have enough fuel to reach Jefferson County International Airport in Port Townsend.<sup>4</sup>
- **September 28, 2015.** Two people were seriously injured when their small plane crashed at a Port Townsend golf course Monday afternoon, East Jefferson Fire officials first tweeted at 1:35 p.m. that a small plane crashed at the Discovery Bay Golf Course in the 7400 block of Cape George Road. A witness told authorities that the Cessna-type plane stuttered and appeared to lose power before crashing into heavy brush just north of the 17th hole tee box.<sup>5</sup>

- December 30, 2016. “Four occupants of a small airplane died when the aircraft crashed Thursday, Dec. 29 in the woods near the Dabob Bay area along Hood Canal in Jefferson County.”<sup>6</sup>



Figure AM-1. Emergency responders gather around the Piper Super Cub that flipped during an attempted landing in Quilcene. Photo from PDN; Taken by Jefferson County Sheriff's Office.

**Probability of Future Events:** Low – The lack of regularly scheduled air service limits the probability of events to small general aviation operations that occur most frequently on weekends.

## Definition

In the context of emergency management and disaster planning, airplane accidents refer to major accidents, resulting in the loss of the hull with multiple fatalities. Civil aviation is a very strictly regulated activity. A complex web of federal regulations and protocols governs airplanes manufacture, maintenance, and operation. This has resulted in falling accident rates in spite of the persistent increase in air traffic. But major crashes result in the sudden and catastrophic loss of life. A large airplane accident can result in more deaths in an instant than almost any other kind of event. Hence, the public and the media are very concerned with air safety and they expect strict regulation of civilian aviation.<sup>7</sup>

## History of Aircraft Mishaps in Jefferson County

There has not been a major air accident in the Puget Sound region, including Jefferson County, in recent history. However, accidents in other parts of the country allow us to examine the potential vulnerabilities we face in this area. In October 2007, ten people died when a plane carrying a party of skydivers from Idaho back to Shelton Washington crashed near Yakima Washington.<sup>8</sup> In February 2009, a commuter plane with 49 people on board crashed near Buffalo, NY, killing everyone on board.<sup>9</sup> And finally, in January 2009, there was the heroic landing of a U.S. Airways Airbus A320 with 154 passengers in the Hudson river after the plane lost all engines due to a bird strike during take-off.<sup>10</sup> Everyone survived.



## **Hazard Assessment and Vulnerability Assessment**

The Puget Sound region is vulnerable to two types of major air transportation accidents. One is a crash involving a large passenger aircraft, while the other is an airplane crash causing casualties on the ground. Despite the large number of planes flying over heavily populated areas, the number of crashes killing or injuring non-passengers is quite small. In general, crashes are most likely to occur within five miles of an airport, typically along flight paths. Weather is a significant factor in these air transportation accidents. Down bursts, thunderstorms, and ice are the primary weather-related events that increase risk.

The Jefferson County International Airport is a general aviation facility with a single 3000 foot east-west runway at an elevation of 107 feet above sea-level. The City of Port Townsend is within a five-mile radius of the Jefferson County airport, but is not along the take-off and landing flight path; therefore, the probability of a mass casualty event if a plane crashed in this area is small unless the plane itself is a passenger aircraft. There are two Home Owner Associations located along the flight path one each off of either end of the runway, but both are somewhat protected by a ring of hills surrounding the airport.

Large passenger aircraft originating from SeaTac Airport in Seattle, and military over flights originating from the region's numerous military bases add to the possibility of a mass-casualty event if they were to crash in Jefferson County or within the city of Port Townsend. Since these flights are at high altitudes and supersonic speeds, the probability is small that any given aircraft would have a simultaneous combination of problems, direction, and speed to cause it to drop into the few concentrated population areas of Jefferson County.

## **CONCLUSION**

Although a rare possibility, the catastrophic potential of a major aircraft crash in Jefferson County or the City of Port Townsend cannot be ignored. Significant damage to property, utilities and transportation routes could result. Significant financial impact could occur, as well as the inevitable heavy loss of life.

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## Figures - AIRCRAFT MISHAP

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- AM-1 Quilcene Air Crash, Peninsula Daily News, July 29, 2013. Photo by Jefferson County Sherriff’s Office.

# BANKRUPTCY

## SUMMARY

**The Hazard:** A large-scale regional or national event such as an earthquake, pandemic, a severe economic recession or depression or simply strategically placed massive incompetence or malfeasance can cause such severe economic disruption as to force a governmental entity into bankruptcy.

### Impacts and Effects:

- Breakdown of governmental institutions
- Imperilment of life due to the inability to provide life-support services and medicines
- Compromise of immediate response such as emergency shelter, food, water, and medical treatment due to lack of adequate inventories
- Impairment of long term recovery if businesses cannot function
- Permanent loss of businesses if recovery is delayed
- Loss of schools, homes, and businesses as people abandon a moribund geographic area

**Previous Occurrences:** During the period from 1890 to 1893, Port Townsend experienced a severe local depression when the railroads stopped at Seattle and Tacoma rather than continuing all the way to Port Townsend.<sup>1</sup>

**Probability of Future Events:** Moderate – In 2008, the U.S. entered into a recession. The Port Townsend paper mill, the largest employer in the area, was teetering on the edge of bankruptcy, and the county had to lay off 13 people to balance its budget. At that time, the city and the county tightened their budgets, laid off people, and restructured some of their operations.

Since that time, the local government has stabilized, albeit at a lower level of employment. From time to time, local municipalities and special districts run up against their borrowing capacity due to external mandates or local disasters. The possibility of a bankruptcy scenario is real, although currently circumstances are not as bad as in previous years. The current biggest threat is to the smaller special districts that have assets located in hazard zones and who can experience catastrophic loss very easily.

There is also the possibility of another recession within the next 5-years that will again stress local governments.

## Definition

**Bankruptcy** is a legal status of a person or other entity that cannot repay the debts it owes to creditors. In most jurisdictions, bankruptcy is imposed by a court order often initiated by the debtor.<sup>2</sup>

**Bankruptcy in the United States** is governed under the United States Constitution (Article 1, Section 8, Clause 4) which authorizes Congress to enact "uniform Laws on the subject of Bankruptcies throughout the United States." Congress has exercised this authority several times since 1801, most recently by

adopting the *Bankruptcy Reform Act of 1978*, as amended, codified in *Title 11 of the United States Code* and commonly referred to as the "Bankruptcy Code" ("Code").<sup>3</sup>

**Chapter 9, Title 11, United States Code** is a chapter of the *United States Bankruptcy Code*, available exclusively to municipalities, that assists them in the restructuring of debts. On July 18, 2013 Detroit, Michigan became the largest city in the history of the United States to file for Chapter 9 Bankruptcy protection. Jefferson County, Alabama, in 2011 and Orange County, California, in 1994 are also notable examples. "The term 'municipality' means political subdivision or public agency or instrumentality of a State."<sup>4</sup>

A large-scale regional or national event such as an earthquake, pandemic, a severe economic recession or depression or simply strategically placed massive incompetence or malfeasance can cause such severe economic disruption as to force a governmental entity into bankruptcy.

Figure BR-1 below shows all municipalities filing for Chapter 9 bankruptcy protection during the period 2010 - 2015, along with local governments voting to approve a bankruptcy filing.<sup>5</sup>

Cities, towns and counties are shown in **red**. Utility authorities and other municipalities are displayed in **gray**. Multiple municipalities have filed for bankruptcy in some cities, such as Omaha, Neb., so not all markers are visible. Please note that some listed municipal bankruptcy filings may have been dismissed.



## Selected Examples of Municipal Bankruptcies

The State of Illinois and the City of Chicago have each been on the brink of bankruptcy for years. As of 2012, there were approximately 640 municipal bankruptcies that had been filed since 1937. Table BR-1 lists some examples of the both the larger municipalities and those in the vicinity of Jefferson County, Washington.<sup>6</sup>

<b>Table BR-1 Selected Municipal Bankruptcies<sup>6</sup></b>			
<b>Municipality</b>	<b>Date</b>	<b>Circumstances</b>	<b>Notes</b>
Washington Public Power Supply System (WPPSS)	1983	Due to halt in construction of planned nuclear reactors.	
Orange County, California	1994	\$1.7 billion (largest municipal bankruptcy until November 2011, and \$3 billion when adjusted for inflation), on interest rate-related losses	
Prichard, Alabama	1999	Inability to pay pensions.	
Millport, Alabama	2005	Due to loss of sales tax revenues after factory closing.	What would happen if Port Townsend Paper closed?
Los Osos, California	2006	Debt related to a wastewater facility.	
Pierce County Housing Authority, Pierce County, Washington	2008	Residents' lawsuits due to mold in properties.	
<b>Jefferson County, Alabama</b>	November 2011	November 2011, over \$4 billion in debt (largest Chapter 9 bankruptcy until 2013 Detroit bankruptcy filing,) from sewer revenue bonds tainted by an interest rate swap bribery scandal with JPMorgan and county commissioner Larry Langford, and bond insurance credit rating collapse in the late-2000s subprime mortgage crisis, followed by the occupation tax being declared unlawful in Alabama.	Placed here for startle reaction because it has the same county name. It can happen here.
Detroit, Michigan	2013	A report on the financial health of Detroit was released by Orr in May 2013. The report stated that Detroit is "clearly insolvent on a cash flow basis" and that the city would finish its current fiscal year with a US\$162 million cash-flow shortfall. It also stated that the city's budget deficit would reach \$386 million in less than two months and that one-third of the city's budget was going toward retiree benefits. <sup>7</sup>	Largest municipal bankruptcy to date, August 2016.

## History of bankruptcy in Jefferson County, Washington

During the late 1880's, there was a boom period in which Port Townsend leaders thought the city would become the capitol of Washington. In the fiscal year 1884-1885, for example, a larger number of steamships entered and cleared through Port Townsend than in any other port in the United States. In 1889, Port Townsend's leading real estate speculators created the Port Townsend Southern Railroad with the intention of building a line from Port Townsend to Portland, Oregon. "Port Townsend's population suddenly swelled to some 7,000. During a brief few years were constructed the majority of mansions and major business buildings revered today for their history."<sup>8</sup>

In the spring of 1890 the Port Townsend Southern Railroad negotiated a deal with the Oregon Improvement Company, a subsidiary of Union Pacific, to build the proposed railroad. By the summer of 1891, the line had been built from Port Townsend to Quilcene, but no farther. By Thanksgiving, The Oregon Improvement Company was put into receivership as a combination of bad management and a national depression drove the economy down. "By the time the depression reached panic proportions in 1893, the city's population had dwindled to some 2,000 souls."<sup>9</sup>

Although it did not declare bankruptcy, the Port Townsend economy languished in the doldrums until the 1920's when the paper mill was built.

## HAZARD IDENTIFICATION AND ANALYSIS

In 1994, Orange County California declared bankruptcy when their county treasurer of 24 years drove the county into insolvency by "investing" in derivatives to subsidize the county's reliance on interest income. Leveraged with two dollars borrowed for every dollar of capital, falling interest rates made it impossible to pay back creditors. When the state refused to help the county, it was left with no choice to file Chapter 9 bankruptcy.

The circumstances deserve consideration for a number of reasons:

- California Proposition 13 had limited local government ability to raise taxes.
- In FY94, interest made up 12% of Orange County's revenues vs. 3% for all other California counties. By FY95, it was intended that interest would be 35% of revenues.
- The county turned to riskier investments to offset declining revenues in the face of increasing costs.
- County government declared bankruptcy on December 6, 1994.
- The state refused to intervene, thus negating an implied moral obligation of states to help their municipalities.
- Voters rejected a half-cent sales tax increase as part of a recovery plan.

In *When Government Fails: The Orange County Bankruptcy*, Mark Baldassare identified three conditions necessary for a municipal bankruptcy: **political fragmentation, voter distrust, and state fiscal austerity.**<sup>10</sup>



## The Jefferson County Washington Parallel

In 2009, Jefferson County was experiencing similar financial difficulties as Orange County did in 1994:

- Washington Proposition 747 limited the growth of property taxes to 1% per year without specific taxpayer approval. Overturned by the State Supreme Court, its provisions were quickly reenacted by the legislature because of public outcry.
- A major recession, started by the collapse of the subprime mortgage market, dried up both building permit revenues and interest income to the county.
- By the end of February 2007, the county had earned \$283,924 in interest income on the \$1,094,358 it had collected for the full year. By the end of February 2009, the county had taken in \$26,051 in interest income.<sup>11</sup>
- County voters have rejected two bond measures to fund the building of a new elementary school, thus forcing the consolidation of schools and laying off of teachers.
- Washington State was nine billion dollars in the red for the 2010-2011 biennium, and cutting back programs and levels of funding to local governments.

Fast forward to 2016, and we see that there still are issues that make local jurisdictions vulnerable to the next downswing in the economy or local and regional natural disasters that cause considerable damage to public or private infrastructure:

- The City of Port Townsend is mandated to enhance its water treatment by the Federal government. It is building a new **\$16 million** water treatment facility and an **\$8 million** seismically sound 5 million-gallon water reservoir to replace an existing one that is deteriorating, thus adding significant long-term debt to the city budget<sup>12</sup>;
- The Brinnon Fire Department lost an unmanned station and an engine and related equipment due to flooding in 2015. The Chief, at that time, indicated that they had \$14,000 in damage to the engine, a \$40,000 bill for flood cleanup, one station closed due to disrepair, and the cost to move the flooded-out station estimated at \$1.2 million<sup>13</sup>;
- Port Townsend Paper Corporation, the largest private employer in the county, is built on the shoreline of Port Townsend Bay and is vulnerable to tsunamis.

Jefferson County is unique in Washington in that it is becoming a retirement county. Over 56% of the population is over 65 now.<sup>14</sup> Over sixty percent of revenues are transfer payments, contingent on the health of the financial markets. The primary commercial sectors of the county economy are the paper mill, a thriving maritime industry, and tourism. The majority of Jefferson County economic assets are north of State Highway 104 on the Quimper peninsula. The Quimper Peninsula has three main arterials, Highway 104, U. S. 101, and the State Ferry System. The loss of any one of these for a significant period of time impacts sales tax and business tax revenues; forces some businesses to close; and puts stress on local government services.

Although many states, counties, and municipalities were hard hit by the 2009 recession, circumstances are such that Jefferson County did not reach a tipping point. Jefferson County, however, does show evidence of the precursors that make it vulnerable to entering a bankruptcy scenario. In an emergency management context, this could result in the outsourcing of 9-1-1 capabilities to other counties, the elimination of

emergency management as a separate entity and its being brought back under the auspices of the Sheriff's Office or outsourced, as well. Emergency services in the county would have to go on an austerity program even as the influx of retirees is putting an increased demand on health and EMT services.

## **Conclusion**

Jefferson County and the City of Port Townsend are vulnerable to significant economic disruptions due to their geography, location and the ease with which they can be isolated. The precursors to municipal bankruptcy are present and suggest that it is possible for circumstances to degrade sufficiently to push area jurisdictions in that direction. Strong cooperation among county and city officials is necessary to weather the storm and prevent a local economic disaster.

Any kind of significant disaster event, such as a major earthquake, tsunami, flood or a prolonged loss of power due to failure of the electrical grid, can push Jefferson County, the City of Port Townsend and / or any of the special districts over the tipping point and necessitate contemplating bankruptcy. The area is one natural disaster away from a financial disaster.

## References - BANKRUPTCY

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13. Email from Chief of Brinnon Fire Department, Patrick Nicholson, to the Hazard Mitigation Plan Project Coordinator detailing the financial circumstances the department was in due to the winter’s flooding, dated February 11, 2015.
14. County Growth Management Population Projections by Age and Sex: 2010-2040, Forecasting Division, State of Washington Office of Financial Management, August 2012, p6.

## **Tables - BANKRUPTCY**

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BR-1 Selected Municipal Bankruptcies

## **Figures - BANKRUPTCY**

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BR-1 Bankrupt Cities and Municipalities - 2015

# CIVIL DISTURBANCE<sup>1</sup>

## SUMMARY

**The Hazard:** Any incident that disrupts a community to the degree that police intervention is required to maintain public safety is a civil disturbance or civil disorder. Demonstrations, riots, strikes, public nuisances, domestic disputes, terrorism, and/or criminal activities fall into this category.

### Impacts and Effects:

- Loss of life
- Loss of property
- Closure of businesses
- Looting
- Arson
- Long term divisiveness in the community
- Adverse impacts on tourism and economic development
- Increased demands on law enforcement and emergency response resources
- Increased demands on mental health resources

**Previous Occurrences:** Multiple domestic disputes, criminal activities, and public nuisances occur each month and are routinely dealt with by local law enforcement authorities. In 1998, the Washington State EOC was activated in response to the Makah Indian Nation proposed whale-hunting activities at Neah Bay.

**Probability of Future Events:** High – The broad definition assures occurrences. Even with a narrow definition, local schools receive bomb threats once or twice a year, and local peace groups hold periodic sit-ins at the front gate of U.S. Navy Magazine – Indian Island.

**Figure CD-1 - Sit-in at U.S. Navy Magazine – Indian Island (NAVMAG) Entrance<sup>2</sup>**



**37 people were arrested at Indian Island**, a naval base near Port Townsend, Washington. The protest was one of many carried out across the country as part of a national "Declaration of Peace" campaign, which calls for a comprehensive plan for withdrawal from Iraq and opposition to future invasions of other countries. The arrests were witnessed by over 350 supporters who participated in a 4 mile peace march to the navy base, which is the main weapons shipping depot on the west coast.<sup>2</sup>

Source: DeclarationofPeaceWaBlogspot.com

## **DEFINITION<sup>3</sup>**

Any incident that disrupts a community to the degree that police intervention is required to maintain public safety is a civil disturbance or civil disorder. Demonstrations, riots, strikes, public nuisances, domestic disputes, terrorism, and/or criminal activities fall into this category. The hazard could surface in any community, and can be sparked by disagreements ranging from simple family disturbances to political, racial, belief, social and economic differences that escalated beyond an exchange of words.

## **HISTORY OF CIVIL DISTURBANCES IN JEFFERSON COUNTY**

Jefferson County has not experienced the violence associated with riots occurring in nearby Seattle in the 1990s. In Seattle, a small-scale riot occurred after the 1992 Rodney King verdict. After the jury's decision was announced small groups of people roamed downtown Seattle streets smashing windows, lighting dumpster fires and overturning cars. In 1999, during the World Trade Organization Ministerial Conference, riots resulting in injury and death of participants and bystanders occurred. The City of Seattle declared an emergency and the Governor signed a proclamation of emergency allowing commitment of state resources to support affected local jurisdictions.

In 1998, the Washington State EOC was activated in response to the Makah Indian Nation proposed whale-hunting activities at Neah Bay. At the request of the Clallam County Sheriff, the State of Washington provided resources from the National Guard, Washington State Patrol, Department of Fish and Wildlife, Department of Natural Resources and Emergency Management Division to control disturbances between protestors and residents.

County High Schools including Port Townsend, Chimacum, and Quilcene have all had bomb scares and have had instances of students bringing weapons to school. Following the Columbine High School experience in Colorado, such incidents have been approached with intense seriousness. Although nothing approaching the level of Columbine has occurred, school officials are aware and cognizant of the possibilities.

As the conflict in Iraq became more of a certainty, several protesting groups promised "civil disobedience". While the larger marches were held in Seattle and Tacoma, there was vocal opposition evident in Jefferson County. Participants did not resort to violence, but wherever there are strong opposing views, the potential existed for words and signs to be replaced by more violent activities.

The Naval Magazine (NAVMAG) continues to be the main target for low-level demonstrations. Figure CD-2 shows a group of peace marchers that started their trek at the NAVMAG gate and marched to the Pope Marine Park in Port Townsend, a distance of about nine miles.<sup>4</sup>



**Figure CD-2 - A Peace March from NAVMAG to Port Townsend.<sup>4</sup>**

Source: Port Townsend Leader

## HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT

Civil disturbances are divisive, often complex in their origin, and are possible in nearly every community in the nation. As the population continues to grow, so will the concentrations of ethnic groups, varied perspectives, and disparate economic status. Jefferson County has experienced a growth rate that has outpaced the rest of the State of Washington. Diverse philosophies exist in county residents. As the economy fluctuates due to economic realities of declining fishing and forest industries, emotions tend to run high. Tourism, a major source of revenue for county businesses could be affected by an increasing potential or the actual developments of civil disturbances.

That being said, the Peace Movement in Port Townsend tends to be just that – peaceful. The city is somewhat unique in that it has a significant military establishment, the Naval Magazine on Indian Island, across from a city that was discovered and populated by the “Hippie” generation in the 70’s, and who are now many of the senior citizens. Generally, everyone is tolerant of each other’s views, and protests tend to be lawful. If circumstances were to arise in which outsiders came in to cause a problem because of some kind of incident, the city and / or county would have to ask for outside help in dealing with it.

## CONCLUSION

The potential for civil disturbances exists in Jefferson County. Main participants might not be residents of the county. County law enforcement resources are aware and have practiced response scenarios if such disturbances occur.

## References – CIVIL DISTURBANCE

1. The Hazard Identification and Risk Assessment (THIRA), Jefferson County Department of Emergency Management, 2011, pp. 48-50.
2. “37 Arrested at Indian Island Naval Base to Protest the Occupation of Iraq”, by Liz Revera Goldstein, DeclarationofPeaceWA Blogspot, 9/23/2006. Unattributed Photo. Available at: <http://declarationofpeacewa.blogspot.com/2006/09/37-arrested-at-indian-island-naval.html>
3. The Hazard Identification and Risk Assessment (THIRA), Jefferson County Department of Emergency Management, 2011, p. 48.
4. “A Peace March from NAVMAG to Port Townsend”, Photo by Nicholas Johnson, Published in the *Port Townsend Leader*, January 20, 2016

## Figures - CIVIL DISTURBANCE

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- CD-1 Sit-in at U.S, Navy Magazine – Indian Island Entrance
- CD-2 A Peace March from NAVMAG to Port Townsend

# DAM FAILURE<sup>1</sup>

## SUMMARY

**The Hazard:** “A dam is a barrier across flowing water that obstructs, directs or slows down the flow, often creating a reservoir, lake or impoundments. Most dams have a section called a *spillway or weir* over which, or through which, water flows, either intermittently or continuously, and some have hydroelectric power generation systems installed.”<sup>2</sup> A levee is an embankment raised to prevent a river from overflowing. Levees are also small ridges or raised areas bordering an irrigated field. A dike is an embankment built along the shore of a sea or lake or beside a river to hold back the water and prevent flooding.<sup>3</sup>

“Dams are considered "installations containing dangerous forces" under International Humanitarian Law due to the massive impact of a possible destruction on the civilian population and the environment.”<sup>4</sup>

Dam failure is the uncontrolled release of impounded water resulting in downstream flooding that can affect life and property. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism or terrorism can cause dam failures. Dam failures are comparatively rare, but can cause immense damage and loss of life when they occur.<sup>5</sup>

### Impacts and Effects:

- Loss of life
- Loss of homes and businesses
- Loss or long-term disruption to water supplies
- Firefighting water sources adversely impacted
- Business depending on large quantities of water severely impacted
- Road and bridge washouts
- Loss of crops and livestock
- Damage or destruction of salmon streams
- Damage or loss of recreation facilities
- Loss of jobs due to damaged equipment and facilities

**Previous Occurrences:** Dam failure has not been a major concern for the residents of Jefferson County. There has been no history of lives lost, property loss, or other damage as the result of dam failures.

**Probability of Future Events: Low – Increasing to Moderate.** Regular inspections mitigate the possibility of a spontaneous dam failure without an external factor. A severe earthquake could cause the destruction of any given dam but the probability of a severe earthquake is low, even as the consequences are high.

The National Inventory of Dams (NID) contains information on approximately 79,000 dams throughout the U.S. that are more than 25 feet high, hold more than 50 acre-feet of water, or are considered a significant hazard if they fail. The current National Inventory for Dams for Jefferson County lists 4 dams that meet that criteria<sup>6</sup>. Table DF-1 shows the four Jefferson County dams listed on the inventory<sup>7</sup>.

## Definition

Dam failure is the uncontrolled release of impounded water resulting in downstream flooding that can affect life and property. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism or terrorism can cause dam failures.

“All dams are assigned a high, significant, or low hazard classification based on potential of loss of life and damage to property should the dam fail. This classification is considered the *Dam Hazard*, and indicates the potential hazard to the downstream area resulting from failure or mis-operation of the dam or facilities. Classifications are updated based on development and changing demographics upstream and downstream. Washington State describes each of the different hazard classifications as follows:

- Low - A dam where failure or mis-operation results in no probable loss of human life and low economic and/or environmental loss. Losses are principally limited to the owner's property.
- Significant - A dam where failure or mis-operation results in the potential of one to six losses of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. These dams are often located in predominantly rural or agricultural areas but could be located in areas with more dense populations and significant infrastructure.
- High - A dam where failure or mis-operation will probably cause a potential loss of greater than seven human lives.”<sup>8</sup>

The screenshot shows the 'CorpsMap National Inventory of Dams' web application. The page title is 'NID Detail Report'. There is a search bar and filter options for 'County contains Jefferson' and 'State contains WA'. Below the filters, a table lists four dams. The table has columns for Dam Name, NIDID, Inspection Date, Owner Type, Owner Name, NID Height (ft.), NID Storage, Primary Purpose, Dam Type, River, County, State, and Zoom To. The dams listed are: PORT TOWNSEND PAPER ASB POND, LORDS LAKE EAST DAM, BIG LAKE OUTLET STRUCTURE, and LORDS LAKE NORTH DAM.

Dam Name	NIDID	Inspection Date	Owner Type	Owner Name	NID Height (ft.)	NID Storage	Primary Purpose	Dam Type	River	County	State	Zoom To
PORT TOWNSEND PAPER ASB POND	WA00726	4/29/2009	Private	PORT TOWNSEND PAPER	33	615	Other	Earth	OFFSTREAM	JEFFERSON	WA	
LORDS LAKE EAST DAM	WA00357	3/25/2003	Local Government	PORT TOWNSEND CITY, CITY ENGINEER	42	1860	Water Supply	Earth	TR-HOWE CREEK	JEFFERSON	WA	
BIG LAKE OUTLET STRUCTURE	WA00571	-	Private	BCE DEVELOPMENT INC	15	65	Flood Control	Earth	LOWER CHENNAULT CREEK	JEFFERSON	WA	
LORDS LAKE NORTH DAM	WA00243	3/25/2003	Local Government	PORT TOWNSEND CITY, CITY ENGINEER	40	1860	Water Supply	Earth	TR-HOWE CREEK	JEFFERSON	WA	

Table DF-1 Jefferson County Dams listed in the National Inventory of Dams

Figure DF-1 - Location of Port Townsend Paper ASB Pond

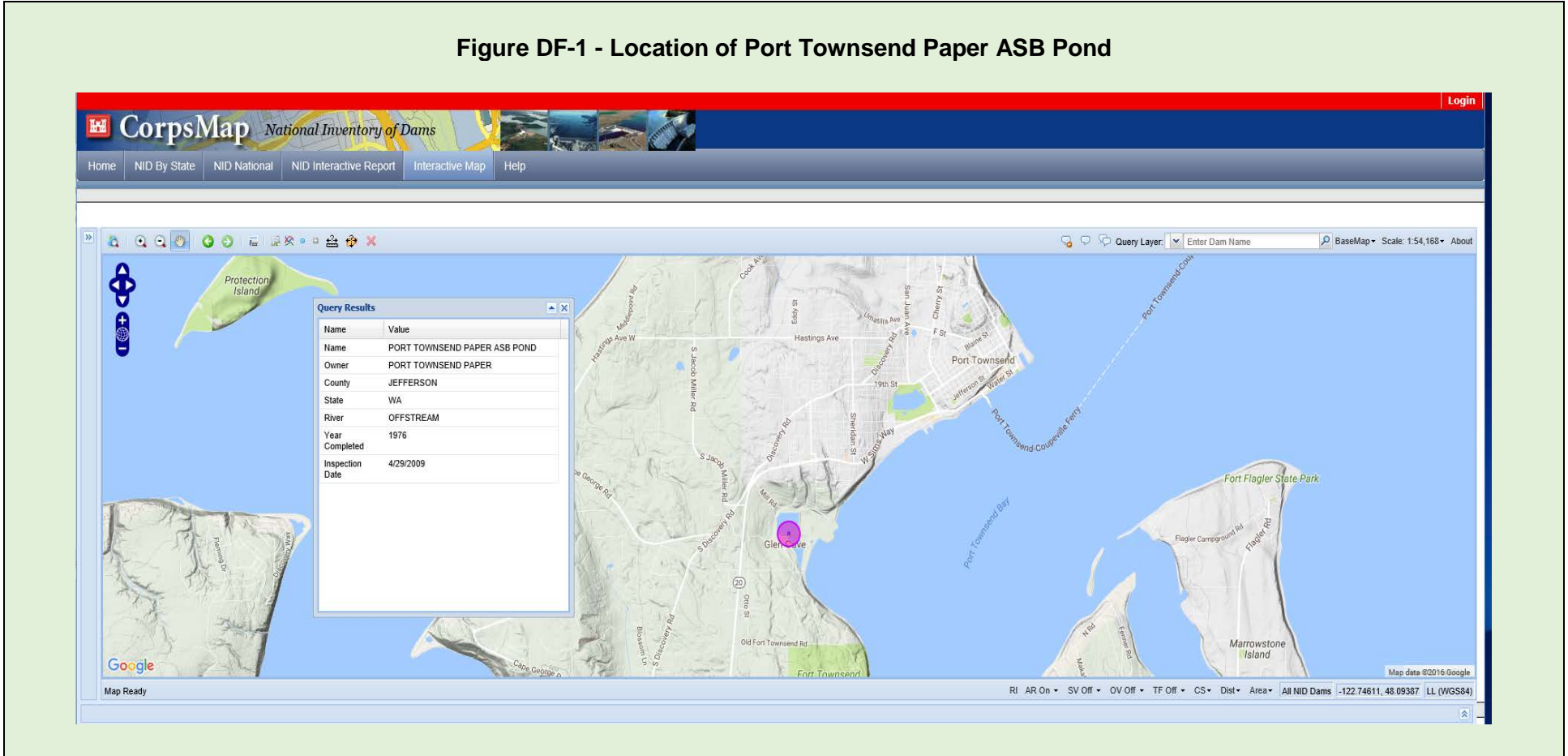




Figure DF-2 - Location of Lords Lake East Dam

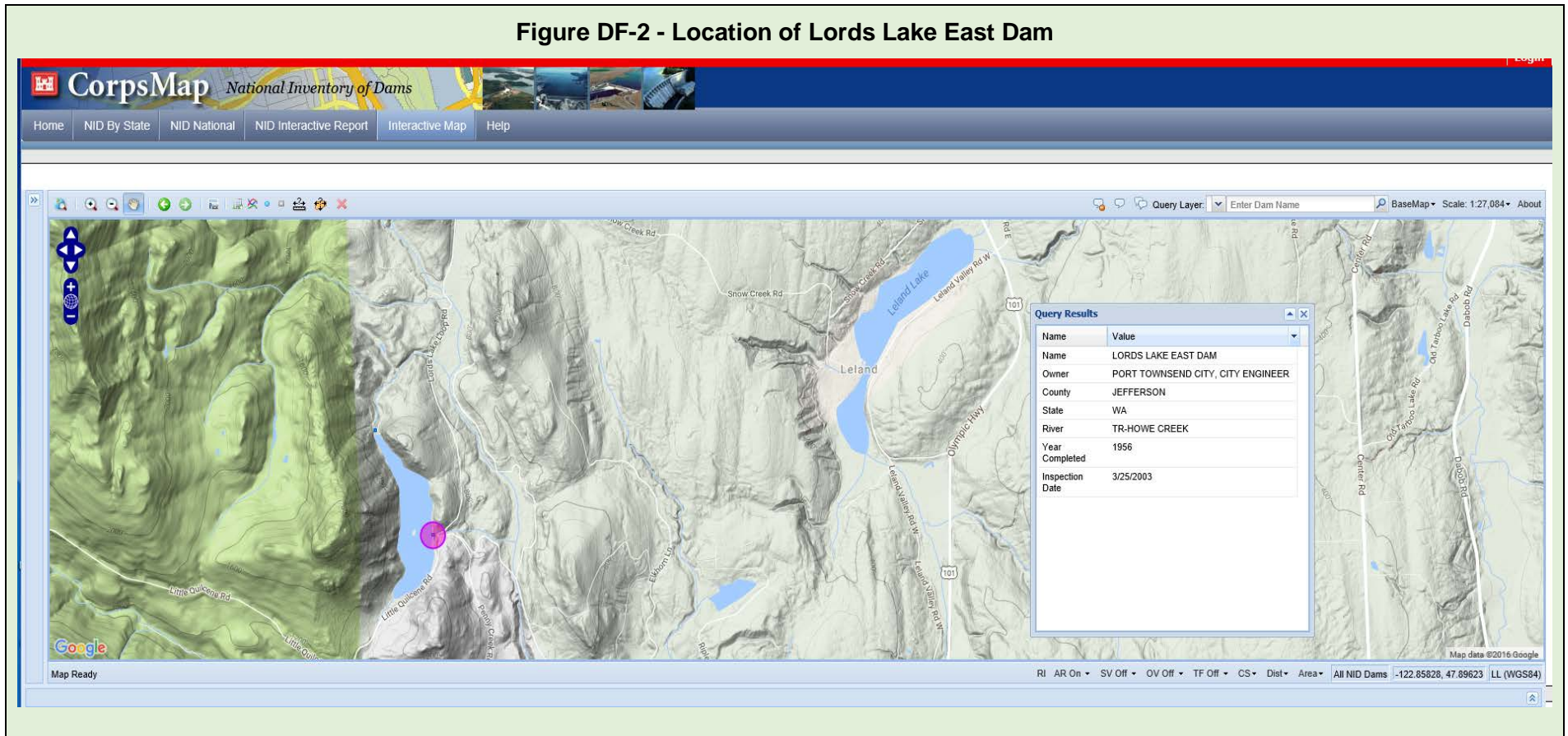


Figure DF-3 - Location of Big Lake Outlet Structure

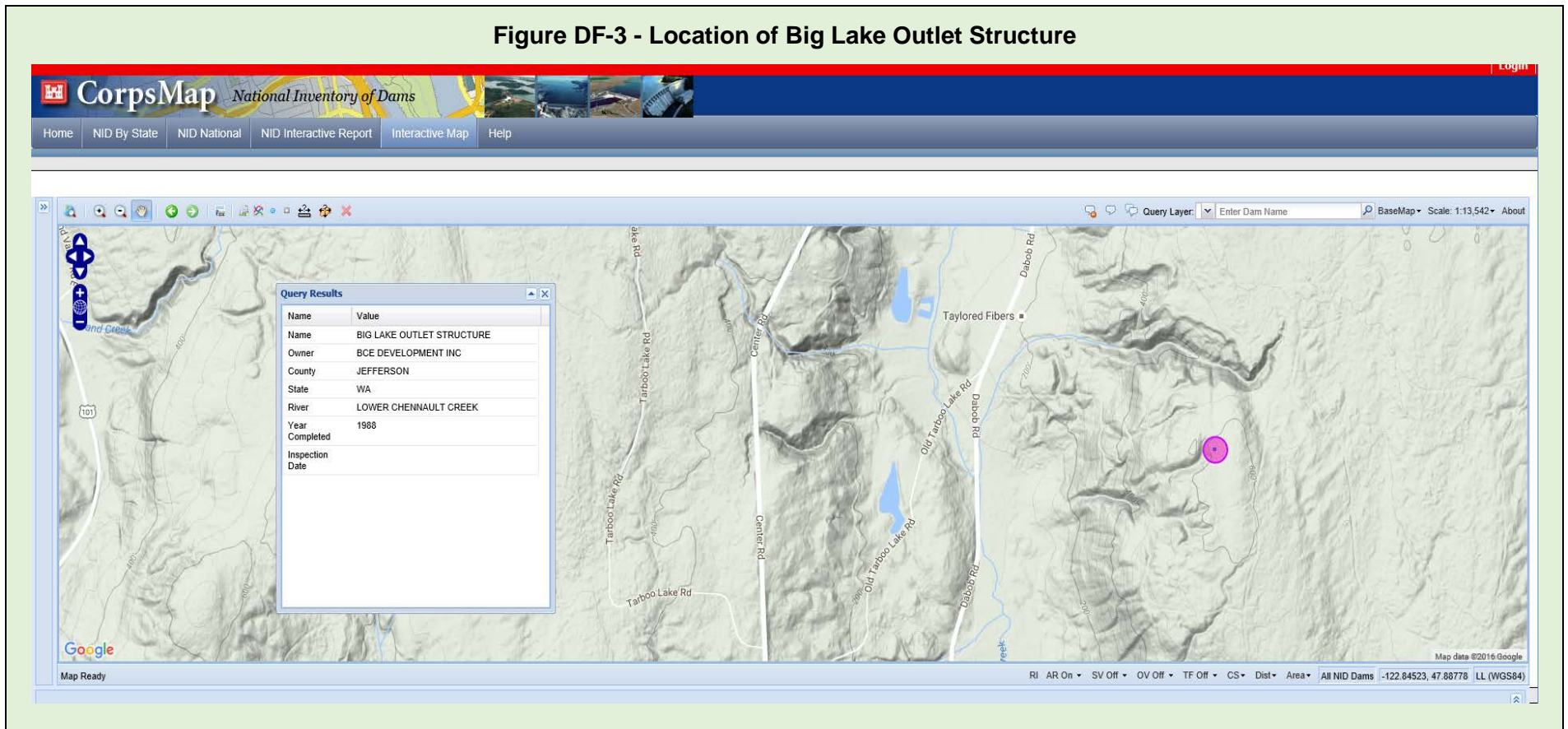
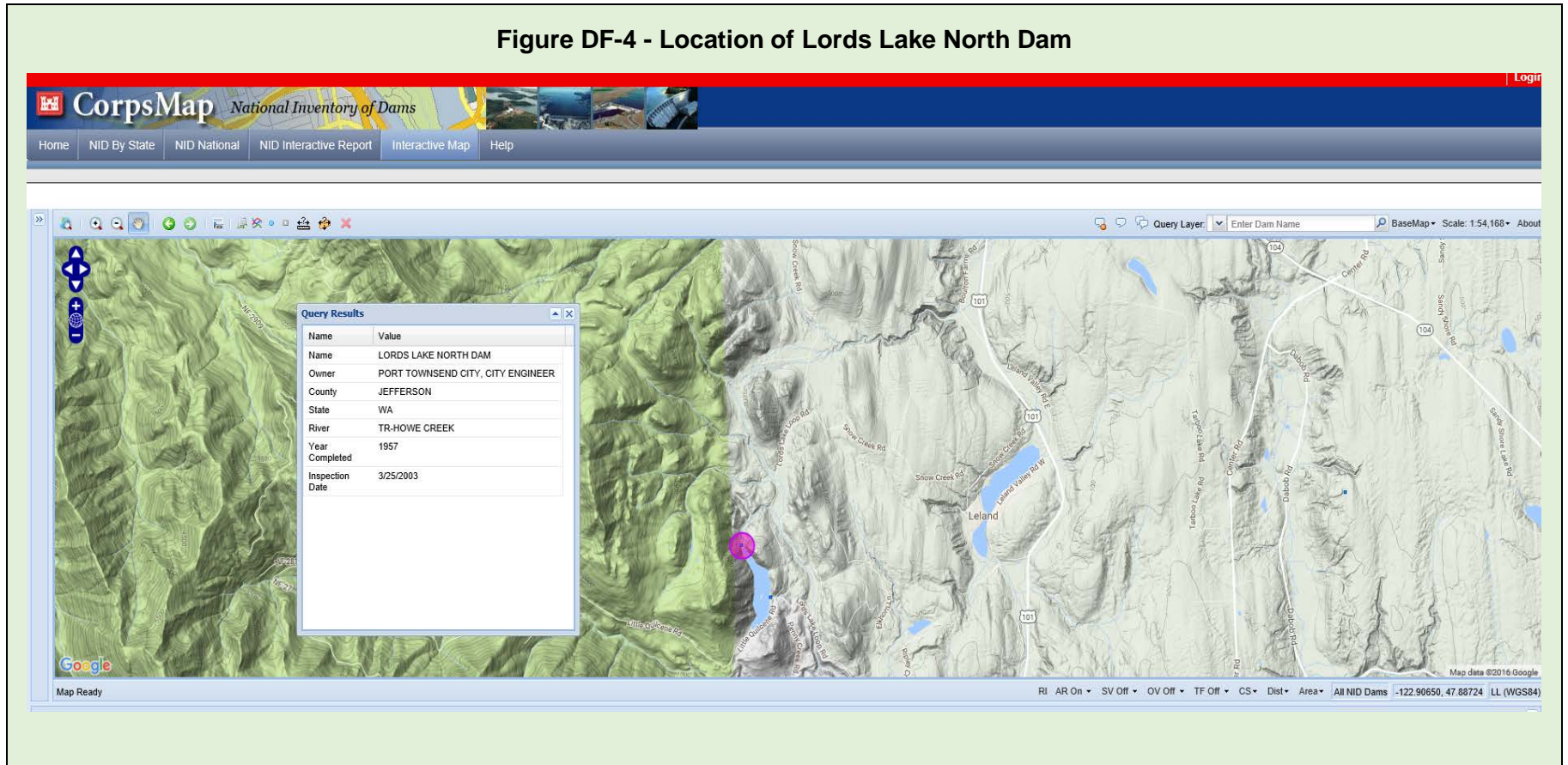


Figure DF-4 - Location of Lords Lake North Dam





**Table DF-2 - Downstream Hazard Classifications<sup>9</sup>**

Downstream Hazard Classification				
Downstream Hazard Potential	Downstream Hazard Class	Population at Risk	Economic Loss Generic Descriptions	Environmental Damages
Low	3	0	Minimal. No inhabited structures. Limited agriculture development.	No deleterious materials in water
Significant	2	1 to 6	Appreciable. 1 or 2 inhabited structures. Notable agriculture or work sites. Secondary highway and/or rail lines.	Limited water quality degradation from reservoir contents and only short-term consequences.
High	1C	7 to 30	Major. 3 to 10 inhabited structures. Low density suburban area with some industry and work sites. Primary highways and rail lines.	Severe water quality degradation potential from reservoir contents and long-term effects on aquatic and human life.
High	1B	31-300	Extreme. 11 to 100 inhabited structures. Medium density suburban or urban area with associated industry, property and transportation features.	Severe water quality degradation potential from reservoir contents and long-term effects on aquatic and human life.
High	1A	More than 300	Extreme. More than 100 inhabited structures. Highly developed, densely populated suburban or urban area with associated industry, property, transportation and community lifeline features.	Severe water quality degradation potential from reservoir contents and long-term effects on aquatic and human life.

The Washington Department of Ecology Dam Safety Section has five dams listed on its state inventory of dams for Jefferson County. Shown below in Table DF-3, two are listed as High risk (Cat. 1A), and one is listed as Significant risk (Cat. 2), and two are listed as Low risk (Cat. 3).<sup>10</sup>

### History of Dam Failure in Jefferson County

Dam failure has not been a major concern for the residents of Jefferson County. There has been no history of lives lost, property loss, or other damage as the result of dam failures.

**Table DF-3 - Jefferson County Dams listed in the WA Department of Ecology State Dam Inventory**

Report Date Time: 2015-12-07 10:51 43

NAME OF DAM		NAME OF OWNER			STATE ID	NATIONAL ID	YR COMPLETED	HAZARD CLASS	
RIVER OR STREAM		IMPOUNDMENT NAME			LATITUDE	LONGITUDE	SEC TWN RNGE	WRIA	
DAM TYPES	RESERVOIR PURPOSES	CREST LEN	DAM HT	SURFACE AREA	STORAGE	MAX STORAGE	MAX DISCHARGE	DRAINAGE AREA	
<b>Dam Inventory for Jefferson County</b> <span style="float: right;">Counties: 39/39, Dams: 1166/1166</span>									
Big Lake Outlet Structure		Bce Development Inc			JE17-571	WA00571	1988	3	
Lower Chennault Creek		Big Lake			47.8948130 deg	122.809608 deg	T28 NR01 WS28	17	
RE	C	163 ft	15 ft	3.0 acres	10 acre-ft	65 acre-ft	23 cfs	0.32 sq mi	
Lords Lake East Dam		Port Townsend City, City Engineer			JE17-357	WA00357	1956	1A	
Tr-Howe Creek		Lords Lake			47.8808330 deg	122.931498 deg	T28 NR02 WS33	17	
RE	S	600 ft	42 ft	56.0 acres	1480 acre-ft	1860 acre-ft	190 cfs	0.50 sq mi	
Lords Lake North Dam		Port Townsend City, City Engineer			JE17-243	WA00243	1957	1A	
Tr-Howe Creek		Lords Lake			47.8877300 deg	122.937612 deg	T28 NR02 WS28	17	
RE	S	165 ft	40 ft	56.0 acres	1480 acre-ft	1860 acre-ft	250 cfs	0.50 sq mi	
Port Townsend Paper ASB Pond		Port Townsend Paper			JE17-726	WA00726	1976	2	
Offstream		Port Townsend paper ASB Pond			48.0931240 deg	122.805158 deg	T30 NR01 WS16	17	
RE	Q	4920 ft	33 ft	31.0 acres	550 acre-ft	615 acre-ft	0 cfs	0.05 sq mi	
Witter Dam		James M Kelly			JE17-1068	WA01068	1965	3	
Tr-Puget Sound		unnamed			47.9301610 deg	122.734325 deg	T28 NR01 ES07	17	
RE	R	310 ft	14 ft	5.0 acres	5 acre-ft	14 acre-ft	12 cfs	0.00 sq mi	

Source: Wa Dept of Ecology

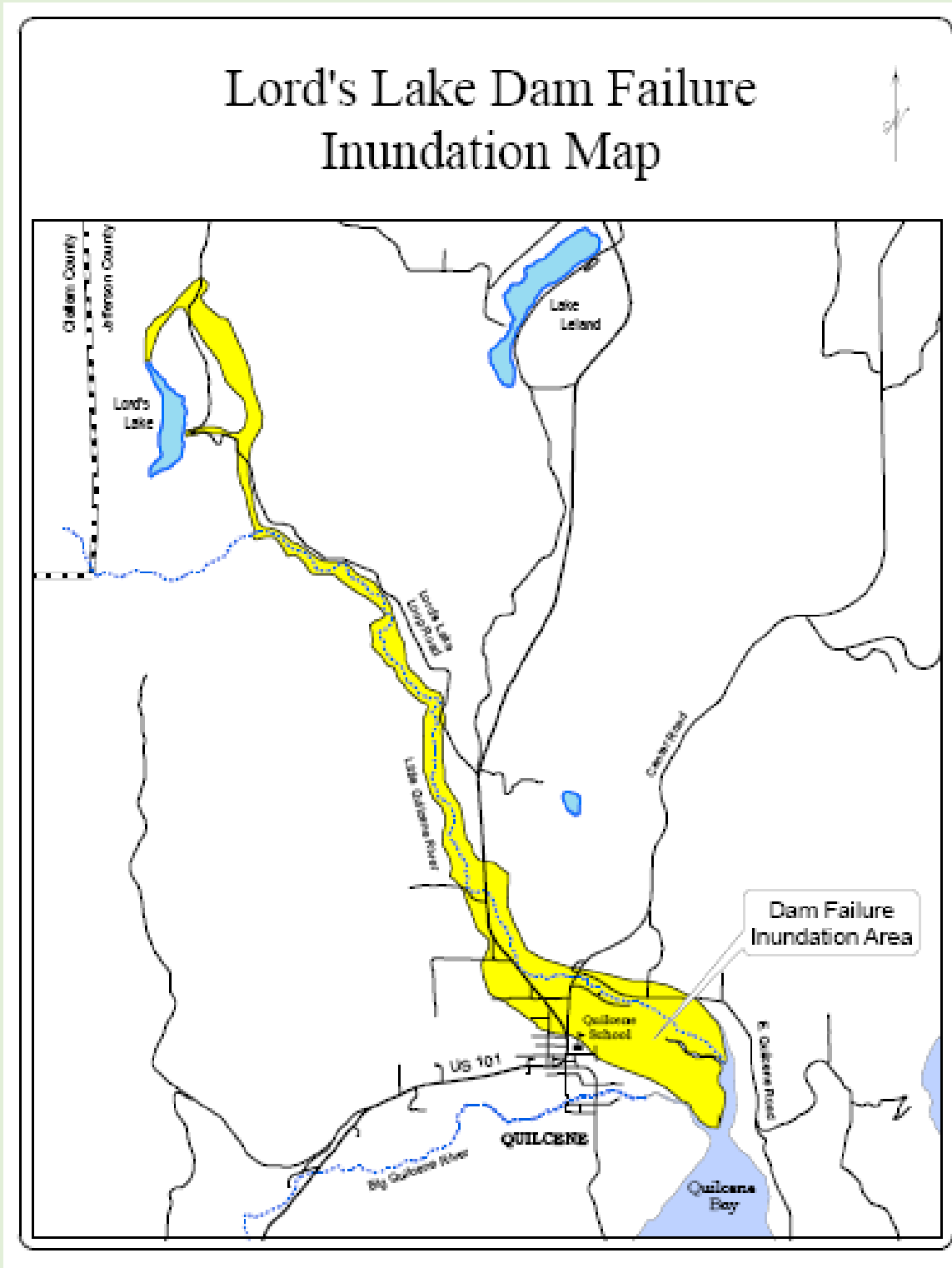
**HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT**

There are two publicly owned, and three privately owned dams of consequence in the county. Both publicly- owned dams are property of the City of Port Townsend. Morgan Hill Reservoir, which is at the highest point in the City of Port Townsend, also used to be on the list. It was categorized as a Category 1A, High Downstream Hazard Potential because it is in the middle of the city. It no longer meets state standards, so the reservoir is left dry and its risk of a downstream catastrophe is nil. The City intends to surplus the property in the future.

The Lords Lake East and Lords Lake North dams are categorized as having a “High Downstream Hazard Potential” with a population risk of 31 – 300. Economic loss that could result if these dams were to fail is rated as extreme with 11-100 inhabited structures downstream of the dam. High hazard dams (dams located upstream of three or more residences) are supposed to be inspected on a 6-year inspection cycle.

Figure DF-5, below, shows that a failure of the Lords Lake East Dam has the potential to inundate a significant portion of the Quilcene area of Jefferson County.<sup>11</sup>

Figure DF-5 – Lord's Lake East Dam Failure Inundation Zone<sup>11</sup>



Source: Jefferson County GIS



All of the State's 116 high hazard dams have previously been inspected, although during the years of 1999-2000, some of the inspections were deferred due to heavy workloads in plan reviews and construction inspections of new projects. Previous history, inspections, and information received by the Department of Ecology, however, indicated that Jefferson County's dams did not have significant safety deficiencies. As a result, the Washington State Department of Ecology's "2000 Report to the Legislature—Status of High and Significant Hazard Dams in Washington State with Safety Deficiencies" does not indicate that these dams have significant safety deficiencies.

In general, periodic inspections and follow-up engineering analysis are conducted to:

- Identify defects, especially due to aging
- Evaluate dam operations and maintenance
- Assess dam structural integrity and stability
- Assess the stability of dam structures under earthquake conditions

Inspections look not only at the dam, but also at the downstream development that has taken place to ensure that encroachment into the area project to be flooded in the event of a dam failure has not taken place. Such encroachment would change the hazard classification. The State Dam Safety Office is also attempting to examine smaller dams such as city's old reservoir systems. These dams were often built many years before stringent requirements were in place. The State Dam Safety Office is attempting to get these smaller dams on a schedule for comprehensive inspections and repair as well.

While the failure of projects with a high potential for loss of life and property is remote, the number of failures of low hazard projects that provide important infrastructure roles may be on the rise.

## Conclusion

Three state statutes deal with safety of dams and other hydraulic structures: Chapters 43.21A, 86.16, and 90.03 RCW. These laws provide authority to approve plans for dams but also to inspect hydraulic works and require appropriate changes in maintenance and operation. Periodic inspections are the primary tool for detecting deficiencies at dams that could lead to failure. Periodic inspections help identify dams where significant development has occurred downstream resulting in the need for more stringent building and planning codes due to greater population at risk. County building permits consider dams in the permit process.

It is noteworthy that a dam's classification can move from Significant Risk (Cat. 2) to High Risk (Cat. 1A), not because the dam is becoming structurally unsound, but rather because there is more development downstream that can be damaged in a breach.

## References – DAM FAILURE

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2. “*Dam Failure*”, Wikipedia, Accessed August 2016. Available at: [https://en.wikipedia.org/wiki/Dam\\_failure](https://en.wikipedia.org/wiki/Dam_failure)
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11. Lords Lake Inundation Zone, Jefferson County GIS, 2009.

## Tables - DAM FAILURE

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- DF-1 “*Jefferson County Dams Listed on the National Inventory of Dams*”, National Inventory of Dams, U.S. Army Corps of Engineers, NID Interactive Report, [http://nid.usace.army.mil/cm\\_apex/f?p=838:4:0::NO](http://nid.usace.army.mil/cm_apex/f?p=838:4:0::NO)
- DF-2 Downstream Hazard Classification

## Figures - DAM FAILURE

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- DF-1 Location of Port Townsend Paper ASB Pond, National Inventory of Dams, U.S. Army Corps of Engineers, CorpsMap, <http://nid.usace.army.mil/>
- DF-2 Location of Lords Lake East Dam, National Inventory of Dams, U.S. Army Corps of Engineers, CorpsMap, <http://nid.usace.army.mil/>
- DF-3 Location of Big Lake Outlet Structure, National Inventory of Dams, U.S. Army Corps of Engineers, CorpsMap, <http://nid.usace.army.mil/>
- DF-4 Location of Lords Lake North Dam, National Inventory of Dams, U.S. Army Corps of Engineers, CorpsMap, <http://nid.usace.army.mil/>
- DF-5 Lord's Lake East Dam Failure Inundation Zone, Jefferson County GIS Department.

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# HAZARDOUS MATERIALS INCIDENT<sup>1</sup>

## SUMMARY

**The Hazard:** “A **hazardous material** is any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.”<sup>2</sup>

**Impacts and Effects:** Any or all of the following could occur: illness and injuries, loss of life, first responders, population and workers at risk until abatement is effective; explosions resulting in destruction and fires; permanent loss of fishing, clam beds, and oyster beds from chemical spills; loss of recreation sites and tourism; potential contamination of water supplies, business closures; long term loss of property use; potential lawsuits tying up property and funding for years.

**Previous Occurrences:** Hazardous material spills occur frequently with varying degrees of response necessitated. The last significant response was in 2008 when a leak developed in a propane truck. Nearby restaurants and a school were evacuated and State Highway 19 was closed until the situation was brought under control.

**Probability of Future Events:** High – Hazardous material spills happen 25 – 30 times per year. Most are small and are not reportable. The State Department of Ecology requires spills to be reported if they are over 25 gallons.

**Definition:** The production, use, storage, transportation and disposal of hazardous material substances and wastes, places the public and the environment at significant risk. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the materials to escape its container, enter the environment, and create a potential hazard. The nature and extent of this risk is difficult to determine as the process involved in hazardous materials and toxic waste management are dynamic. Many federal laws and regulations exist to manage the manufacture, utilization, and disposal of hazardous materials.

“Hazardous materials are defined and regulated in the United States primarily by laws and regulations administered by the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC). Each has its own definition of a "hazardous material."

OSHA's definition includes any substance or chemical which is a "health hazard" or "physical hazard," including: chemicals which are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents which act on the hematopoietic system; agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible, explosive, flammable, oxidizers, pyrophorics, unstable-reactive or water-reactive; and chemicals which in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists or smoke which may have any of the previously mentioned characteristics. (Full definitions can be found at 29 Code of Federal Regulations (CFR) 1910.1200.)

EPA incorporates the OSHA definition, and adds any item or chemical which can cause harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. (40 CFR 355 contains a list of over 350 hazardous and extremely hazardous substances.)

DOT defines a hazardous material as any item or chemical which, when being transported or moved in commerce, is a risk to public safety or the environment, and is regulated as such under its Pipeline and Hazardous Materials Safety Administration regulations (49 CFR 100-199), which includes the Hazardous Materials Regulations (49 CFR 171-180). In addition, hazardous materials in transport are regulated by the International Maritime Dangerous Goods Code; Dangerous Goods Regulations of the International Air Transport Association; Technical Instructions of the International Civil Aviation Organization; and U.S. Air Force Joint Manual, Preparing Hazardous Materials for Military Air Shipments.”<sup>3</sup>

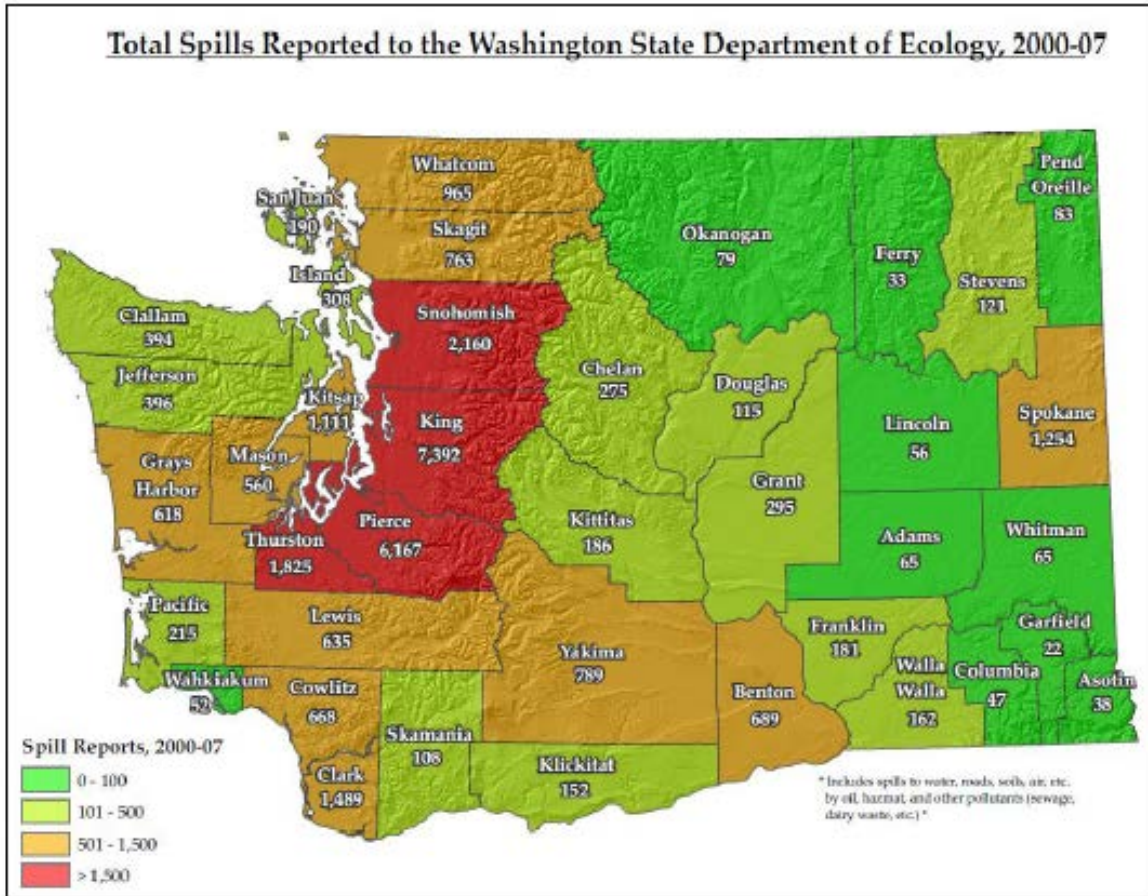
## History of Hazardous Materials Spills Affecting Jefferson County

Data reported to Jefferson County about occurrences happening to hazardous materials averages from 25 to 30 per year. Clean up is the responsibility of the spiller; however the spiller or waste-dumper may not be known. Occurrences have ranged from marine oil spills during bunkering operations to spilled fuel or oil on the road from accidents or overturned containers. Calls are received regarding illegal burning, propane leaks, illegal dumping, blasting caps, sewage, and many other various incidents.

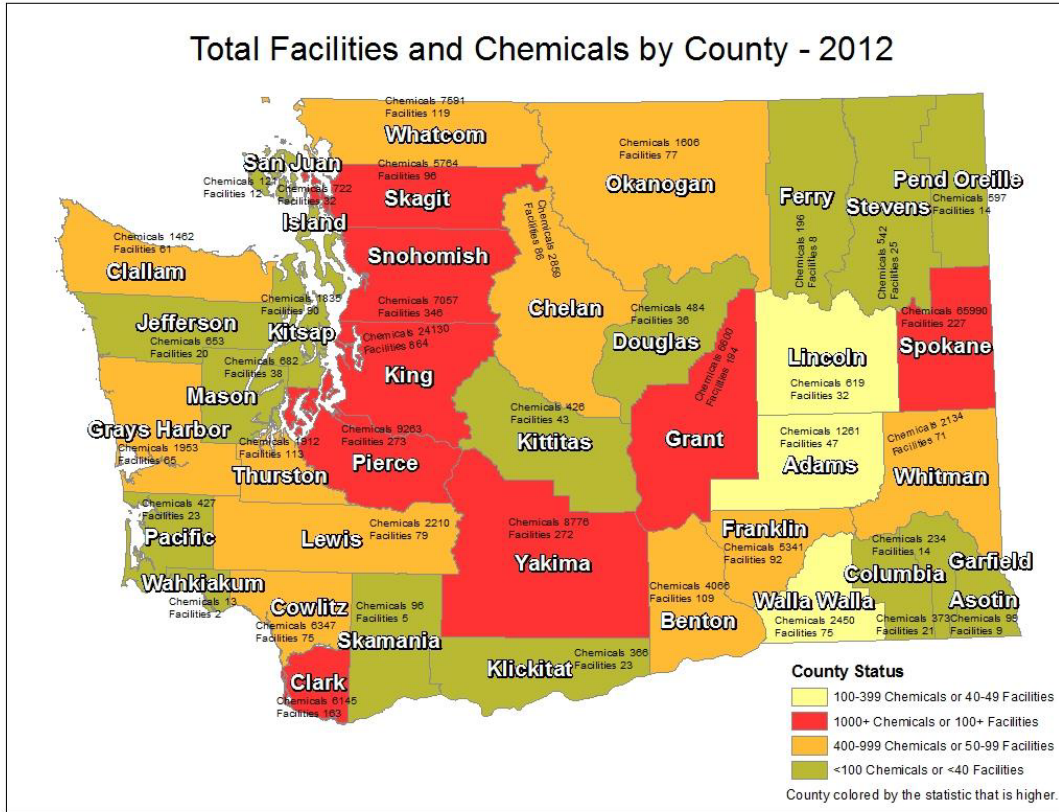
Figure HM-1 shows total reported spills by county for the period 2000 to 2007.<sup>4</sup> Jefferson County is among the lower risk counties, but probably because there are far fewer chemical facilities to present opportunities. Figure HM-2 shows the number of facilities and chemicals by county for 2012.<sup>5</sup>

### Figure HM-1 - Total Spills Reported by County for 2000 - 2007<sup>4</sup>





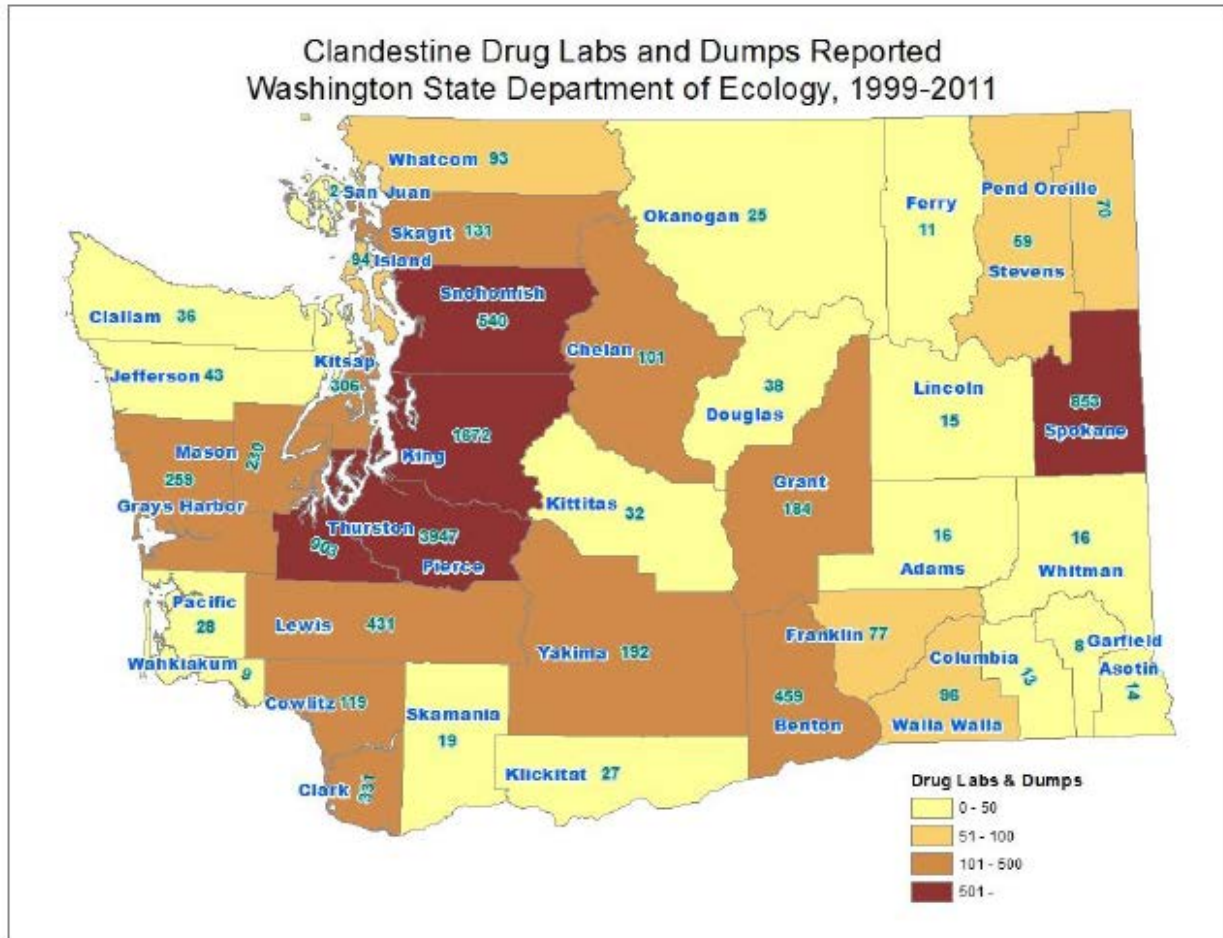
**Figure HM-2 - Facilities and Chemicals by County for 2012<sup>5</sup>**



During the Persian Gulf operations known as “Desert Storm” and during Operation Iraqi Freedom, several thousand tons of explosive passed through eastern Jefferson County between the Hood Canal Bridge and Naval Magazine Indian Island. The type of cargo that is loaded/offloaded at NAVMAG Indian Island is primarily ammunition (e.g., bombs, bullets and missiles). Contract trucks and trailers made several trips each day moving materials between Indian Island and Naval installations in Kitsap County. Trucks moving hazardous materials to Port Angeles and locations in Clallam County often also transit Jefferson County roads.

Illegal drug labs encountered by state and local agencies increased dramatically from 38 in 1990 to 1,890 in 2001 at its peak, to 92 in 2010. Ecology is responsible for handling and disposing of hazardous substances found at illegal drug lab sites.<sup>6</sup> The cumulative number for Jefferson County was 44 through 2012, the last year that Ecology has posted on its website. Figure HM-3 below shows the cumulative reports through 2011.<sup>7</sup> Table HM-1 breaks out the number of clandestine labs reported by year through 2012.<sup>8</sup> While the absolute numbers for Jefferson County look low compared to King County and the more heavily populated counties, Table HM-2 shows that the cumulative number of labs reported in the more rural counties of the Olympic Peninsula are actually higher on a per capita basis than for the urban areas.<sup>9</sup>

**Figure HM-3 - Clandestine Drug Lab and Dumps by County<sup>7</sup>**



Nearly all of Washington’s clandestine drug labs manufacture methamphetamine – also called *meth*, *crystal*, *crank*, or *speed*. Figure HM-4 shows the totals from Table HM-1 in graphic form. Law enforcement intelligence indicates the recent decline from 2001 through 2012 may correspond with inexpensive drugs manufactured in Mexico and entering the United States.<sup>10</sup> Heroin usage is on the increase again.

The less populated counties near good transportation routes provide havens for drug manufacture and transportation because they do not have the resources focus heavily on drug interdiction. This is exacerbated by the making of marijuana available legally for recreational use. It has encouraged “drug tourism” and an influx of transients looking for easy access to marijuana. This, in turn, has resulted in a degradation of community facilities as the parks and public areas become trashed with hazardous materials.

**Table HM-1 Drug Lab Reports 1990 - 2012<sup>8</sup>**  
**Department of Ecology - Spill Response**  
*Clandestine Drug Lab and Dump Site Cleanup Activity 1990 through 2012*

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL
Adams								1		1		3	4	4			1			2	2			18
Asotin										1	1	5	3	4						1				15
Benton				1		1	3	4	7	38	52	85	87	82	57	16	13	9	4				11	470
Chelan				1		1	1			2	14	34	15	13	9	3		6	1	1			1	102
Clallam					1	1	1	3	3		1	3	10	2	2		2	3	3		1		1	37
Clark	5	2	4	1	3	3	12	20	12	16	34	57	57	35	28	18	9	6	4	4	1	3	3	337
Columbia										1	3	2	1	4	1		1							13
Cowlitz			3	1		1	3	9	2	8	7	9	28	18	11	6	5	3	4	1				119
Douglas								1	1	6	5	7	4	8	6									38
Ferry										7	4													11
Franklin									1	8	10	15	11	13	14	3	1			1			2	79
Garfield										2			4	1		1								8
Grant			2			1				2	19	27	46	34	14	11	15			7	6		7	191
Grays Harbor	3	1		2	2	1	3	5	5	16	24	41	32	50	27	28	2	14		2	1	1	2	262
Island						1		1	2	5	1	5	5	14	18	5	6	4	4	4	22	2	1	96
Jefferson								1	1	2	7	6	4	12	2	1	5		1	1			1	44
King	6	10	2	7	7	10	23	17	48	107	231	271	241	202	199	123	63	42	37	16	11	5	7	1685
Kitsap	1	1	2	1			3		1	21	45	54	60	50	44	18	2	1	1		1	1	15	322
Kittitas				1		1			1	3		5	3	5	3	6		3			1		1	33
Klickitat				1		1	1	1	3		6	4	2	1		1	2	1	2		1			27
Lewis	3	1	1	2	3	4	7	9	31	33	43	61	83	67	30	22	14	3	5	6	3	1	2	434
Lincoln				1								5	3	2	1	1	1	1						15
Mason	3			2			4	4	10	21	32	30	22	15	32	32	6	4	7	3	3	1	1	232
Okanogan			1					2	3	2	2	3	3	1	4		3	1						25
Pacific						1		4	1	6	2	3	4	3	2	2							1	29
Pend Oreille				1				2	6	10	12	5	12	6	7	5	2					2		70
Pierce	10	18	18	12	17	17	53	42	129	318	545	589	438	466	542	349	148	76	71	56	35	16	14	3979
San Juan												1	1											2
Skagit				1		1			4	2	5	11	34	12	31	12	9	4	3		3	6		138
Skamania	1									2	1	2	3	3	1	1	2	2			1		1	20
Snohomish	2	2		2			7	6	5	13	37	69	83	98	102	43	14	15	12	19	11	8	1	549
Spokane					1	2	1	7	11	36	137	248	189	91	42	21	28	14	3	16	6	3	7	863
Stevens		1					1	1		5	4	15	10	3	5	5	3	2		3	1	1		60
Thurston	1	4	5	4	2	6	25	63	58	86	139	151	115	96	62	37	18	6	15	7	1		4	905
Wahkiakum										1		2	2	2		1	1							9
Walla Walla									2	8	12	16	15	16	9	4	1	8	2	3				96
Whatcom				1								5	9	24	25	14	6	2	3	4			1	94
Whitman											1	3	4		2	5				1	1			17
Yakima	3	3		2		1	5	1	2	12	14	36	43	27	7	9	7	7	2	10	1			192
<b>TOTAL</b>	<b>38</b>	<b>43</b>	<b>40</b>	<b>42</b>	<b>36</b>	<b>54</b>	<b>153</b>	<b>203</b>	<b>349</b>	<b>789</b>	<b>1454</b>	<b>1890</b>	<b>1693</b>	<b>1480</b>	<b>1341</b>	<b>809</b>	<b>390</b>	<b>237</b>	<b>184</b>	<b>186</b>	<b>95</b>	<b>46</b>	<b>84</b>	<b>11636</b>

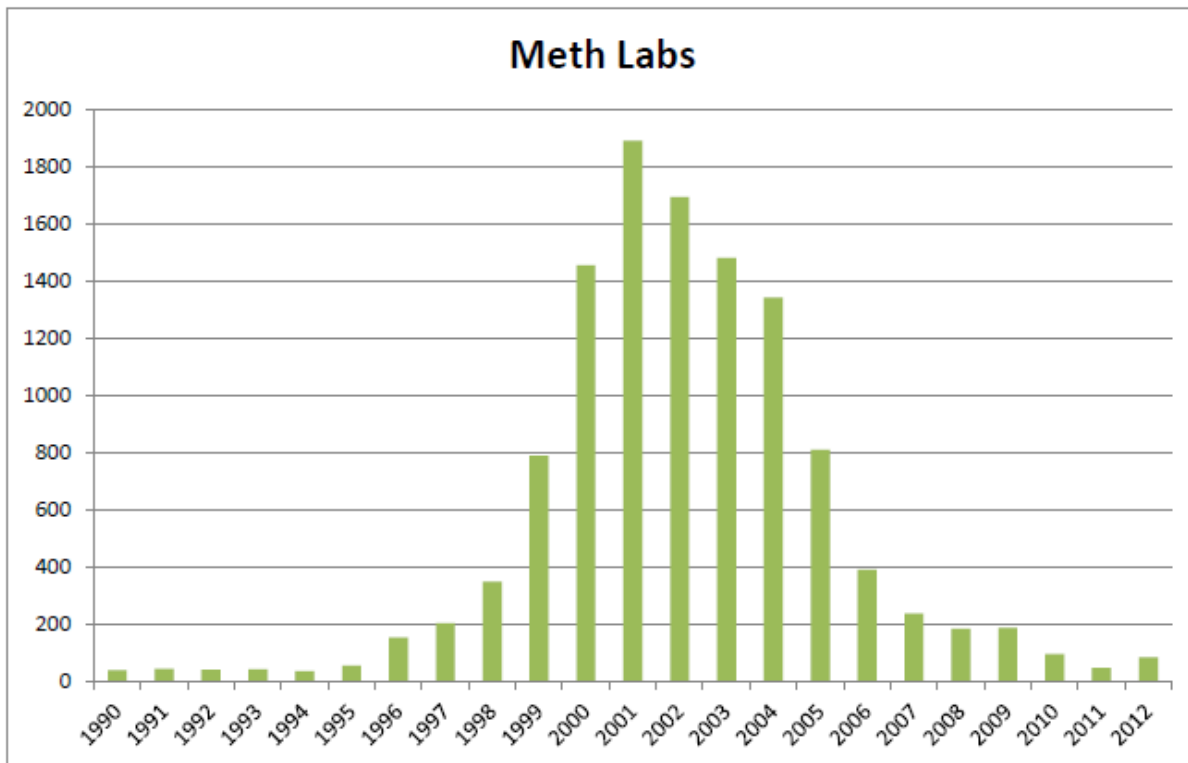


Table HM-2 - Drug Lab Reports Per Capita  
Olympic Peninsula and King County 1990 - 2012<sup>9</sup>

<b>Drug Labs Reported Per 1000 Population Olympic Peninsula and King County</b>			
<b>County</b>	<b>Meth Labs Reported 1999 -2012</b>	<b>Population 2011</b>	<b>Labs/Per 1000 Population 2011</b>
Clallam	37	72,000	0.51
Grays Harbor	262	73,150	3.58
Jefferson	44	30,175	1.46
King	1,685	1,957,000	0.86
Kitsap	322	254500	1.27
Mason	232	61,450	3.78

Source: Jefferson County Department of Emergency Management

Figure HM-4 - Meth Labs Reported by Year<sup>10</sup>



## Hazard Identification and Vulnerability Assessment

Areas at risk for hazardous materials transportation incidents lie along highways, pipelines, rivers, and seaport areas. These risks are compounded by natural hazards (e.g. earthquakes, floods, and severe storms). Each incident's impact and resulting response depends on a multitude of interrelated variables that range from the quantity and specific characteristic of the material to the conditions of the release and area/population centers involved.

The county Local Emergency Planning Committee (LEPC) was established under the provisions of the State and Federal law (The Community Emergency Planning and Community Right-to- Know Act-- EPCRA). The purpose of the LEPC is to coordinate the development of emergency plans and procedures for dealing with a hazardous materials incident. The committee's charter is to conduct hazard identification, vulnerability analysis, and risk management activities. Additionally, they are chartered to develop and maintain emergency response plans appropriate to hazardous materials based on the volumes and types of substances found in, or transported through their jurisdictions.

The risk of both spills and clandestine drug labs and usage is increasing as the recent oil boom results in oil transportation for export and the advent of recreational drug laws encourages the development of a drug production industry in the rural areas.

## Conclusion

The Hazardous Material Emergency Preparedness (HMEP) Grant of 1998 made it possible for Jefferson County to revise plans to address the mandates of the Superfund Amendments and Reauthorization Act (SARA) and EPCRA.

For major marine oil and hazardous material spills, the Northwest Area Contingency Plan (ACP) will be used for all responses. It combines the resources of the local, State, and Federal governments. Two Geographic Response Plans (GRPs) cover the shorelines of Jefferson County, specifically the Washington Outer Coast and Hood Canal/Admiralty Inlet. They include resource priorities, protection and clean-up strategies, and local logistical information.



## References – HAZARDOUS MATERIAL INCIDENT

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1. “*Hazardous Materials*”, The Hazard Identification and Risk Assessment (THIRA), Jefferson County Department of Emergency Management, 2011, pp. 58-59.
2. “*What are Hazardous Materials?*”, About IHMM, Institute of Hazardous Materials Management, Accessed August, 2016. Available at: <http://www.ihmm.org/about-ihmm/what-are-hazardous-materials>
3. Ibid.
4. *Figure 5.13-1 Total Spills Reported by County*, “Hazardous Materials Profile”, Washington State Hazard Mitigation Plan, Washington State Military Department, Emergency Management Division, October 2010, Tab 5.13, p. 10.
5. *Figure 5.13-0-4 County HazMat Facilities and Chemicals*, “Hazardous Materials Profile”, Washington State Hazard Mitigation Plan, Washington State Military Department, Emergency Management Division, October 2010, Tab 5.13, p. 6.
6. “Hazardous Materials Profile”, Washington State Hazard Mitigation Plan, Washington State Military Department, Emergency Management Division, October 2010, Tab 5.13, p. 11.
7. *Figure 5.13-9 Clandestine Drug Lab and Dumps Reported by County*, “Hazardous Materials Profile”, Washington State Hazard Mitigation Plan, Washington State Military Department, Emergency Management Division, October 2010, Tab 5.13, p. 11.
8. “*Clandestine Drug Lab and Dump Site Cleanup Activity 1990 through 2012*”, Programs, Washington State Department of Ecology, CountyTable 1990 to 2012. Accessed August 2016. Available at: [http://www.ecy.wa.gov/programs/spills/response/drug\\_labs/CountyTable1990%20to2012.pdf](http://www.ecy.wa.gov/programs/spills/response/drug_labs/CountyTable1990%20to2012.pdf)
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**Tables - HAZARDOUS MATERIAL INCIDENT**

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HM-1	Total Spills Reported by County for 2000 – 2007
HM-2	Drug Labs Reported per Capita for Olympic Peninsula and King County

**Figures - HAZARDOUS MATERIAL INCIDENT**

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HM-1	Total Spills Reported by County for 2000 - 2007
HM-2	Facilities and Chemicals by County for 2012
HM-3	Cumulative Drug Labs and Dumps Reported 1999-2011
HM-4	Drug Labs Reported by Year 1999 - 2011

## MAJOR FIRE ACTIVITY

### SUMMARY

**The Hazard:** Major fire activities are generally associated with urban settings, even in rural communities. Urban fires are fires in cities and towns with the potential to rapidly spread to adjoining structures. These fires damage and destroy homes, schools, commercial buildings, and vehicles. By “major”, we are excluding single structure fires unless they are of special note; we are including fires that were significant for their time.

**Impacts and Effects:** Any or all of the following:

- loss of life,
- loss of property,
- extensive damage to business and homes,
- overtaxed emergency response system,
- overtaxed healthcare provider system; and
- long term, costly cleanup of damage.

**Previous Occurrences:** Port Townsend has had its share of major fires. The most famous recent urban fire is the Aldrich Market Fire in which the oldest continuously operating grocery store in the state was destroyed in the City of Port Townsend in August of 2003. This was started by teenagers playing with fireworks in an outside stairwell. The building has been rebuilt, but condominiums have replaced the heritage seed business which occupied the second story. The seed company, which collected and propagated rare seeds from plants thought lost, had its entire collection destroyed. It never recovered from the loss.

**Figure MF-1 - Aldrich Market Fire**



Source: <http://www.burkedigitalpix.com/> © The Leader

Table MF-1, below, provides a look at how the city and nearby communities have fared with major urban fires.

<b>Table MF-1 Significant Fires in Port Townsend and Vicinity History</b>		
<b>Date</b>	<b>Name</b>	<b>Circumstances</b>
09/06/1885	Downtown Fire	Started in a blacksmith shop. Burned down all buildings (20) between Water, Washington, Taylor and Tyler streets <sup>1</sup> .
08/21/1886	Leland School House Fire	Embers from a near-by forest fire ignited the school house and burned it to the ground, along with the books and furniture. The school term, nearly over, was postponed indefinitely <sup>2</sup> .
06/17/1900	Uptown Fire of 1900	The entire block between Lawrence, Clay, Tyler and Polk streets burned down. Firefighters were delayed because a citizen who spotted the fire couldn't find the key to open the alarm box. Keys were kept at nearby residences at the time <sup>3</sup> .
09/24/1900	Downtown Fire of 1900	The entire block currently occupied by the west half of Memorial Field was burned to the ground after a fire was touched off by the carelessness of one of the city's "soiled doves." <sup>4</sup>
07/08/1914	The "Green Light" Fire	The fire originated in a house of ill repute behind city hall, about six feet from the old fire department headquarters. The "Green Light" was a total loss. The mayor had employees ready to remove city records if city hall caught fire <sup>5</sup> .
04/06/1923	W. H. Learned Opera House	Probably caused by a pyromaniac that was active that year <sup>6</sup> .
06/23/1923	Eisenbeis Hotel	Burned to the ground. Probably caused by a pyromaniac that was active that year <sup>7</sup> .
10/31/1959	Quilcene Halloween Fire	A fire broke out in the 71-year old Linger Longer Lodge at around mid-night on Halloween. Telephone lines were down, so the fire department wasn't notified and didn't arrive until it was too late to save the structure <sup>8</sup> .
12/27/1959	The Hill & Landes Fire	Two commercial buildings, the Hill & Landes building and the Sheehan & Seavey Building, were destroyed by a fire that breached their common wall <sup>9</sup> .
08/03/2003	Aldrich's Market Fire	Billed as the "worst commercial fire since 1959". Aldrich's Market was the oldest continuously operating grocery store in the state, having been founded in 1895. The fire was started by children playing with fireworks in an outside stairwell that led to businesses on the second story of the market. The <b>Heritage Seed Company</b> , which collected seeds from rare plants for propagation, lost all of its collection and went out of business. Aldrich's Market reopened in 2005, and continues to be the oldest grocery store in the state that has operated under the same trade name. <sup>10</sup>

**Probability of Future Events:** Moderate – Although Jefferson County and the City of Port Townsend have had major structure fires, conditions were not conducive to spread the fire to other buildings. County fire departments and the City of Port Townsend Fire Department have used rapid response, excellent training, and have exercised mutual aid agreements to prevent large fires from developing into a conflagration.

## Hazard Assessment and Vulnerability Assessment

Port Townsend is a Victorian Seaport with its business district listed in the Registry of National Historic Sites. For decades, nobody had the money to tear down or replace the structures that people were

abandoning during a local depression in the late 1800s, until it became fashionable to preserve and restore them. Thus many homes and buildings in this small city are over 100-years old, while many “newer” homes are easily over 50-years old.

Many homes and business structures were constructed prior to the time that construction and fire safety codes were in place and actively enforced. Many older residences are equipped with original wiring, making electrical systems a potential source of ignition. In older neighborhoods, houses are often very close together, lack sprinkler systems, and are conducive to rapidly spreading fire. A significant number of old industrial/business facilities have not been retrofitted with new electrical infrastructure or fire extinguishing sprinklers.

Regular fire inspection of residences is non-existent, however recent hiring of fire prevention specialists and fire code inspectors will go far in addressing this situation before it becomes a problem. Water systems in older residential areas are aging. Some systems may fail to meet demands for fire protection water availability. Land use planning and system upgrades must be addressed in these areas. Residential area roads are often narrow and prevent the response of adequate fire apparatus.

In areas where newer industrial and business buildings are located, these structures are reasonably secure from destruction in the case of a spreading urban fire. New industrial buildings are generally constructed of fire resistant materials, protected with automatic sprinkler systems, and have reasonable spacing between the structures. Although a major fire could occur in such facilities, it would not spread as quickly between neighboring structures. The Uniform Fire Code has required sprinklers in certain industrial and business buildings since 1985. As older buildings have been remodeled and reconfigured to accommodate shops and downtown hotels, they were required to meet more stringent fire codes as well.

Although Jefferson County and the City of Port Townsend have had major structure fires, conditions are no longer conducive to spreading the fire to other buildings. County fire departments, which have absorbed the City of Port Townsend Fire Department, have used rapid response, excellent training, and have exercised mutual aid agreements to prevent large fires from developing into a conflagration.

More stringent enforcement of fire codes has helped ensure reliability of the facilities’ defenses. As the county has grown, fire districts have become better equipped and have more paid full-time firefighters on the staff. Fire stations are still located great distances apart; however, much improvement has been experienced over the past decade.

Nevertheless, there are always scenarios in which firefighting resources can be stretched to their limits. Port Townsend has no gas pipelines, but it does have hundreds of propane tanks. It is not inconceivable to have an earthquake break the connections of many propane tanks and have several explode and cause fires. In addition, the earthquake could break the single water line from the city reservoir to Port Townsend and also damage the 5 million-gallon reservoir that the city currently uses. In one fell swoop, there could be multiple fires with casualties at the same time water to put out the fires is cut off. It is a low probability scenario, but one that is well within the bounds of possibility.

## Conclusion

Multiple structure fires are an ever-present danger in all parts of the county. Jefferson County needs to continue public education on fire safety, fire alarms, and fire response. The County must continue its efforts in ensuring fire codes are appropriate and enforced.

The current system to bring water to Port Townsend and to store it is being seismically retrofitted or replaced, depending on the conditions of the existing infrastructure.

## References – MAJOR FIRE

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4. Ibid., 237.
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6. Ibid.
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8. Ibid., 247
9. *Port Townsend The City that Whiskey Built*, Thomas W. Camfield, Ah Tom Publishing Inc., 2002, p. 289.
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## Tables - MAJOR FIRE

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MF-1            Significant Fires in Port Townsend and Vicinity History

## Figures - MAJOR FIRE

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MF-1            Aldrich Market Fire



# MAJOR LAW ENFORCEMENT ACTIVITY

## SUMMARY

**The Hazard:** Any incident that disrupts a community to the degree that police intervention is required to maintain public safety is a major law enforcement activity. In small jurisdictions, such as Jefferson County or the City of Port Townsend, this could be a hostage incident, bank robbery, bomb incident, civil disturbance or civil disorder, or a major natural disaster requiring significant control of an area. Many of the other hazards addressed in this Plan include a major law enforcement component in reacting to the event.

### Impacts and Effects:

- Loss of life
- Loss of property
- Closure of businesses
- Looting
- Arson
- Long term divisiveness in the community
- Adverse impacts on tourism and economic development
- Increased demands on law enforcement and emergency response resources
- Increased demands on mental health

**Previous Occurrences:** There are bomb scares at city and county schools two to three times a year, but none have been real so far. There are regular public displays of anti-war protest groups such as the “Raging Grannies”, but again, everything is normally orderly and friendly. In 2009, there was a double-homicide with arson to hide the crime.

**Probability of Future Events:** High – The increase of illegal methamphetamine production and distribution in rural areas such as Jefferson County serve to increase the probability of future incidents necessitating major law enforcement activity. By 2016, the prevalence of cell phone videos and the 24-hour news cycles on the internet exacerbated police mistakes and/or malfeasance across the nation until there was a violent national reaction from the black community to any police shootings. In some cities police are being ambushed and murdered. On August 14, 2016, there were reports of rioting and cars being set on fire in Milwaukee, Wisconsin as a reaction to a police shooting of an armed suspect after a police foot chase.<sup>1</sup>



© Calvin Mattheis / Milwaukee Journal Sentinel A car burns after violence erupted during a standoff between police and an angry crowd near N. 44th St. and W. Auer Ave.

### **Definition**

Any incident that disrupts a community to the degree that police intervention is required to maintain public safety is a major police activity, civil disturbance or civil disorder. Demonstrations, riots, strikes, public nuisances, domestic disputes, terrorism, and/or criminal activities can all fall into this category. The hazard could surface in any community, and can be sparked by disagreements ranging from simple family disturbances to political, racial, belief, social and economic differences

### **History of Major Police Activity in Jefferson County**

Jefferson County has not experienced the violence associated with riots occurring in nearby Seattle in the 1990s. In Seattle, a small-scale riot occurred after the 1992 Rodney King verdict. After the jury's decision was announced small groups of people roamed downtown Seattle streets smashing windows, lighting dumpster fires and overturning cars. In 1999, during the World Trade Organization Ministerial Conference, riots resulting in injury and death of participants and bystanders occurred. The City of Seattle declared an emergency and the Governor signed a proclamation of emergency allowing commitment of state resources to support affected local jurisdictions.

In 1998, the Washington State EOC was activated in response to the Makah Indian Nation proposed whale-hunting activities at Neah Bay. At the request of the Clallam County Sheriff, the State of Washington provided resources from the National Guard, Washington State Patrol, Department of Fish and Wildlife, Department of Natural Resources and Emergency Management Division to control disturbances between protestors and residents.



County High Schools including Port Townsend, Chimacum, and Quilcene have all had bomb scares and have had instances of students bringing weapons to school. Following the Columbine High School

experience in Colorado, such incidents have been approached with intense seriousness. Although nothing approaching the level of Columbine has occurred, school officials are aware and cognizant of the possibilities.

In 2009, a double-homicide with arson to cover up the crime in the Quilcene area became the focal point of major police and fire activity. The alleged perpetrator was caught within 24-hours, but the continued drain of law enforcement resources to process the crime scene and build a case had budgetary impact on county operations.

**June 2013** – A school employee doing maintenance at Blue Heron Middle School discovered a pipe bomb that had been brought to the school in the 1990s. He transported the device to the Port Townsend Police Station, which is housed in a former school building that now contains community service organizations. The police, the YMCA, Red Cross, food bank, city swimming pool, parts of the Port Townsend Library, and KPTZ-FM radio are all housed there and had to be evacuated until the Washington State Police bomb squad could be activated and transported to the scene – a two-hour trip from its station. The State Patrol bomb squad safely detonated the device.<sup>2</sup>

**Figure MP-2 – Pipe Bomb Incident – June 28, 2013<sup>2</sup>**

	
<p>A maintenance worker in a Blue Heron Middle School classroom found this pipe bomb on June 28. The worker transported the device to the Port Townsend Police Department at Mountain View Commons about 10:45 a.m. The campus was evacuated because of dangers associated with the device and hazardous chemicals that were also found at Blue Heron and transported to Mountain View. As of 1:22 p.m., the Washington State Patrol bomb squad had detonated the pipe device to destroy it. Photo courtesy Port Townsend Police Department</p>	<p>Walter Chartrand of a Washington State Patrol bomb squad works on analyzing a pipe bomb brought to the Port Townsend police station by a school district employee who had found it while cleaning science classroom storage at Blue Heron Middle School. Mountain View Commons was locked down and evacuated for several hours before the old pipe bomb was destroyed in a controlled explosion. Photo by Tristan Hiegler</p>

## **Hazard Assessment and Vulnerability Assessment**

Civil disturbances are divisive, often complex in their origin, and are possible in nearly every community in the nation. As the population continues to grow, so will the concentrations of ethnic groups, varied perspectives, and disparate economic status. Jefferson County has experienced a growth rate that has outpaced the rest of the State of Washington. Diverse philosophies exist in county residents. As the economy fluctuates due to economic realities of declining fishing and forest industries, emotions tend to run high. Tourism, a major source of revenue for county businesses could be affected by an increasing potential or the actual developments of civil disturbances.

The difficult economy combined with the smuggling of designer drugs through Canada and the increase in meth labs in rural areas increase the probability of criminal activity that requires a major law enforcement response. The Jefferson County Sheriff's Office has twenty deputies, and the City of Port Townsend has sixteen commissioned officers to cover an 1800 square mile county twenty-four-seven. During holidays or festivals, when man-power is ramped up to deal with a special influx of people, there is a limited additional surge capacity through personnel recall, activating all of the police volunteers and getting volunteers from nearby jurisdictions on a mutual-aid basis. In the event of an active shooter scenario, individual units of the Washington State Patrol may provide additional support, but specialized units such as a Swat Team or Armored vehicle take two-hours to be authorized, mount-up, and arrive in Port Townsend from their normal staging areas.

## **Conclusion**

The potential for major police enforcement activity exists in Jefferson County. Main participants might not be residents of the county. County law enforcement resources are aware and have practiced response scenarios if such disturbances occur. Even with a quick response, state and federal law enforcement support will not arrive to help for many hours.

Police actions that are considered fairly common and routine in large urban areas become major police activities in small rural communities. Serving a warrant, discovery of a pipe bomb, maintaining security at a major fire or festival – all can require resources from outside the agency because of limited personnel and sometimes because of specialized skill sets involved.

## References – MAJOR LAW ENFORCEMENT ACTION

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1. *“Uneasy Calm in Milwaukee after police shooting, protests”*, by Aaron Mak and Jacob Carpenter, USA Today, August 14, 2016.
2. *Old pipe bomb found in science room storage is exploded by WSP bomb squad*, by Tristan Hiegler of the Leader, Port Townsend Leader, July 3, 2013.

## Figures - MAJOR LAW ENFORCEMENT ACTION

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- ML-1 Photo of Burning Car in Milwaukee, Wisconsin by Calvin Mattheis / Milwaukee Journal Sentinel, August 14, 2016.
- ML-2 Pipe Bomb Incident - June 28 2013

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# MARINE OIL SPILL<sup>1</sup>

## SUMMARY

**The Hazard:** The release of toxic materials, oil and other petroleum discharges in particular, into the marine environment in sufficient quantities to put some portion of the public or the environment in immediate danger from exposure, contact, inhalation or ingestion.<sup>2</sup>

### Impacts and Effects:

- Illness and injuries
- Loss of marine flora and fauna, particularly endangered species
- First responders, population and workers at risk until abatement is effective
- Permanent loss of fishing, clam beds, and oyster beds from chemical spills
- Loss of recreation sites and tourism
- Loss of seafood processing jobs
- Potential contamination of water supplies
- Business closures
- Long term loss of property use
- Potential lawsuits tying up property and funding for extended periods
- Decrease in property values.

**Previous Occurrences:** Small occurrences happen every year. Most are below the reporting levels.

**Probability of Future Events:** High – The Admiralty Inlet is one of the most heavily used shipping lanes in the country.

### Definition

“An **oil spill** is the release of a liquid petroleum hydrocarbon into the environment, especially marine areas, due to human activity, and is a form of pollution. The term is usually applied to marine oil spills, where oil is released into the ocean or coastal waters, but spills may also occur on land. Oil spills may be due to releases of crude oil from tankers, offshore platforms, drilling rigs and wells, as well as spills of refined petroleum products (such as gasoline, diesel) and their by-products, heavier fuels used by large ships such as bunker fuel, or the spill of any oily refuse or waste oil.”<sup>3</sup>

The use, storage, transportation and disposal of hazardous petroleum material and wastes, places the public and the environment at significant risk. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the materials to escape its container, enter the environment, and create a potential hazard. The nature and extent of this risk is difficult to determine as the process involved in hazardous materials and toxic waste management are dynamic. Many federal laws and regulations exist to manage the manufacture, utilization, and disposal of hazardous materials.

## History of Major Spills in Washington and Jefferson County<sup>4</sup>

Data reported to Jefferson County about occurrences happening to hazardous materials average between 25 and 30 per year. Most are small. Spills under 10 gallons are not reportable.

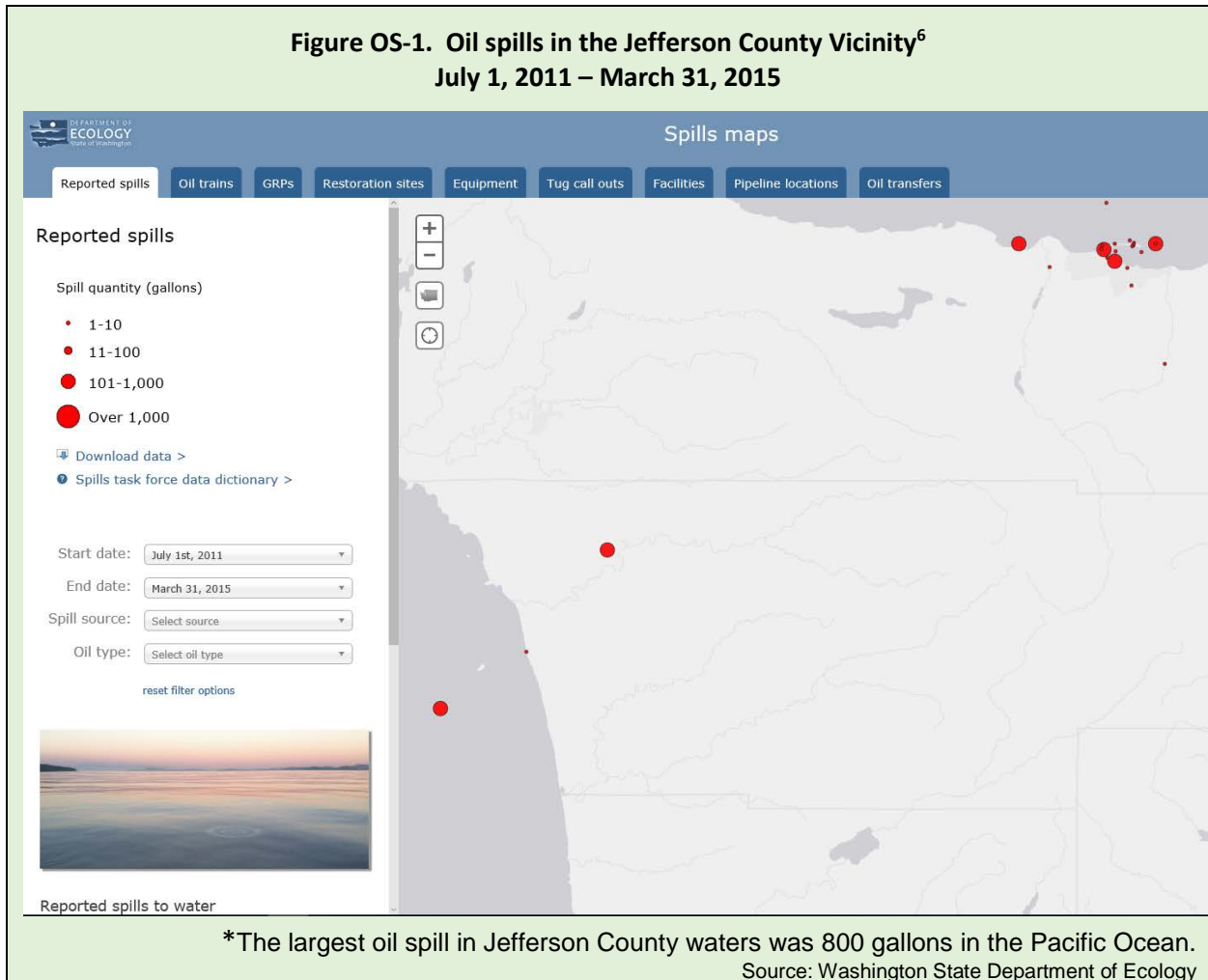
Clean up is the responsibility of the spiller; however, the spiller or waste-dumper may not be known. Occurrences have ranged from marine oil spills during bunkering operations to spilled fuel or oil on the road from accidents or overturned containers.

The following spills in Washington and vicinity waters are notable:<sup>5</sup>

- The 1985 *ARCO Anchorage* tanker spill in which 239,000 gallons of crude oil was released into marine waters at Port Angeles;
- The 1988 *Nestucca* barge spill which released 231,000 gallons of fuel oil into waters along the coast of Grays Harbor;
- The disastrous 1989 *Exxon Valdez* spill in Alaska which unleashed 11 million gallons of crude oil into Prince William Sound;
- The 1991 Texaco refinery spill at Anacortes which released 130,000 gallons of crude oil, of which 40,000 gallons went into Fidalgo Bay; and
- The 1991 spill at the U.S. Oil refinery in Tacoma which involved 600,000 gallons of crude oil, most of which was stopped from entering state waters.
- 2003 – Point Wells – Crews loading a tank barge with heavy fuel oil, overfilled the tanks and spilled approximately 4,700 barrels into Puget Sound. There was significant damage to the sensitive estuary.
- 2004 – Legislature passes a bill calling for a “zero-spill” strategy.
- 2004 – In October an unknown vessel spills 1,000 gallons in Dalco Pass, fouling 21 miles of shoreline. The Coast Guard eventually tracked the spilled oil back to the *Polar Texas*, owned by Arco.
- 2011 – In January of 2011, a derelict barge, the *Davy Crockett*, leaked fuel oil into the Columbia River near Camas during an unpermitted scrap metal salvage operation. Cleanup and the dismantling and removal of the barge cost \$23 million.

Figure OS-1, below, shows oil spills in Jefferson County waters from July 2011 through March 2015.<sup>6</sup> Since 2011, the only significant spill in Jefferson County waters has been 800 gallons of fuel from a recreation boat that developed mechanical problems off the coast.

**Figure OS-1. Oil spills in the Jefferson County Vicinity<sup>6</sup>  
July 1, 2011 – March 31, 2015**



Throughout the State of Washington, nearly 4,000 confirmed hazardous materials spills are reported each year. Illustrative data on the kinds, types and frequencies of Washington maritime spills over 10,000 gallons from 2002 to 2015 is shown below (Table OS-1<sup>7</sup>):

<b>Table OS-1. Maritime Oil Spills in Washington over 10,000 Gallons (2002 – 2015)<sup>7</sup></b>					
<i>Product</i>	<i>Volume</i>	<i>Date</i>	<i>Source Type</i>	<i>Cause Type</i>	<i>Medium</i>
Bunker C/IFO/HFO	270,000	08/25/2004	Vessel	Human Error	Marine
Gasoline	11,000	11/27/2003	Vehicle	Unknown	Fresh Water

Data on spills is received from many sources. The State Emergency Management Department advises the county on all reports received. These reports may come from other state agencies, private citizens or federal agencies

### **Oil Spill Readiness in Washington and Jefferson County**

As assessment of Washington’s capacity to respond to a large-scale oil spill (48,000 – 50,000 barrels) was prepared by the Washington Oil Spill Advisory Council in February 2009.<sup>8</sup>

Local responders were asked to identify the recovery systems they would use for a 50,000-barrel instantaneous release spill and a 48,000-barrel continuous release spill of 1000 barrels an hour for 48 hours. Key findings are:

- On-Water Capacity of the state is between 9,500 and 19,500 barrels of a 50,000-barrel instantaneous release during the first 48 hours.
- On-Water Recovery is greatly affected by environmental conditions and the availability of non-dedicated resources, such as equipment and personnel.
- Non-mechanical responses such as dispersant could treat between 1,400 and 8,000 barrels of a 50,000-barrel release using available resources. It could also interfere with on-water recovery by making the dispersing oil harder to collect.
- Burning could treat as much as 4,800 gallons of a 50,000-gallon spill.
- A 50,000-gallon spill could require thousands of trained shoreline cleanup personnel if conditions were “high-consequence”. Hundreds could be needed in a smaller spill under more favorable conditions. There is a maximum of 684 shoreline response personnel available in all of Washington.
- It is estimated that a major oil spill could oil up to 6,000 birds. Washington currently has the capacity to rehabilitate 100 birds, a few pinnipeds such as harbor seals, and up to 25 sea otters.

In short, we are woefully unprepared to deal with a major oil spill on our own. To that end, the best defense is a strong offense, so the Oil Spill Advisory Council advocated for a permanent response tug-boat to be permanently stationed at Neah Bay to assist vessels that are in trouble. A temporary tug-boat was stationed there in 2004.

In 2007, the Port of Port Townsend received funding for an Oil Spill Response Trailer, which is now stationed at the Boat Haven boatyard in Port Townsend. The trailer contains absorbent material and booms for control and recovery of marine oil spills. Local fire and Port of Port Townsend security personnel are trained to use the equipment.

The county Local Emergency Planning Committee (LEPC) was established under the provisions of the State and Federal law (The Community Emergency Planning and Community Right-to-Know Act--EPCRA). The purpose of the LEPC is to coordinate the development of emergency plans and procedures for dealing with a hazardous materials incident. The committee's charter is to conduct hazard identification, vulnerability analysis, and risk management activities. Additionally, they are chartered to develop and maintain emergency response plans appropriate to hazardous materials based on the volumes and types of substances found in, or transported through their jurisdictions.<sup>9</sup>

The Pacific Oil Spill Prevention Education Team, POSPET, evolved from the simple premise that small oil spills can add up to cause significant environmental and economic harm, and are a regional problem that can be remedied more effectively through collaborative projects drawing from existing talent and resources. For over a decade, POSPET has served as a forum for exchanging information and outreach ideas about prevention of oil spills and other boater best management practices while providing boat and marina operators with a consistent and accurate pollution prevention messages. POSPET members include representatives from state and federal agencies, industry associations, and nonprofit groups from Alaska, British Columbia, Washington, Oregon, California, and nationwide.<sup>10</sup>

## **Hazard Assessment and Vulnerability Analysis**

Key findings of the Washington Oil Spill Advisory Council (February 2009) indicated that the Jefferson County coastline (along with other county's coastlines) remains vulnerable to large-scale oil spills. These oil spills, which could result from shipping accidents or other maritime incidents could result in greater than 50,000 barrels of spilled materials.

Available resources for collection and recovery could meet only a fraction of the needs at this level. Available on-water recovery systems could handle anywhere from 9,500 to 19,500 barrels in the first 48 hours. Dispersants could treat between 1,400 and 8,000 barrels of a 50,000-barrel release. Hundreds of trained shoreline cleanup personnel would be required to clean up the release.

Historical data from the *Arco Anchorage* in Port Angeles Harbor, the *Tenyo Maru* which spilled oil along the entire Washington State shoreline with heavy concentration along the Makah Indian Reservation and Olympic National Park, and the *Nestucca* spilling oil from Grays Harbor north to the Olympic National Park shoreline provide important models for oil spill analysis. The 2001 International Oil Spill Conference received a report entitled "Assessing Environmental Impacts from a Puget Sound Spill" by Cindy Chen and Robert Neumann which utilized these historical spills as models<sup>11</sup>. The study notes that all spills are different, and the same quantity of oil spilled in two different locations, or under different environmental conditions, can have significantly different impacts. The report identifies several variables which could affect the severity of the impact to the environment:

- Spill location
- Spill quantity and oil type
- Time of spill (Natural resources of birds and salmon have the highest vulnerability in the spring of the year)
- Weather and currents

In 2007, the Port of Port Townsend received funding for an Oil Spill Response Trailer which is currently stationed at the Boat Haven in Port Townsend. The trailer contains absorbent materials and booms for control and recovery of marine oil spills. Local fire and Port of Port Townsend personnel are trained to use the equipment.

Annual exercises with the Port Townsend Paper Corporation address procedures and processes involved with major pollutants. These exercises involve joint coordination and cooperation between local emergency management officials, Port Townsend Paper Corporation, United States Coast Guard, recovery assets, and the Washington State Department of Ecology.

## **Conclusion**

For major marine oil and hazardous material spills, the Northwest Area Contingency Plan (ACP) will be used for all responses. It combines the resources of the local, State, and Federal governments. Two Geographic Response Plans (GRPs) cover the shorelines of Jefferson County, specifically the Washington Outer Coast and Hood Canal/Admiralty Inlet. They include resource priorities, protection and clean-up strategies, and local logistical information.

Legislative creation of the Oil Spill Advisory Council in 2004 led to advocacy for a permanent tug boat to be stationed at Neah Bay to assist vessels in trouble, particularly those laden with petroleum cargos. As of 2008, it was estimated that a contracted tug boat at Neah Bay had prevented 34 major incidents.<sup>12</sup> In 2009, congress approved funding for a permanent tug boat at Neah Bay. Also, in 2009, the governor of Washington proposed eliminating the Oil Spill Advisory Council as part of an effort to balance the state budget.

Due to inadequate oil spill response capabilities throughout the state, the Jefferson County coastline and Port Townsend Bay remain vulnerable to large scale oil spills.

Despite studies, exercises and planning, it is estimated that a major oil spill would be disastrous to the Jefferson County shoreline and to the economic viability of the entire area. Experiences in the Gulf of Mexico during 2010 pointed out the complexities and frustrations of rapid cleanup procedures required to prevent permanent damage to Jefferson County and adjacent counties.

The likelihood of Jefferson County experiencing a major oil spill is significant. The ability to quickly respond to ensure collection, recovery and cleanup is critical. At this point, major outside resources will be required to affect a swift and thorough cleanup and recovery from a major oil pollution event.



## References – MARINE OIL SPILL

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2. “*Marine Oil Spill – Major Pollution Event*”, The Hazard Identification and Risk Assessment (THIRA), Jefferson County Department of Emergency Management, 2011, p. 60.
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12. Oil Spill Advisory Council presentation to the Washington State Legislature, 2007.

## Tables - MARINE OIL SPILL

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OS-1 Maritime Oil Spills in Washington Over 10,000 Gallons (2002 – 2015)

## Figures - MARINE OIL SPILL

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OS-1 Oil spills in the Jefferson County Vicinity

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# MARITIME EMERGENCY<sup>1</sup>

## (Ferry Accident; Ship Collision)

### SUMMARY

**The Hazard:** In addition to the Puget Sound itself, the region contains many smaller bodies of water. These areas are vulnerable to shipping and boating accidents, as well as those involving ferries. Ferry accidents could result in a mass casualty incident that may be difficult to address, though the United States Coast Guard has the primary responsibility for safety and rescue on the open waterways. Major emergencies associated with freight vessels though, are more likely to result from collisions with other vessels or mechanical failures during severe weather.

#### Impacts and Effects:

- Possible loss of life
- Possible injuries to vessel occupants and to first responders
- Possible mass casualty incident
- Loss of vessel and/or cargo
- Loss of property of vessel passengers
- Threat to endangered species of both aquatic and airborne species from chemical or fuel spills resulting from the accident
- Possible contamination of commercial fishing grounds or shellfish farms
- Possible significant economic damage in limited sectors of the Jefferson County economy

#### Previous Occurrences:

**In 2005**, an escort tug veered in front of a single-hull oil tanker loaded with two million gallons of light fuel oil. The tug boat was rolled over multiple times by the collision, but no one was seriously hurt and no fuel was spilled.<sup>2</sup>

**In 2007**, the Director of Washington’s State Ferry System pulled the two ferries on the Port Townsend – Keystone run out of service on an emergency basis just before Thanksgiving week-end because the 80-year old vessels were considered to be too risky to run.<sup>3</sup>

**Probability of Future Events:** Moderate – Puget Sound and the Admiralty Inlet are some of the highest trafficked sea lanes in the United States. The Port Townsend Bay has traffic from the ferry system, submarines, navy and coast guard warships, commercial fishing vessels, occasional cruise ships, and many pleasure craft. At times, the rough seas can threaten the ferries or small vessels.

#### Definition

A maritime accident, for the purposes of the HIVA, would be one in which a vessel of significant size had an accident causing the loss of life and property to the extent that it required the activation of elements of the Jefferson County Department of Emergency Management to help respond. “Marine disasters can be roughly divided into the following four groups: collisions, weather-related events, fires, and infectious diseases. At sea communities are very small and resources are minimal compared to shore-side catastrophes so not much is required to turn a shipboard emergency into a disaster”.<sup>4</sup>

Jefferson County is bordered by the Pacific Ocean, Puget Sound, and the Admiralty Inlet as well as having smaller bodies of water such as Discovery Bay, Port Townsend Bay, and the Hood Canal.

These areas are vulnerable to shipping and boating accidents, as well as those involving ferries. Ferry accidents could result in a mass casualty incident that may be difficult to address, though the United States Coast Guard has the primary responsibility for safety and rescue on the open waterways. Major emergencies associated with freight vessels though, are more likely to result from collisions with other vessels or mechanical failures during severe weather.

### **History of Maritime Accidents in Jefferson County**

Jefferson County was once a major west coast seaport, and as such, has a rich history of maritime accidents. During the period from 1853 through 2002, there have been at least 27 major maritime accidents in the area from Protection Island through the Admiralty Inlet and down to Port Ludlow.<sup>5</sup> This included the steamship *Clallam*, which broke down in a storm, resulting in the deaths of 56 people who were in lifeboats that were launched into a riptide.

Many Washington maritime incidents occur along the Pacific Coast too. In adjacent Clallam County, for example, there have been at least 33 significant maritime accidents around Tatoosh Island off Cape Flaherty.



Figure ME-1: Unknown vessel aground near Tatoosh Island.

### **Hazard Assessment and Vulnerability Assessment**

Jefferson County waters and adjacent international sea lanes are traversed by freighters, oil tankers, cruise ships, submarines, warships, pleasure craft, and the occasional whale. Rough water in Port Townsend Bay often causes the cancelation of ferry runs. Figure ME-2 below illustrates why.



Figure ME-2: A Washington State Ferry experiences rough water in the Puget Sound.

The Puget Sound area is one of the busiest seaways in the nation with some many unique features:<sup>6</sup>

- It is 3500 square miles; larger than San Diego, Los Angeles, San Francisco, Boston, Miami, and New York combined.
- It has an international border with Canada.
- Over 5,000 deep draft ships transit each year.
- It contains the home ports for the Alaskan Fishing Fleet.
- It contains the Washington State Ferry System, largest in the nation with 500+ transits daily and over 20,000 passengers daily.
- 15 Billion Gallons of Oil are moved annually.
- 3<sup>rd</sup> Largest US Navy Strategic Port in the U.S.
- Recreational Boat Population of 1.3 million.

Given the volume of traffic and the mix of vessels, it is a wonder that there aren't more maritime accidents than there have been.

The Seattle Gateway Sector as control over Puget Sound vessel traffic in much the same way that air traffic controllers control the skies. The Northwest Maritime Center in Port Townsend is adding an "Alternate Gateway Emergency Operations Center" to its new building in Port Townsend to provide backup control if the primary center in Seattle goes down.

A rescue tug boat has been stationed at Neah Bay to provide assistance to vessels in trouble at the entrance to Puget Sound and its vicinity.

Several Jefferson County law enforcement and fire agencies have a limited water rescue and fire-boat capability. These programs are hampered by funding issues, so the equipment is old and their capabilities limited by size. Since the agency boats are not manned full-time, response times are contingent upon whether trained crews happen to be on duty with their respective agency at the time of a water related emergency.

## Conclusion

Although the waters around Jefferson County can be difficult, safety standards, the positioning of a safety tug boat at Neah Bay, and aggressive response by the USCG have kept the loss of life and vessels down. Nevertheless, the large volume of commercial and recreational vessels in the Puget Sound suggests that it is inevitable more maritime accidents will occur.

Local law and fire agencies train to respond to maritime emergencies, but have limited ability to deal with large maritime disasters.

## References – MARITIME EMERGENCY

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## Figures - MARITIME EMERGENCY

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- ME-1 Unknown vessel aground at Tatoosh Island. Unknown attribution.
- ME-2 A Washington State Ferry experiences rough water in the Puget Sound. Source: Internet

# MILITARY ORDNANCE INCIDENT<sup>1</sup>

## SUMMARY

**The Hazard:** The largest munitions depot on the west coast, Naval Magazine Indian Island (NAVMAG II), is located within the boundary of Jefferson County. Tens of thousands of tons of high explosives in the form of missiles, torpedoes, warheads, etc. are shipped in and out of the depot every year by ship and by truck. There is a possibility of an accident or incident detonating high explosives near a populated area.

### Impacts and Effects:

- Loss of life and injuries as a direct result of an explosion
- Fatalities and injuries as an indirect result of an explosion, e.g. from flying glass
- Destruction of property in the explosion radius
- Economic impact due to destruction of businesses within the blast radius
- Psychological trauma to survivors and residents
- Depending on the type of event, there may be hazardous residues that contaminate the area for long periods
- Economic impacts due to the loss of property values because of the perceived threat of living near NAVMAG Indian Island
- First responders, population and workers at risk until abatement is effective
- Explosions resulting in destruction and fires
- Permanent loss of fishing, clam beds, and oyster beds from chemical spills
- Loss of recreation sites and tourism
- Potential contamination of water supplies
- Business closures

**Previous Occurrences:** In 2008, a fully loaded semi-truck carrying 155mm munitions out of the base lost its brakes on a hill leading to the main gate of the navy base. A quick-thinking sentry raised the security bollards, which stopped the truck from entering onto the state highway fronting the base. There were no detonators with the munitions, so the threat of explosion was relatively low in this case.

**Probability of Future Events:** Low – NAVMAG Indian Island has a superb track record for safety. The 2008 incident caused the revision of protocols to prevent a recurrence. There have been no significant problems as of December, 2016.

### Definition<sup>2</sup>

FEMA defines hazardous materials in a broad sense to include:

- Explosive, flammable, combustible, corrosive, oxidizing, toxic, infectious, or radioactive materials
- that, when involved in an accident and released in sufficient quantities,
- put some portion of the general public in immediate danger from exposure, contact, inhalation, or ingestion.



The production, use, storage, transportation and disposal of hazardous material substances and wastes, places the public and the environment at significant risk. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the materials to escape its container, enter the environment, and create a potential hazard. The nature and extent of this risk is difficult to determine as the process involved in hazardous materials and toxic waste management are dynamic. Many federal laws and regulations exist to manage the manufacture, utilization, and disposal of hazardous materials.

An ordnance incident is the deliberate or accidental detonation of military ordnance, warheads, missiles, torpedoes, fuels, or any military related device or substance intended for the delivering high explosives or causing destructive explosions.

The largest munitions depot on the west coast, Naval Magazine Indian Island, is located within the boundary of Jefferson County. Tens of thousands of tons of high explosives in the form of missiles, torpedoes, warheads, etc. are shipped in and out of the depot every year by ship and by truck. There is a possibility of an accident or incident detonating high explosives near a populated area.

### **History of Military Ordnance Incidents in Jefferson County**

There have been no accidental detonations of military ordnance in Jefferson County.

**February 15, 2008<sup>3</sup>** – A shipping truck exiting NAVMAG Indian Island crashed into security bollards raised by the guards when the vehicle lost its brakes. The crash on February 15, 2008 happened just after 7 p.m. when a shipping truck transporting ordnance to the base crashed into one of the hydraulic security walls just inside the main gate.

Navy investigators determined that the 2003 Volvo truck and trailer, carrying 360 rounds of 155mm M107 projectiles, experienced a brake malfunction as it entered the base, causing it to crash into the movable wall used as a security measure.

According to an accident report from the Navy, no ordnance was damaged in the crash and no individuals were injured.

After the incident, a safety perimeter of 1,700 feet was set up, stopping traffic on state Highway 116 for more than an hour. The area remained closed until a Navy explosive ordnance disposal team arrived to inspect the truck and ordnance.

The team later determined it was safe to reopen the road.

The ordnance was offloaded and a tow truck was called to dislodge the truck from the barrier.

### **Hazard Assessment and Vulnerability Assessment**

Indian Island has its own security and fire department to handle incidents within the base. Vulnerabilities of the base to severe windstorms, and the potential of hazardous material accidents that could impact the communities around the bay necessitate inter-governmental cooperation at all levels. Depending on its nature, a catastrophic explosion could scatter radiologic debris.

Additionally, the trans-shipment of hundreds of thousands of tons of munitions, including spent Uranium projectiles, through the area periodically creates opportunities for protest groups.<sup>4</sup> Loaded munitions ships leaving the base sometimes sail within a few hundred yards of downtown Port Townsend because of tidal conditions.

During the Persian Gulf operations known as “Desert Storm” and during Operation Iraqi Freedom, several thousand tons of explosive passed through eastern Jefferson County between the Hood Canal Bridge and Naval Magazine Indian Island. The type of cargo that is loaded/offloaded at NAVMAG Indian Island is primarily ammunition (e.g., bombs, bullets and missiles). Contract trucks and trailers made several trips each day moving materials between Indian Island and Naval installations in Kitsap County. U.S. Pacific Fleet ordnance material flows from producers and procurement sites through Naval Magazine Indian Island to the Pacific Fleet.

Areas at risk for ordnance materials transportation incidents lie along highways, pipelines, rivers, and seaport areas. These risks are compounded by natural hazards (e.g. earthquakes, floods, and severe storms). Each incident’s impact and resulting response depends on a multitude of interrelated variables that range from the quantity and specific characteristic of the material to the conditions of the release and area/population centers involved.

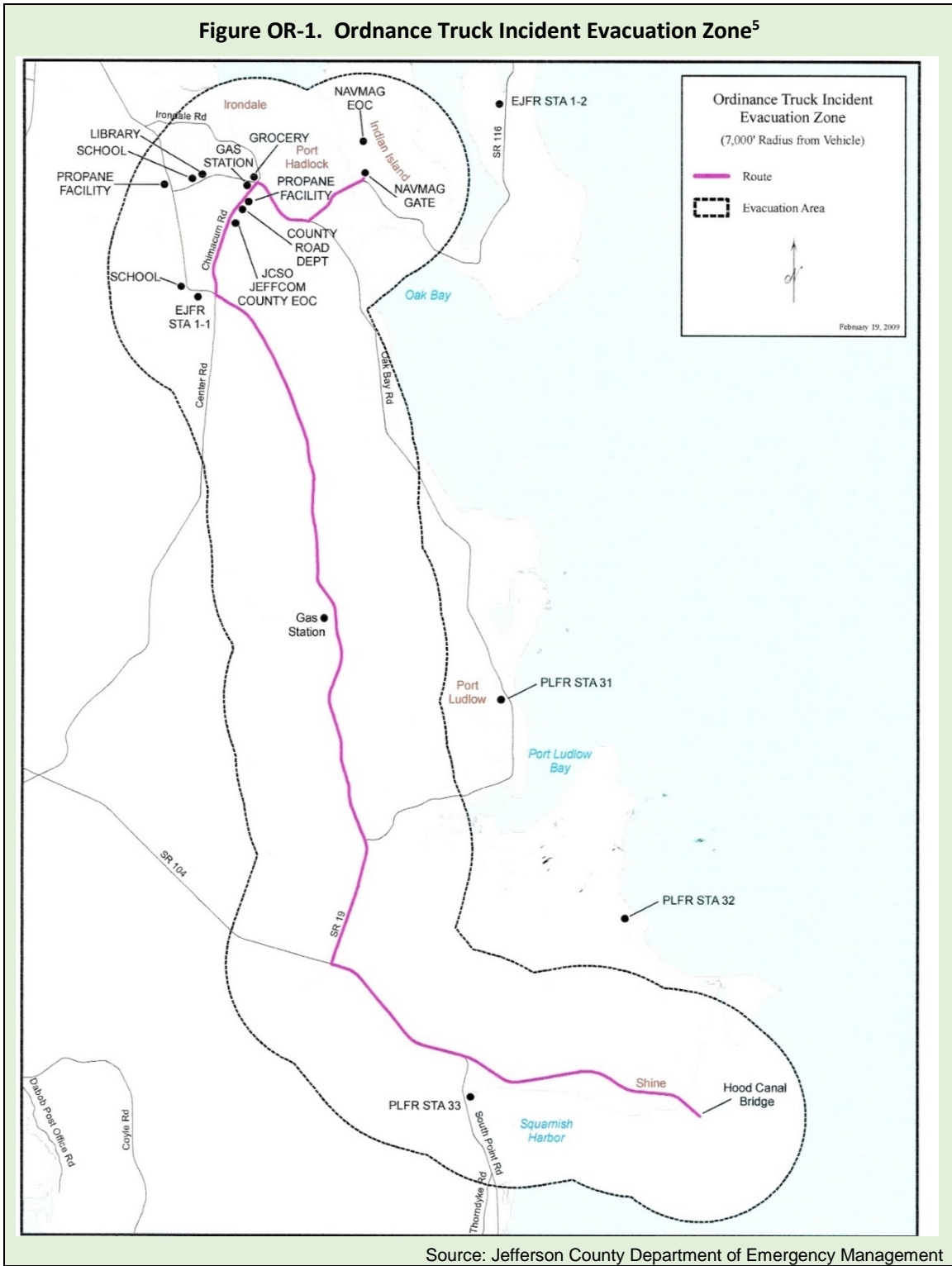
Figure OR-1 shows the route that trucks take from the Hood Canal Bridge to NAVMAG Indian Island. According to the National Counterterrorism Center (NCTC), a semi-truck fully loaded with high explosives needs an evacuation radius of 7000 feet.<sup>5</sup> Depending on where an ordnance truck had an accident, the evacuation radius could include the County EOC, 9-1-1 facilities, sheriff’s office and jail complex, two propane storage facilities, gasoline stations, two schools and a library. It is also possible to have an accident in which the evacuation radius would include both the NAVMAG EOC and the County EOC, thus necessitating transferring EOC operations to the Alternate EOC at the City of Port Townsend nine miles away.

## Conclusion

Jefferson County has convened its leaders to examine and more thoroughly understand existing emergency response processes, communication plans and methodologies. NAVMAG Indian Island conducts periodic Educational outreach presentations for the public. "We really wanted to reach those parts of the community who don't get a chance to get involved in what's happening in their area," said Melissa Kilgore, administrative assistant for human resources, financing and budgeting for NAVMAG Indian Island."<sup>6</sup>

Citizens, both public and private, must be prepared with evacuation or shelter-in-place plans for all hazards including ordnance incidents. Agencies should have critical incident plans outlining roles for school administrators, law enforcement, fire departments, and medical care providers. Agencies should coordinate their plans with each other to ensure that redundancies are addressed and to further the understanding and opportunities for cooperation by all potentially affected agencies.

A number of critical agencies are vulnerable to being affected by an ordnance truck accident and should have procedures and exercises predicated on having to move operations to the Alternate EOC.



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2. “*Hazardous Materials*”, SLG 101: Guide for All-Hazard Emergency Operations Planning”, FEMA, Washington D.C., September 1996, p. 6-C-1. Available at: <http://www.fema.gov/pdf/plan/6-ch-c.pdf>
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## Figures - MILITARY ORDNANCE INCIDENT

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- OR-1 “*Ordnance Truck Incident Evacuation Zone*”, Jefferson County Department of Emergency Management, 2009.

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# POWER OUTAGE – ENERGY EMERGENCY<sup>1</sup>

## SUMMARY

**The Hazard:** Electricity may be interrupted due to drought, earthquake, major destruction of power transmission lines. They can develop quickly due to storms or an earthquake, or they may develop slowly such as when world politics might produce shortages.<sup>2</sup> Only very rarely do power outages escalate to disaster proportions, however, they often accompany other types of disasters, such as severe winter storms and floods, which hampers relief efforts. Electromagnetic pulses and voltage spikes from high altitude nuclear blasts (HEMP), deliberate satellite attacks, or natural Carrington events can also damage electricity infrastructure and electrical devices.<sup>3</sup> Cyber-attacks can bring down the power grid by interfering with control systems.

### Impacts and Effects:

- Imperilment of life due to the inability to provide life-support services, e.g. an oxygen concentrator at home
- Imperilment of life due to the inability to produce heat or cooling during adverse weather periods
- Loss of communications
- Disruption of critical services
- Endangerment of property due to catastrophic failure of systems dependent on power
- Extreme hardship for elderly and special needs population
- Loss of refrigeration and losses from spoilage
- Loss of water resulting from inability to run electric pumps
- Potential failure of waste removal systems
- Disrupted fuel supplies
- Loss of business and revenue
- Banking systems are disabled
- Shortage of food supplies as stores close
- Communication systems disrupted as battery backups are depleted
- Higher costs for electricity
- Higher costs for petroleum products
- Alarm systems disabled, potential for criminal acts increased
- Law enforcement and emergency response teams challenged with increased traffic accidents with non-working traffic lights
- Limited patient care as emergency generators become overtaxed

**Previous Occurrences:** There have been a few “major” occurrences in Jefferson County, but none that could be considered catastrophic in that they were localized and individual emergencies were manageable with local and regional resources:

- After the Columbus Day storm in 1962, there were areas in Washington that were without power for two to three weeks.
- During the summer of 1996, problems with line loading caused major regional power outages along the west coast. Storms have also caused power outages ranging from hours to 3-4 days in areas of

Jefferson County. Electrical power shortages also occurred during 1973-74 and in 1977-due to drought conditions.

- Following the “Super Bowl Storm” in 2006, Port Ludlow was without power for three days when major transmission lines were damaged in the high winds of accompanying that storm.
- The last significant occurrence in Jefferson County was on December 31, 2008, when severe winds broke a Bonneville Power Feeder line cutting off power to 2/3 of the Jefferson County population. Power was restored within hours through a work-around, but the line itself was not fully repaired for many days.

**Probability of Future Events:** High – Severe winter storms combined with above-ground power lines in forested areas makes power outages a regular recurring event. Whether any given outage becomes an extended outage is a function of the severity of the problem, its physical location, and the environmental conditions during the event.

### **Definition:**

A power outage is an interruption of normal sources of electrical power. Short-term power outages (up to a few hours) are common and have minor adverse effect, since most businesses and health facilities are prepared to deal with them. Extended power outages, however, can disrupt personal and business activities as well as medical and rescue services, leading to business losses and medical emergencies. Extended loss of power can lead to civil disorder, as in the New York City blackout of 1977. Only very rarely do power outages escalate to disaster proportions, however, they often accompany other types of disasters, such as hurricanes and floods, which hampers relief efforts.<sup>4</sup>

Although there are no statutory definitions of an extended power outage, the Washington Administrative Code (WAC) 246-293-660 sets the minimum standards for water system reliability by defining a power outage as a minimum of 30 minutes.<sup>5</sup> It indirectly sets the outage standard for power utilities as averaging less than four hours per outage, with three outages or less per year over a three-year period. Not more than one outage per three-year period can exceed eight hours. From this we can infer that an extended power outage is anything over eight hours long.

Other jurisdictions define an extended power outage as one which puts “the comfort and safety” of its citizens at risk. “Comfort and Safety” means an ambient temperature that minimizes residents’ susceptibility to loss of body heat and risk of hypothermia or susceptibility to respiratory ailments and colds.

### **Hazard Assessment and Vulnerability Assessment**

Puget Sound Energy (PSE), the power provider up until 2010 had a history of major power outages, typically caused by large storm events. Power outages have lasted as long as 9 – 10 days in some areas of the county. During storms accompanied by cold winter temperatures, power outages have been problematic and dangerous for special needs populations and the elderly.

The Jefferson County Public Utility District Nbr. 1 (JPUD), the current power provider for East Jefferson County, purchased the power assets from PSE in 2010. It is attempting to mitigate the potential for extended power outages by creating more of a presence in Jefferson County to work with consumers, and establishing closer relations with the Jefferson County Department of Emergency Management to improve communications during power outage events. JPUD purchased the power related assets from Puget Sound Energy in on April 1, 2013, and took over the power distribution responsibility from them. Its strategy was



to keep the power distribution at a local level rather than with a non-local provider, but the production assets are still from the outside, primarily the Bonneville Power Authority.

Loss of a major distribution system due to damage or an act of terrorism on the grid could cause power outages for several hours to several days. Loss of refrigeration and water sources that require electrical pumps could present major health issues. Loss of electricity to power gas stations could affect the fuel supply. With power outages, retail food outlets would be closed, alarm systems could be disconnected, and eventually emergency communication systems and cell phones would be affected after the battery life of backup systems was expended. Back-up generators would be at risk for breakdown following extensive utilization.

Long-term power outages due to drought or failure at a hydroelectric generation station could present problems. The power distribution systems that currently exist are designed to help prevent major power outages for long periods of time. Washington State is connected to a regional transmission grid that has major connections with other grids out-of-region, including British Columbia, Montana, California, and other southwest states.

In general, if Washington is short of electricity due to drought and low water levels in reservoirs powering hydroelectric generating plants, electricity can be purchased elsewhere. The result is higher cost electricity, rather than inadequate supply. Utility companies build on an “N-1 capacity”. This means the utility is prepared for one of each kind of line to go down without a disruption in service. If two of the same type of lines goes down, some may lose power. In the 1996 event, Portland was forced to take everything off line to avoid melting of transmission lines from the overload of power. Even with the grid system, however, voluntary curtailment and conservation must be practiced. The Washington State Curtailment Plan for Electric Energy (WAC 194-22) describes a 5 stage plan for power curtailment with each level representing a more severe shortage that require sterner steps.

Most of the out-of-region power is thermal; it is not affected by drought. In fact, a shortage of electricity over the long term is not a major concern in Western Washington since a substantial amount of electricity is transmitted from Canada to California via Washington and Oregon, therefore providing easy access to external power supplies. Hot weather and increased use often associated with droughts can be a concern for electric utilities, however. Increased loads cause electric lines to heat up; when lines get too hot, they sag. Sagging lines into trees and other vegetation is a major concern and therefore loads must be monitored to control sagging.

Jefferson County is vulnerable to localized, short-term energy emergencies brought about by accidents, terrorism or storms. Most of these energy emergencies can be handled by the utility companies. The effects of energy shortages could include inconvenience to consumers, reduced heating and lighting capability, reduced production in all sectors, potential failure of transportation, water and waste, communication, information, and banking systems. Secondary hazards associated with these events could include traffic accidents as traffic lights are out, limited patient care at the hospital due to power capabilities of backup generators, injuries due to downed power lines, and closure of retail operations including food stores, gas stations, restaurants, and other stores. Energy emergencies can seriously hamper emergency response capabilities and should be planned for.



09/02/2015 Fire in Mason County Cuts Electric Service to Over 2000 Jefferson County Customers.

Submitted photo to the Port Townsend Leader

**Terrorism and the Grid:** There are three levels of terrorism to deal with when discussing the grid: physical, cyber, and pulse. A particular attack may involve one or more of these types of attack.

**Physical Terrorism:** On April 13, 2013, unknown individuals attacked the Pacific Power & Light Metcalf Transmission Substation near San Jose, California. These saboteurs lifted a heavy vault lid to a vault carrying AT&T fiber optic cables. Within 30 minutes of cutting the cables and knocking out communications, they attacked the transmission substation and knocked out 17 transformers in 19 minutes by firing AK-47 assault weapons from outside the locked perimeter. They left the scene one minute before police units arrived. The Metcalf Substation provides power to Silicon Valley.<sup>6</sup>

Power was rerouted from other areas and producers to keep Silicon Valley going, but it took 27 days to get the substation back in operation. Jefferson County PUD substations have the same kind of vulnerability to physical attack.

**Cyber-terrorism:** In 2008, the U.S. and Israel cyberattacked the Iranian Nuclear program using the *Stuxnet* virus. Shortly thereafter, Iran retaliated with a cyberattack against the Aramco Oil company in Saudi Arabia, destroying 30,000 of its computers. The attack on the Iranian program was accomplished by introducing the “worm” into the SCADA system causing the uranium purification centrifuges to tear themselves apart. That SCADA system was manufactured by Siemens as is most of the SCADA systems used by the power industry in the United States.<sup>7</sup>

**Pulse Attack:** High Altitude Electromagnetic Pulses (HEMP) can be used to damage the grid over a wide-scale area.<sup>8</sup> A HEMP attack would most easily be from a high-altitude nuclear detonation, but could also be from a non-nuclear device or a satellite. A detonation at 400 km high can send a pulse that covers the entire continental United States. Damage to electrical equipment would be highly variable and depend on physical location, whether equipment was powered on, etc. The ability of the United States power grid to withstand such an attack would depend on whether equipment was on, the topography of the location (mountain shadow), and a myriad of unknowable things occurring at the time. See “Carrington Event” below for what the levels of electromagnetic pulses can do.

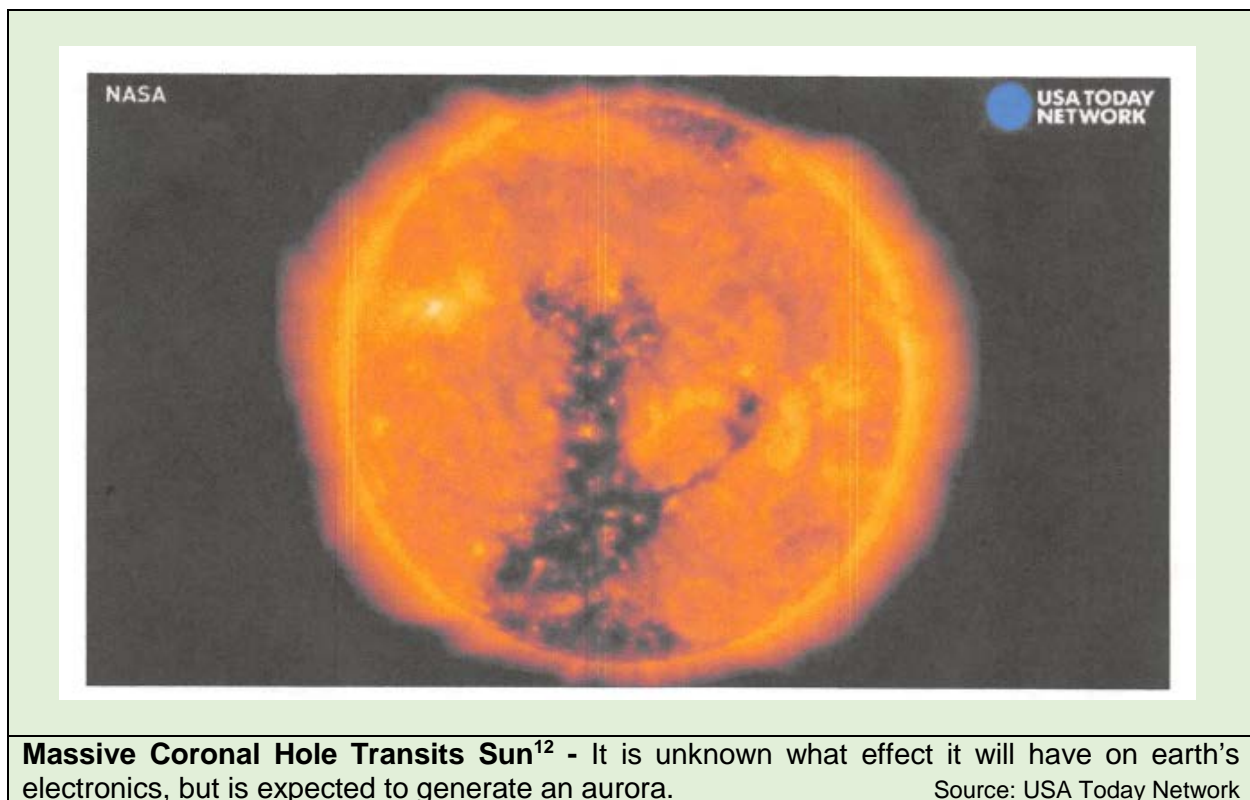
**Carrington Event:** Not to be outdone by mere terrorists, our sun can produce a “pulse attack” that can take out the entire world. A “Carrington Event” is a Coronal Mass Ejection (CME) from the sun that results in a solar geomagnetic storm that can easily take out electric grids and electronics. Such an event is named after amateur astronomer Richard Carrington, who observed the phenomena on September 1, 1859, the largest such geomagnetic storm ever recorded. Even back then, telegraph equipment caught fire, the auroras turned night into day, and some telegraphers were shocked. Ice core samples have determined that the 1859 event was the largest in the last 500 years.<sup>9</sup>

NOAA has developed a “Space Weather Scale” to rate geomagnetic storms along with other types of phenomena. Figure PO-1, below, presents the Geomagnetic Storm portion to illustrate the kinds of damage that an EMP pulse can do:<sup>10</sup>

**“A G3 - Strong geomagnetic storm conditions were observed beginning 05:59 UTC on May 8, 2016.** Power system voltage irregularities are possible, false alarms may be triggered on some protection devices. Spacecraft systems may experience surface charging; increased drag on low Earth-orbit satellites and orientation problems may occur. Intermittent satellite navigation (GPS) problems, including loss-of-lock and increased range error may occur. Radio - HF (high frequency) radio may be intermittent. Auroras may be seen as low as Pennsylvania to Iowa to Oregon.<sup>11”</sup>

**On January 22, 2017, USA Today reported the NASA Space Weather Station observed a massive coronal hole transiting the sun.<sup>12</sup> The following link contains the video of that transit:**

<http://www.msn.com/en-us/video/wonder/watch-massive-coronal-hole-rotate-across-suns-surface/vi-BBy4Vry?ocid=spartandhp>



### **The Impact of Long Term Power Outage**

The most immediate impact of extended power outages is the potential for loss of life due to medical devices at home failing, or temperatures reaching hot or cold extremes because of the loss of heating/cooling capabilities resulting in vulnerable people being placed at risk. As time progresses without the restoration of power, families began to incur economic damage from the loss of food stores in their refrigerators and freezers, or from having to travel to and pay for commercial shelter such as a hotel.

Retail establishments experience loss of business due to their operations not being able to function during the outage. Those businesses with back-up power incur extraordinary costs in producing their own power until the extended outage is over.

Particularly long outages can impact water supply and create other issues as emergency power capabilities break down from extended use, thus requiring extraordinary efforts to maintain normalcy.

Outages lasting into the months can result in the breakdown of civilization locally and migration to areas of support.

All of the above effects result in economic and revenue losses for county residents, and the state.

### **Climate Change**

Washington State relies on hydropower for nearly three quarters of its power and sales to households use 54% of that.<sup>13</sup> Climate warming will have a negative impact on both supply and demand of electricity throughout Washington.

The biggest factors determining the effects on electricity are annual temperature changes and the change in peak snowpack melt and stream flow.<sup>14</sup> The Northwest Power and Conservation Council predicts a 300 megawatt (about 1% of Washington's generating capacity) reduction in demand for each degree the temperature rises.<sup>15</sup>

Increased stream flows from early snowpack melt could result in higher power supply in the spring when demand is down due to warming conditions, and lower power supply in the summer when demand is highest due to more hot days and the demand for air conditioning.

Higher demand for lower power supply can lead to brown-outs, black-outs, rate increases, and the cost of living and doing business in Washington going up.

Table PO-1 provides NOPRCD's projection for temperature increases in the Olympic Peninsula due to global warming.<sup>16</sup>

**Table PO-1 – Temperature: Trends and Extremes<sup>16</sup>**

Temperatures	Observed Changes	Future Projections
Averages <i>(for Pacific Northwest)</i>	Warmed 1.3°F (1895-2011)	By 2050's – increases of 4.3°F (lower emissions), to 5.8°F (higher emissions)
Extremes	Increase in nighttime heat events.	Slight increase in days over 90°F (8 ± 7 days) for PNW with limited increase in days over 95°F on the Olympic Peninsula. Frost-free season increases + 35 days across Pacific Northwest.

Source – NOPRCD Report

Global warming notwithstanding, the Northwest Power and Conservation Council issued a warning that the loss-of-load probability will approach 10% in 2021 due to the retirement of several coal plants. In this scenario, the region will need over 1,000 megawatts of new capacity to maintain adequacy.<sup>17</sup> If there is any significant increase in in summer heat waves or severe winter storms, there will be an increase in demand for power to run air conditioners or heaters, just when the region is losing it.



**Conclusion**

Because of its location, Jefferson County is at risk for severe wind and winter storms that are capable of causing extended power outages. Not all critical facilities have back-up power, while others have diesel or gasoline back-up generators that can eventually run out of fuel. If the event causing the power outage has also damaged arterial highways, fuel resupply may not be available, thus causing secondary power outages two to three days after the initial outage as back-up generators fail.

Several fire stations have back-up generators that run off of 1000-gallon propane tanks, and can last for weeks during winter weather. Power outages caused by a wide-scale event such as an earthquake would severely hamper relief efforts and exacerbate the enormity of the event.

The Jefferson County Public Utility District Nbr. 1 (JPUD), the power provider for East Jefferson County, is attempting to mitigate the potential for extended power outages by creating more of a presence in Jefferson County to work with consumers, and establishing closer relations with the Jefferson County Department of Emergency Management to improve communications during power outage events. JPUD purchased the power related assets from Puget Sound Energy in 2010, and took over the power distribution responsibility from them.

Figure PO-1 – Geomagnetic Storm Scale<sup>10</sup>

## NOAA Space Weather Scales

Category		Effect	Physical measure	Average Frequency (1 cycle = 11 years)
Scale	Descriptor	Duration of event will influence severity of effects		
<b>Geomagnetic Storms</b>				
<b>G 5</b>	Extreme	<b>Power systems:</b> widespread voltage control problems and protective system problems can occur, some grid systems may experience complete collapse or blackouts. Transformers may experience damage.	Kp values* determined every 3 hours Kp=9	Number of storm events when Kp level was met; (number of storm days) 4 per cycle (4 days per cycle)
		<b>Spacecraft operations:</b> may experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites.		
		<b>Other systems:</b> pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora has been seen as low as Florida and southern Texas (typically 40° geomagnetic lat).**		
		<b>Power systems:</b> possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid.		
		<b>Spacecraft operations:</b> may experience surface charging and tracking problems, corrections may be needed for orientation problems.		
<b>G 4</b>	Severe	<b>Other systems:</b> induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat).**		
		<b>Power systems:</b> voltage corrections may be required, false alarms triggered on some protection devices.		
<b>G 3</b>	Strong	<b>Spacecraft operations:</b> surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems.		
		<b>Other systems:</b> intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat).**		
<b>G 2</b>	Moderate	<b>Power systems:</b> high-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage.		
		<b>Spacecraft operations:</b> corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions.		
<b>G 1</b>	Minor	<b>Other systems:</b> HF radio propagation can fade at higher latitudes, and aurora has been seen as low as New York and Idaho (typically 55° geomagnetic lat).**		
		<b>Power systems:</b> weak power grid fluctuations can occur.		
		<b>Spacecraft operations:</b> minor impact on satellite operations possible.	Kp=5	1700 per cycle (900 days per cycle)
		<b>Other systems:</b> migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).**		

\* Based on this measure, but other physical measures are also considered.  
 \*\* For specific locations around the globe, use geomagnetic latitude to determine likely sightings (see [www.swpc.noaa.gov/Aurora](http://www.swpc.noaa.gov/Aurora))

Source: <http://www.swpc.noaa.gov/noaa-scales-explanation>



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## **Tables – POWER OUTAGE**

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PO-1    Temperature: Trends and Extremes

## **Figures – POWER OUTAGE**

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PO-1    Geomagnetic Storm Scale

# TERRORISM (CBRNE)<sup>1</sup>

## SUMMARY

**The Hazard:** Terrorism comprises a political effort to oppose the status quo by inducing fear in the civilian population through the widespread and publicized use of violence, including murder, injury, and destruction.

### Impacts and Effects:

- Loss of life
- Loss of property
- Damage and potential destruction of government buildings
- Disruption of ferries, bridges, and seaports
- Destruction of historical sites
- Damage to law, fire, emergency medical services and responder facilities
- Disruption of financial institutions and banking
- Contamination of food and water supplies
- Death or illness from bioterrorism, chemical attacks, or nuclear detonation
- Overtaxed emergency response system
- Overtaxed healthcare provider system
- Long term clean-up of environmental damage
- Disruption of telecommunication systems and transportation systems from cyber terrorism
- Mass influx of refugees from highly populated areas
- Instillation of fear and paranoia throughout the population

**Previous Occurrences:** Although no overt act of terrorism has been detected in Jefferson County, the Sheriff's Department has received reports of people observing operations at the Naval Magazine Indian Island. In one incident of such suspicious behavior in 2007, a citizen was able to obtain a license plate number that was subsequently traced to a stolen vehicle. The suspect was not apprehended.

From time-to-time, there are reports of suspicious people or suspicious packages being left on the Washington State ferries. So far, these have not resulted in more than an inconvenience on the Port Townsend ferries as authorities take the time to check out the persons or packages.

**Probability of Future Events:** Medium – Even though Port Townsend and Jefferson County seem like low priority targets, the FBI has reported threats against ferry systems, and it is known that NAVMAG Indian Island has periodically been under observation by persons not wanting to be identified.

It is impossible to provide a precise probability of future events of this type but the general consensus is anywhere from 1 to 10 years. The most likely tactics to be used are Active Shooter(s), Bombings (any variety), and Cyber Attacks. The least likely tactics to be used are Chemical, Biological, Radiological, and Nuclear (CBRN) Bombing/Attack and Hijacking/Skyjacking. Most likely targets are assessed to be Government Facilities, Commercial Facilities (Public Assembly, Retails, Entertainment and Media, etc), Transportation, and Military and Law Enforcement.<sup>2</sup>

**DEFINITION:**

The Federal Bureau of Investigation (FBI) defines **terrorism** as “the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objective”. The definition continues to specify terrorism as either domestic or international, based upon the origin, base, and objectives of the terrorist organization.<sup>3</sup>

This has now been expanded to include Cyberterrorism: “**Cyberterrorism** is the convergence of cyberspace and terrorism. It refers to unlawful attacks and threats of attack against computers, networks, and the information stored therein when done to intimidate or coerce a government or its people in furtherance of political or social objectives. [A cyberterrorism] attack should result in violence against persons or property, or at least cause enough harm to generate fear. Virtually initiated attacks which lead to the death or bodily injury, explosions, or severe economic loss can also be included in cyberterrorism-related activities. Attacks against elements of a government’s critical infrastructure could also be classified as acts of cyber-terrorism depending on the impact of such an event.”<sup>4</sup>

**HISTORY OF TERRORISM IN JEFFERSON COUNTY**

Jefferson County residents, businesses, schools and government have received numerous threatening phone calls over the years regarding bomb threats. Although many reports of pending explosions are received, most are malicious mischief. A few mailboxes have been blown up, and a few cases of arson have occurred. Arson commissions have been for personal gain, some for revenge, and some for a “thrill”. These occurrences have not met the definition of terrorism especially when compared to events such as those that occurred in New York City and Washington DC on September 11, 2001.

Although no overt act of terrorism has been detected in Jefferson County, the Sheriff’s Department has received reports of suspicious persons observing operations at the Naval Magazine Indian Island. In one such incident in 2007, a citizen was able to obtain a license plate number that was subsequently traced to a stolen vehicle. The suspect was not apprehended.

In 2013, there was a rumor of terrorism, when a Port Townsend School District (PTSD) employee discovered a pipe bomb while doing maintenance. The Port Townsend Police Department and other organizations based at Mountain View were evacuated and streets in the area closed after the PTSD employee brought the suspected pipe bomb to the police department. The device had apparently been brought to Blue Heron Middle School in the 1990s by a student and given to a science teacher. The school district employee located the object while performing maintenance at the school. The pipe object was then brought to the police station to turn over. It was at that time that the Mountain View campus and surrounding area was secured due to safety concerns. The State Patrol bomb squad was summoned and detonated the device.

**HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT**

On September 11, 2001, the entire nation was initiated into the world of international terrorism. Acts resulting in tremendous violence introduced the country to groups such as Al Qaeda. The nation watched with horror from their living rooms the frantic searches and recovery operations at the World Trade Center, the Pentagon, and in an obscure field in Pennsylvania. Fear, disbelief, and immediate counter-terrorism reactions were instituted. These acts accomplished exactly what terrorism is designed to do.

The new threat is from the radical terrorist group, *Islamic State in Iraq and Syria* (ISIS), which is very adept at using the internet to recruit terrorists-in-place throughout the world. Terrorists cells are able to evolve and communicate without detection. Since Port Townsend and Jefferson County have both anti-war groups and a significant military installation that supplies munitions used in the Mid-East, it is easy to postulate

the radicalization of an individual in the area and an attempt to damage or destroy a warship or the Indian Island Naval Magazine.

Terrorists hope to instill fear and panic in civilian populations by convincing them that their governments cannot:

- Protect its own population
- Protect the symbols of its authority
- Protect society’s institutions
- Protect society’s infrastructure
- Protect its own officials
- End the threat of more terrorism, and as a result,
- Cannot maintain normal, peaceful conditions in society.

Washington State is vulnerable to terrorist activity. Terrorism can be state sponsored or the outgrowth of a frustrated, extremist fringe of polarized and/or minority groups. Extremists have a different concept of morality than mainstream society, thereby making predictions on what and where they will perform other acts of violence very unpredictable. Terrorist groups may include extremists in:

- Ethnic, separatists, and political refugees
- Left wing radical organizations
- Right wing racists, anti-authority survivalist groups
- Extremist issue-oriented groups such as religious, animal rights, environmental, etc.

Jefferson County has no immunity to potential terrorist activity. Terrorist groups at play today are constantly emerging. Aside from the notorious Al Qaeda groups, there are other potential “copy groups” who would not hesitate to utilize chemical and biological materials. Terrorists perform acts of violence or spread anthrax through the mail system, or release bio-toxins into the food supply want notoriety, want to spread the maximum amount of fear through the population, and want to create an event that will receive national/international attention. As home to important military installations and our close proximity to Seattle’s economic, financial, and population centers, Jefferson County’s vulnerability to the effects of terrorism is substantial.

Communities that are most vulnerable to terrorist incidents have visible and vulnerable targets. These kinds of targets that are found in Jefferson County include:

- Government office buildings, courthouses, schools, hospitals
- Dams, water supplies, power distribution systems
- Military installations
- Ferries, bridges, seaports
- Theaters, parks, concert halls
- Financial institutions and banks
- Sites of historical and symbolic significance
- Scientific research facilities, academic institutions, museums
- Industrial plants; business offices
- Law, fire, emergency medical services and responder facilities
- Special events, parades, religious services, festivals, celebrations

The term “Weapons of Mass Destruction” (WMD) describes weapons that can be classified into the following categories: Chemical, Biological, Radiological, Nuclear and Explosive. These categories are often referred to as the acronym CBRNE. Biological and chemical agents pose threats because of their

accessible nature and the rapid manner in which they could be spread. Most agents can be easily introduced into the environment through aerosol generators, explosive devices, breaking containers, or other forms of covert dissemination. Dispersed as an aerosol, chemical agents have their greatest potential for inflicting mass casualties. Biological agents can be disseminated by the use of aerosols, contaminated food or water supplies, direct skin contact, or injection. The consequences of biological attacks will first be recognized in the hospital emergency rooms and by other health care resources, and will present communities with an unprecedented requirement to provide mass protective treatment, mass patient care, mass fatality management, and environmental health clean-up procedures and plans. Radiological and nuclear weapons would inflict explosions, thermal radiation, and radiation exposure injuries, sickness or death.

Cyberterrorism is a relatively new phenomenon that can be used to potentially disrupt society and exploit our continuing reliance on computers and telecommunication. Cyberterrorism threatens the electronic infrastructure supporting the social, health, and economic well-being of all citizens. Interlinked computer networks regulate the flow of power, water, financial services, medical care, telecommunication networks, and transportation systems.

If one were able to accurately predict, it would be more likely that a site in Seattle or Tacoma or a nearby military installation would be the direct target rather than one located in the County. The consequences are that Jefferson County could appear (or it could be announced to the Seattle-Metro area) that this area could be a haven for people fleeing from a terrorist situation. County resources would be quickly overloaded, food supplies would quickly be depleted, lodging would be scarce, and management of people (both local and “refugees”) could be extremely difficult. County leaders have addressed such scenarios and are becoming cognizant of potential problems and the implications of such an event.

In the same vein, Jefferson County’s relative quiet lifestyle offers several areas of seclusion from which covert activities could be planned. The rise of militia groups in other parts of Washington, Oregon, Montana, and Idaho underscores this aspect of the County’s demographics. Groups could see the County as a place to organize and wait until circumstances are right in other areas of the country. Alert citizens and law enforcement alike have the responsibility to be aware of citizens’ activities and to be mindful of the realities of the world today.

## CONCLUSION

Terrorism is a deliberate strategy. Terrorism is discriminate since it has a definite purpose, but indiscriminate in that the terrorist has neither sympathy nor hate for the randomly selected victim. Although the focus of terrorists is a political authority, their targets and victims tend to involve innocent civilians. Civilians are easier to attack and often produce more dramatic consequences.

Changes in the National Homeland Security Advisory System levels are provided as soon as they are available via an Emergency Management phone line accessible by anyone with a telephone. Jefferson County has convened its leaders to examine and more thoroughly understand existing emergency response processes, communication plans and methodologies. Citizens, both public and private, must be continually aware of suspicious activities. Agencies should have critical incident plans outlining roles for school administrators, law enforcement, fire departments, and medical care providers. Agencies should coordinate their plans with each other to ensure that redundancies are addressed and to further the understanding and opportunities for cooperation by all potentially affected agencies.

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## WATER SHORTAGE / SEWER FAILURE (EXTENDED)

### SUMMARY

**The Hazard:** Water can be in short supply or become contaminated due to either intentional actions or to unintentional consequences of improper handling, system breakdowns, or through the introduction of bacteria from various means.<sup>1</sup> It can also be chronically in short supply due to the effects of climate warming on municipal water supplies.<sup>2</sup>

### Impacts and Effects:

- Health problems ranging from mild discomfort to extremely ill and/or death
- Health care providers overwhelmed by patients
- Hospital bed shortages
- Emergency Medical Systems challenged by increased calls
- Loss of tourism resulting in loss of business revenue
- Long term emergency management crisis if water supply is contaminated
- Adverse impact on agriculture, especially dry land farms and grazing lands
- Increased danger of fires
- Serious impacts to recreation areas
- Imposition of water conservation measures
- Curtailment of industries using large quantities of water causing unemployment
- Shortages of water for firefighting
- Increased prices for local produce

**Previous Occurrences:** There have been no major historical incidents of food or water contamination in Jefferson County other than occasional “food poisoning” episodes at restaurants or social gatherings.<sup>3</sup>

**Probability of Future Events:** Moderate – Climatic changes may be impacting the frequency and duration of drought conditions on the Olympic Peninsula and lead to spot shortages of water.

### Definition:

Water can be in short supply or become contaminated due to either intentional actions or to unintentional consequences of improper handling, system breakdowns, or through the introduction of bacteria from various means. Shortages in this context are extended, but are through non-climatic events, thus droughts are not addressed here, but have their own section.

### History of Water Shortage/Sewer Failure in Jefferson County

There have been no major historical incidents of extended water shortages or water contamination in Jefferson County other than occasional breaks in water lines or the occasional “food poisoning” episodes at restaurants or social gatherings. Wells and water supplies have had short-term periods of contamination following maintenance work on their systems or by accidental contamination of wells due to poor drainage

systems or other similar events. In each case, the cause of contamination was referred to the proper authorities or was solved by private owners of the water wells involved.

- Several local lakes have had periodic contaminations by blooms of a toxic blue-green algae. This has killed or injured small pets, and has resulted in periods in which the lakes have been quarantined. While inconvenient, these lakes are not major contributors to the economy or the drinking water supply, so the occurrences are of concern only to the degree that they threaten county residents and their animals.
- Port Townsend has a single 36” diameter pipeline from the City reservoir to the city itself, twenty-eight miles away. This has occasionally been broken by landslides in vulnerable areas. These are quickly repaired, and water outages have never been more than a day. The city has a 5-million gallon reservoir that can supply the city for two to three days during a water line disruption.<sup>4</sup>
- On December 14, 2009, an 80-year old 12” main broke at 11:00 a.m. The break was repaired by 7:00 p.m., but restaurants were ordered by the Public Health Department to close until the water was tested twice with satisfactory results. The test concluded at 4:00 p.m. on the next day.

### **Hazard Assessment and Vulnerability Assessment**

At this time in the history of our country, people are primarily dependent on others to provide water, although a significant number of rural households in Jefferson County have their own wells. County and city water supply systems are large and provide the majority of the county with drinking water. While this system encourages efficiency of supply, it is vulnerable to interruption and can also spread disease rapidly.

Over the past decade, the vulnerability of the Jefferson County communities’ water supplies has been increasing. Primary reasons for the increased risk include:

- Increased development in rural areas has put stress on available water sources
- Possible climatic changes that reduce the winter snow packs responsible for recharging ground water systems
- Aging water delivery infrastructure that is easily disrupted
- Parasites, bacteria, and other organisms have become more resistant to pesticides
- It can take up to a week for people to show signs of exposure. This makes it difficult to track the source because people tend to forget what and where they ingested. Additionally, more people can contract the illness during the incubation period.
- New parasites and bacteria are being identified all the time.
- Speculation based on intelligence gathered in the war on counter-terrorism suggests that contaminating the nation’s regional water supplies would create a disaster for hundreds of thousands of people

The City constructed a new 5-million-gallon reservoir and drinking water treatment facility, which went into service in 2016. The new facility improves capabilities to meet Federal requirements, and replaces a reservoir that was old and could not withstand a significant earthquake. This increases the available supply of potable water to 3.0 mgd, the planned treatment plant capacity.<sup>5</sup>

The primary effects of a contaminated food or water supply are illnesses and sometimes even death. If the contamination leads to an epidemic, it could severely tax the health care system in regards to diagnosis, treatment and prevention. A community dependent on tourism, such as Port Townsend, would be affected by loss of productivity.

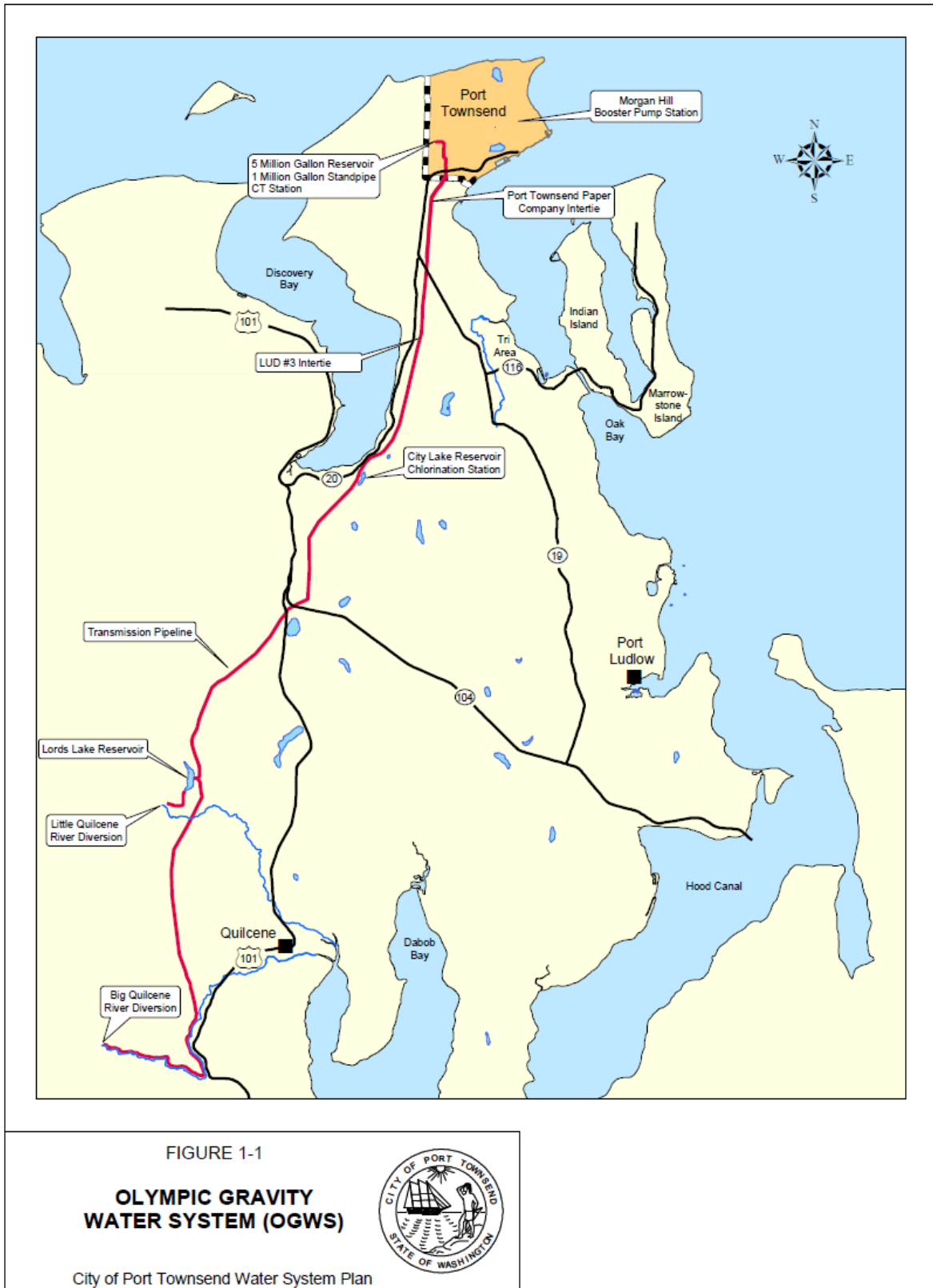
During a region-wide event such as a major earthquake, Jefferson County water supplies are extremely vulnerable. For example:

- The City of Port Townsend, which has about 1/3 of the county’s population, depends on a single 36” diameter pipeline to carry its water supply that is known to cross areas that are subject to landslides. Originally built in 1926, with upgrades in 1956, it has known vulnerabilities that are being addressed within funding limitations. The estimated cost to replace the entire line is approximately \$30 million. Figure H<sub>2</sub>O-1, below, shows the system.<sup>6</sup>
- The Jefferson County Public Utility District No. 1 (PUD) has a 4000-gallon water tanker trailer to support the region during a water shortage emergency. The PUD tanker is not regularly used, and the tires are worn. James Parker, General Manager of the PUD, says the tires will be replaced by the end of January, 2017.
- The PUD provides water to small communities such as Quilcene, and could have an obligation to be in multiple places with one piece of equipment during a major event – assuming that the roads were in such a condition as to allow it.
- On September 19, 2016, routine testing identified the possibility of a toxic substance in the City water supply. Subsequent testing showed the water to be safe. In the meantime, the EOC prepared a plan to distribute water to 10,000 residents daily. Water trucks and bladders were deemed not adequate. Estimated costs to deliver bottled water were \$30,000 per day in both direct and indirect costs.<sup>7</sup>
- There were three small independent water districts in which neighborhoods in rural areas have banded together to provide water to about a dozen households each. These are isolated and do not have significant back-up power for their pumps. Since 2009, one of these has been taken over by the PUD.

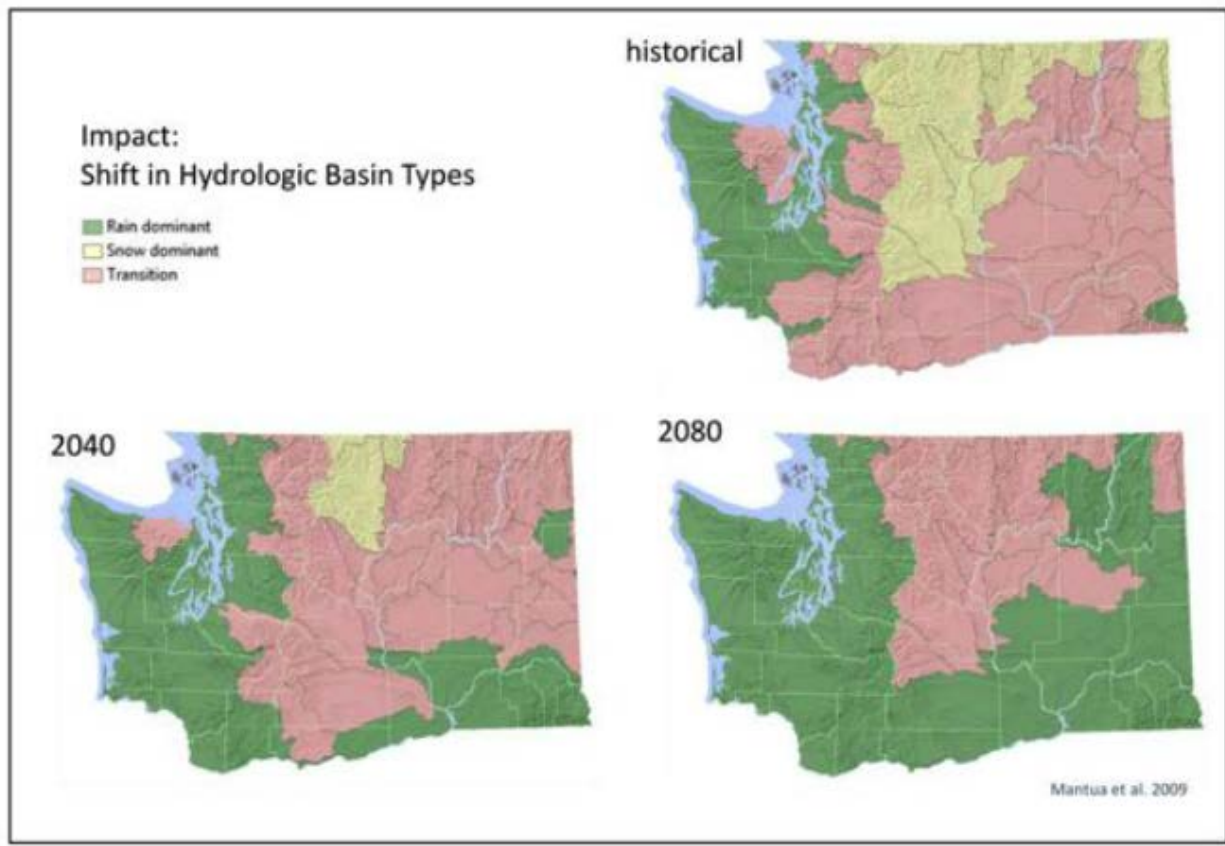
## Climate Change

Warming climates will cause earlier snowmelt resulting in a shift as to when water must be captured in reservoirs to prevent a shortage in the summer. Figure H<sub>2</sub>O-2 illustrates the shift from a “transition” hydrologic basin type to a “rain dominant” basin type in the WRIA that serves Port Townsend and East Jefferson County.<sup>8</sup> A “transition” basin type is one which depends on both snow and rain to recharge its water supply, as opposed to the “rain dominant” basin type, which is self-evident.

Figure H2O-1. City of Port Townsend Water System<sup>6</sup>



**Figure H2O-2 – Shift in Hydrologic Basin Types<sup>8</sup>**



“Shifting hydrologic basin types in the PNW under climate change<sup>9</sup>. This projection shows the shifting of hydrologic basins on the North Olympic Peninsula away from a transient (rain & snow) watershed to rain dominant by the end of the century under climate change. With global temperature rise showing few signs of future abatement, this future may vary in timing but not in ultimate outcome.<sup>10</sup>” Source: NOPRCD Report

**Conclusion**

Education of the population’s water resources must be ongoing and dynamic. Safe drinking water requires two critical steps: protection and treatment. Pollution prevention needs to be integrated with safe drinking water programs. All Group “A” public water systems in Washington State (greater than 15 connections) are required to collect samples for coliform bacteria analysis per WAC 246-290.

Security procedures of water reservoirs must be examined to insure that intentionally introduced contamination is addressed. For instance, the intentional exposure to botulism can easily be done through aerosol droplets falling into the water systems. Health Department and health care providers must be increasingly aware of potential diseases that can be transmitted to the population as a form of terrorism.

Proactive maintenance and upgrade of vulnerable assets must be addressed in both the city and county, particularly in the context of a region-wide disaster event.

## References – WATER SHORTAGE (EXTENDED)

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6. Ibid.
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## Figures - WATER SHORTAGE (EXTENDED)

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H <sub>2</sub> O-1	City of Port Townsend Water System
H <sub>2</sub> O-2	Shift in Hydrologic Basin Types

# **SECTION III**

## **Multi-Jurisdiction/Multi-Hazard Mitigation**



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## MULTI-JURISDICTION/MULTI-HAZARD MITIGATION

This section of the Natural Hazards Mitigation Plan contains information regarding mitigation goals and multiple-hazard mitigation action items that pertain to all of the jurisdictions, and special purpose districts that have participated in the plan development process. Also included is information as to how mitigation measures will be prioritized, implemented, and administered at the jurisdictional level.

**It is the intent of this planning effort that the mitigation goals and multiple hazard mitigation action items included in this section of the plan are applicable to all entities that participated in the development of this plan to the extent that their governing bodies authorize.**

A listing of multi-jurisdictional mitigation strategies and projects suggested by stakeholders and citizens during the plan-development process is also included in this section of the plan.

In addition, each participating jurisdiction and special purpose district has compiled a listing of proposed mitigation strategies and/or projects specific to their community. These entity-specific mitigation strategies and/or projects can be found in SECTION IV of this plan.

### **Mitigation Goals:**

The natural hazard mitigation goals listed in this portion of the plan are multi-jurisdictional in nature and are intended to help guide the direction of and prioritize future natural hazard mitigation activities at the local level aimed at reducing risk and preventing loss from natural hazards.

The plan goals describe the overall direction that Jefferson County and Port Townsend agencies, organizations, special districts, private industry and citizens **can** take toward mitigating risk from natural hazards. The goals are the **guiding principles** from the broad direction of the mission statement to the specific recommendations of the action items. They are:

- (1) Protect Life and Property
  - Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural hazards.
  - Improve hazard assessment information to make recommendations encouraging preventive measures for existing development in areas vulnerable to natural hazards
  - Enhance Jefferson County Neighborhood Emergency Response Teams to provide citizens from all areas of Jefferson County with the information and tools they need to help them, their families, and their neighbors in the hours and days immediately following an emergency or disaster event.
  - Encourage homeowners and businesses to purchase insurance coverage for damages caused by natural hazards.
  - Encourage homeowners and businesses to take preventative actions in areas that are especially vulnerable to natural hazards.

(2) Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.
- Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.
- Continue the current flood awareness programs conducted by various jurisdictions as part of the National Flood Insurance Program Community Rating System.
- Create an earthquake awareness program conducted by various jurisdictions in which the vulnerability to earthquakes is high.
- Enhance the awareness programs for Wildland – Urban Interface fire risks, particularly with Homeowners Associations in wildland settings.

(3) Natural Systems

- Balance watershed planning, natural resource planning, and land use planning with natural hazard mitigation to protect life, property, the economy, and the environment.
- Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.

(4) Partnerships and Implementation

- Encourage leadership within private and public sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.
- Strengthen inter-jurisdiction and inter-agency communication and coordination and partnering of jurisdictions and agencies within Jefferson County to foster the establishment and implementation of natural hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
- Develop a partnership with the local and regional newspapers to produce a series of in-depth articles on each natural hazard and both personal and public mitigation techniques.
- Develop and strengthen coordination and cooperation with local business and industries that are particularly vulnerable to natural hazards in Jefferson County.

(5) Emergency Services

- Strengthen Emergency Management capabilities to prepare for, and to respond to disasters of all types.
- Encourage the establishment of policies at the local level to help insure the prioritizing and implementation of mitigation strategies and/or projects designed to benefit critical/essential facilities, services, and infrastructure.
- Where appropriate, coordinate and integrate natural hazard mitigation activities with existing local emergency operations plans.
- Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, business, and industry.
- Improve the interoperability capabilities among Emergency Services.
- Improve the survivability of communications and disaster response effectiveness of Emergency Service entities.

### **Multiple-Hazard Mitigation Action Items:**

For the purpose of this plan, multiple-hazard action items are those strategies and/or activities that primarily pertain to damaging winds, drought, earthquake, flood, heat waves, land movement, public health emergencies, tsunami / seiche, wildland – urban fire and winter storms. Action items were not identified for avalanche, tornados or volcanoes as explained below:

The avalanche hazard in Jefferson County does not currently affect any populated areas. Due to the fact that avalanche is a concern only to those persons engaged in isolated, backcountry activities, specific mitigation action items were not identified for this hazard.

Tornado and volcanic events that directly affect Jefferson County are so rare that specific mitigation activities other than public education are not addressed.

The action items included in this section of the plan may be short-term (ST), long-term (LT), or on-going (OG) in nature. Long-term activities typically take longer than 3 years.

Some actions may include activities that jurisdictional agencies may implement with existing resources and authorities. Other more complex actions may require new or additional resources or authorities as well as multi-agency and/or multi-jurisdictional partnering.

Some of the mitigation actions and/or projects included in this plan are focused on reducing the effects of various natural hazards on new buildings and infrastructure. Examples of these mitigation actions and/or projects include:

- Mitigation strategies and/or ordinances and codes regarding building regulations and construction setbacks from unstable or steep slopes, alluvial fans and other critical areas.
- Community Rating System Program activities designed to reduce or limit damage from flooding to structures built within the 100-year floodplain.

Some of the mitigation actions and/or projects included in this plan are focused on reducing the effects of various natural hazards on existing buildings and infrastructure.

Examples of these mitigation actions and/or projects include:

- Construction and/or modification of critical facilities.
- Moving critical facilities out of danger zones.
- Buy-out and/or elevation of flood repetitive loss properties.

### **Multiple-Hazard Action Item #1 (OG-MH-0):**

Each of the primary jurisdictions and special districts participating in the Plan shall adopt the **Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan** as its own official plan.

In order to maintain continuity in the mitigation planning process, each participant will designate a contact point for the primary jurisdictions to use in dealing with updates and follow-up to the plan.

**LEAD AGENCY:** Local elected governing body (board of county commissioners, city or Town council)

**FUNDING SOURCE:** Jurisdiction Budget and/or available grant funding

**TIME-LINE:** Within one (1) year of completion and promulgation of this plan

**NOTE:** Due to the lack of staff of many special purpose districts, *this action item does not apply to the special purpose districts that participate in this plan.* However, if a special purpose district elects to do so, the district may participate in this process. Non-participation in this process does not preclude a special purpose district from membership on the Natural Hazards Mitigation Planning Committee.

### **Multiple-Hazard Action Item #2 (OG-MH-1):**

Identify and pursue funding opportunities to develop and implement local and county mitigation activities.

**LEAD AGENCY:** Jurisdiction and/or Public Works Department

**FUNDING SOURCE:** Jurisdiction Budget and/or available grant funding

**TIME-LINE:** Ongoing

### **Multiple-Hazard Action Item #3 (OG-MH-2):**

Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards:

- Make the **Jefferson County Natural Hazards Mitigation Plan** available to the public by providing a link to the plan on local jurisdictional websites.
- Continue and/or enhance and expand the Neighborhood Emergency Response Team Program.
- Continue the National Flood Insurance Program Community Rating System Program to inform citizens in participating jurisdictions about the flood risk in Jefferson County.
- Continue to make public awareness materials and programs available from various sources available to the public to help inform the citizens of all communities within Jefferson County as to the risks associated with various natural hazards.

**LEAD AGENCIES:** Jefferson County Department of Emergency Management and local Community Rating System coordinators

**FUNDING SOURCES:** Jurisdiction Budget; Region 2 Homeland Safety Council Budget; various grant monies such as Washington State Department of Ecology Flood Control Assistance Account Program (FCAAP) funds

**TIME-LINE:** These programs are currently active and on-going

### **Multiple-Hazard Action Item #4 (OG-MH-3):**

Educate the citizenry in the role of the 1<sup>st</sup> Responder through Citizen's Police Academy.

**LEAD AGENCY:** Port Townsend Police Department; Jefferson County Sheriff's Office

**FUNDING SOURCE:** Local Jurisdictional/ via Budget Process

TIME-LINE: These programs are currently active and on-going

**Multiple-Hazard Action Item #5 (OG-MH-4):**

Train personnel on how to react in a natural disaster.

LEAD AGENCY: JCDEM, PTPD, JCSO, JCFD1 – JCFD5

FUNDING SOURCE: Local Jurisdictional Funding via Budget Process

TIME-LINE: On-going

**Multiple-Hazard Action Item #6 (OG-MH-5):**

Educate employees regarding hazards & develop Emergency Response Plan

LEAD AGENCY: Port of Port Townsend; All School Districts

FUNDING SOURCE: Local Jurisdictional Funding via Budget Process/Grants

TIME-LINE: On-going (PTSD completed in 2009 for Port Townsend High School.)

**Multiple-Hazard Action Item #7 (OG-MH-6):**

Regular Review of Capital Improvement Plan to include newly identified mitigation plans.

LEAD AGENCY: City of Port Townsend; Port of Port Townsend

FUNDING SOURCE: Budget and/or available grant funding

TIME-LINE: On-going (Plan updated in 2015.)

**Multiple-Hazard Action Item #8 (ST-MH-1):**

Establish procedures for the Jefferson Natural Hazards Mitigation Planning Committee for the development of a sustainable process for monitoring and evaluating multi-jurisdictional mitigation activities. Possible ideas include:

- Develop roles/responsibilities for members of the Jefferson Natural Hazards Mitigation Planning Committee.
- Develop surveys and/or identify and utilize other reporting methods to monitor hazard mitigation activities implemented by participating entities.
- Develop procedures to facilitate annual review of current mitigation activities.
- Develop procedures to enable the modification of current mitigation activities to meet newly identified goals and objectives.
- Develop procedures to facilitate a full review of the **Jefferson County Natural Hazards Mitigation Plan** every 5 years.

LEAD AGENCY: Jefferson County Department of Emergency Management; Jefferson

## Natural Hazards Mitigation Planning Committee

FUNDING SOURCE: Local Jurisdictional Funding via Budget Process

TIME-LINE: Within two (2) years of completion and promulgation of this plan

**Multiple-Hazard Action Item #9 (ST-MH-2):**

Where appropriate, incorporate the goals and action items identified in this section of the **Jefferson County Natural Hazards Mitigation Plan** into other existing plans and/or regulatory documents and programs. Possible plans, documents, and programs include:

- Jurisdictional Code(s)
- Jurisdictional Ordinance(s)
- Jurisdictional Comprehensive Plan
- Jurisdictional Capital Facilities and/or Improvement Plan
- Jurisdictional Critical Areas Ordinance(s)
- Jefferson County Comprehensive Economic Development Strategy
- Growth Management Act
- Coordinated Water System Plan
- Jurisdictional Flood Plan(s)
- Jurisdictional National Flood Insurance Program Community Rating System Program

LEAD AGENCY: Jurisdiction and/or Community Development Department

FUNDING SOURCE: Jurisdiction Budget and/or available grant funding

TIME-LINE: Upon completion and promulgation of this plan and as each jurisdictions adoption process allows

It is important to note that the development and adoption of a multi-jurisdictional natural hazards mitigation plan is a new concept for the Indian tribes, jurisdictions and special purpose districts of Jefferson County. Some jurisdictions, Indian tribes, and special purpose districts have begun this activity and listed in those entities portions of SECTION IV of this plan are links between on-going mitigation activities and in-place plans, programs, and directional documents. Unless stated otherwise within an individual entities portion of SECTION IV of this plan, the process by which mitigation action items and/or activities will be incorporated into existing plans, documents and programs should (at a minimum) involve the following components:

1. Lead Agency identifies appropriate plans, programs, and directional documents where mitigation actions items and/or activities may be inserted.
2. Public hearings and participation of all involved agencies throughout the incorporation process.
3. Inter-jurisdictional and/or inter-agency cooperation and partnering formalized by signed inter-local agreements.
4. Inter-jurisdictional and/or inter-agency studies or work sessions.
5. Final approval by the local elected governing body such as the board of county commissioners, city or town council, tribal senate or tribal council, school board, or special purpose district board of commissioners.



**Multiple-Hazard Action Item #10 (ST-MH-3):**

Develop partnerships with various jurisdictions and agencies as well as private business and industry to identify and pursue funding opportunities to implement local mitigation activities and to foster coordination and collaboration of natural hazard mitigation goals, strategies, and projects within Jefferson County. Possible actions include:

- Identify and encourage partnering with various agencies and organizations within Jefferson County that have an interest in or have established natural hazard mitigation programs.
- Identify and encourage partnering with various state and federal agencies that have programs that support natural hazard mitigation programs such as the Flood Control Assistance Account Program administered by the Washington State Department of Ecology.

**LEAD AGENCY:** Local elected officials; jurisdiction/Indian tribe department/agency directors; Jefferson County Department of Emergency Management; Jefferson Natural Hazards Mitigation Planning Committee

**FUNDING SOURCE:** Local Jurisdictional/Private Business Funding via Budget Process

**TIME-LINE:** Short term (less than 3 years from funding)

**Multiple-Hazard Action Item #11 (ST-MH-4):**

Improve facilities to survive earthquakes and storms better. Provide continuity of service.

**LEAD AGENCY:** Jefferson Transit Authority

**FUNDING SOURCE:** Local Jurisdictional Funding via Budget Process

**TIME-LINE:** **Completed – 2016 New Transit Center built to current earthquake standards at Four Corners Rd.**

**Multiple-Hazard Action Item #12 (ST-MH-5):**

Build new 911 Dispatch Center and new Emergency Operation Center

**LEAD AGENCY:** Jefferson County Department of Emergency Management; JeffCom 911

**FUNDING SOURCE:** Department Budget and/or available grant funding

**TIME-LINE:** **Completed - 2005**

**Multiple-Hazard Action Item #13 (ST-MH-6):**

Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.

**LEAD AGENCY:** Jefferson County Department of Emergency Management; Jefferson Department of Community Development

FUNDING SOURCE: Local Jurisdictional Funding via Budget Process

TIME-LINE: Within three (3) years of completion and promulgation of this plan

**Multiple-Hazard Action Item #14 (ST-MH-7):**

Evaluate and integrate citizen ideas into planning and implementation efforts.

LEAD AGENCY: Jefferson Department of Community Development

FUNDING SOURCE: Local Jurisdictional Funding via Budget Process

TIME-LINE: Within three (3) years of completion and promulgation of this plan

**Multiple-Hazard Action Item #15 (ST-MH-8):**

Improve interoperability through coordinated acquisition and use of compatible radio & communications equipment across public safety districts throughout the county and throughout the Olympic Peninsula with the OPSCAN program.

LEAD AGENCY: Locally: County Fire Chiefs Association; Peninsula-wide: Washington State Patrol

FUNDING SOURCE: Local Special District Funding via Region 2 DHS Allocation via Jefferson County Department of Emergency Management. Peninsula-wide building of backbone by WSP funded with a \$5.2 million dollar grant from DHS.

TIME-LINE: Within three (3) years of completion and promulgation of this plan

**Multiple-Hazard Action Item #16 (LT-MH-1):**

Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs. Possible ideas include:

- Promote inter-agency response planning and training among various first response agencies within Jefferson County.
- Continue involvement at the county level with the Northwest Region Fire Defense Board and the Northwest Region Fire Mobilization Plan.
- Encourage local fire service, emergency medical, and law enforcement agencies to include Jefferson C.E.R.T. members in training opportunities.

LEAD AGENCY: Jefferson County Department of Emergency Management

FUNDING SOURCE: Department of Emergency Management Budget and/or available grant funding

TIME-LINE: Short term (less than 3 years from funding)

**Multiple-Hazard Action Item #17 (LT-MH-2):**

Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses and schools.

LEAD AGENCY: Jefferson County Department of Emergency Management

FUNDING SOURCE: Department of Emergency Management Budget and/or available grant funding

TIME-LINE: Short term (less than 3 years from funding)

**Multiple-Hazard Action Item #18 (LT-MH-3):**

Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance. Promote inter-agency response planning and training among various first response agencies within Jefferson County.

LEAD AGENCY: Jefferson County Department of Emergency Management

FUNDING SOURCE: Department of Emergency Management Budget and/or available grant funding

TIME-LINE: Short term (less than 3 years from funding)

**Multiple-Hazard Action Item #19 (LT-MH-4)\*:**

Expand SCADA Controls.

LEAD AGENCY: Public Utility District No.1 of Jefferson County

FUNDING SOURCE: Budget and/or available grant funding

TIME-LINE: Short term to Long Term

**Multiple-Hazard Action Item #19 (LT-MH-5)\*:**

Procure Backup transformer for Substation.

LEAD AGENCY: Public Utility District No.1 of Jefferson County

FUNDING SOURCE: Budget and/or available grant funding

TIME-LINE: Long Term

**Multiple-Hazard Action Item #21 (LT-MH-6)\*:**

Procure Backup transformer for Substation.

LEAD AGENCY: Public Utility District No.1 of Jefferson County

FUNDING SOURCE: Budget and/or available grant funding

TIME-LINE: Long Term

**Multiple-Hazard Action Item #22 (LT-MH-7)\*:**

Create a Resiliency Center at the Mountain View complex to act as a community gathering area with offices for support organizations and the hospital. During any kind of disaster event, the facility transforms to a shelter with support staff to guide victims through both physical and mental recovery.

LEAD AGENCY: City of Port Townsend in collaboration with Jefferson HealthCare Medical Center  
(Jefferson County Public Hospital District No. 2), Port Townsend School District, YMCA

FUNDING SOURCE: City / Hospital Funding plus other stakeholder contributions; State and / or  
Federal Grants

TIME-LINE: Long term (less than 3 years from funding)

## **Prioritization of Mitigation Measures:**

Because this plan is multi-jurisdictional, the prioritizing of mitigation measures will be made at the jurisdictional level with direct involvement of the designated lead agency as well as the local elected governing body such as the board of county commissioners, city or town council, tribal senate or tribal council, school board, or special purpose district board of commissioners.

Due to local budget constraints, most of the mitigation measures incorporated into this plan are dependent upon local jurisdictions receiving outside funding; as a general rule, local funding is not available. As a result, local jurisdictions are unsure as to when these mitigation measures will be implemented and the conditions and/or requirements under which implementation may occur.

Unless stated otherwise within an individual entities portion of SECTION IV of this plan, the individual entities participating in this plan should prioritize their proposed mitigation measures based on the following factors:

- **Mitigation measures that have a positive benefit/cost analysis with a BCR > 1.0.**
- Mitigation measures that reduce or eliminate repetitive loss properties.
- Mitigation measures that are multi-jurisdictional and or multi-agency in nature.
- Mitigation measures that provide the greatest good for the greatest number.
- Mitigation measures that have broad-based public and/or elected official approval.
- Mitigation measures for which funding has already been secured.
- Mitigation measures that qualify for alternate and/or matching funding.

The Jefferson County Natural Hazard Planning Committee will maintain an expertise in Benefit/Cost Analysis to help the small jurisdictions and special districts that do not have the resources to maintain that capability on their own.

For jurisdictions and Indian tribes with a mitigation planning committee, the mitigation planning committee is charged with the responsibility to develop a prioritized preliminary list of mitigation measures. This prioritized list is then recommended to the jurisdictional or tribal governing body for final prioritization.

While it is highly recommended that each of the entities participating in this plan utilize the above-listed factors in prioritizing their mitigation measures, it is recognized that final prioritization of mitigation measures is determined by the entities elected governing body. A change in local elected officials, changing environmental requirements, public acceptance of a project, or the occurrence of an actual disaster event may dramatically affect the priority ranking of mitigation measures at the local level.

If federal funding is involved in the implementation of a hazard mitigation project, the jurisdiction, Indian tribe, or special purpose district will conduct a cost/benefit analysis based on guidelines provided by the United States Department of Homeland Security (FEMA) and the Washington State Military Department, Emergency Management Division on how to determine cost-effectiveness of mitigation projects and how to calculate the benefit-cost ratio. The purpose of the benefit-cost analysis is to determine if the benefits of the project exceed the federal costs of the project. Both the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant Program require a benefit-cost ratio of at least 1.0 for a project to be considered for funding. While it may be important to emphasize a positive cost/benefit analysis in the prioritizing of mitigation measures, it is also important to recognize the influence of local political factors, sovereign authority, community needs, traditional and cultural customs and values, historic properties, and habitat and environmental issues upon the selection of specific mitigation measures.

### **Implementation of Mitigation Measures:**

Mitigation measures that are already in place at the jurisdiction level through existing plans, codes, and ordinances as well as programs such as the National Flood Insurance Program Community Rating System Program or the Neighborhood Emergency Response Team Program are current and on-going programs funded through existing and established budgets.

The implementation of new and/or additional mitigation measures is dependent upon the approval of the local elected governing body such as the board of county commissioners, city or town council, tribal senate or tribal council, school board, or special purpose district board of commissioners as well as obtaining funding from outside sources that have not been secured at this time. As a general rule, local funds are not available for implementation of new mitigation measures. Funding for mitigation measures is largely dependent upon individual entities applying for and receiving federal and/or state hazard mitigation grant funding.

For each action item listed and described above (as well as the entity-specific mitigation measures contained in SECTION IV) every effort has been made to identify lead agencies, current or possible funding sources, and a timeline for implementation as part of the planning process.

It should be noted that *short term* action items and/or mitigation measures are those activities that are expected to be completed in less than 3 years from the receipt of funding by the local entity. *Long term* action items and/or mitigation measures are those activities that are expected to require more than 3 years to completion from the receipt of funding by the local entity. Those action items and/or mitigation measures that are current and on-going have been so indicated.

### **Funding of Mitigation Measures:**

The entities participating in the **Jefferson County Natural Hazards Mitigation Plan** have a variety of local, state, and federal resources available to support the implementing and administering of the mitigation actions. The Jefferson Natural Hazards Mitigation Planning Committee will continue to identify additional resources to support the implementation of the action items. At this time, possible implementation funding sources include the following:

#### Local Funding Sources

Local implementation resources vary based on each entity's scope of function(s), authorities, and operational capability and capacity. They may include:

- Use of zoning ordinance and building codes.
- Enforcement of flood plain management ordinance.
- Participation in the NFIP Community Rating System.
- Incorporation into local emergency response plan(s).
- Incorporation into local economic development plan(s).
- Use and support of existing local personnel (planners, floodplain managers, city engineers, GIS specialists, emergency managers).
- Capital improvement project funding.
- Authority to levy taxes, special bonds.
- Fees for services.

- Other sources yet to be identified.

The current economic condition and funding level of the participating local entities drastically limits the use of local resources. State or federal funding will be needed to accomplish many of the action items and mitigation measures referenced in this plan.

#### State Funding Sources

- Growth management act requirements.
- Comprehensive plan requirements.
- State administered Hazard Mitigation Grant Program, Flood Mitigation Act and Pre-Disaster Mitigation Program.
- Department of Ecology Flood Control Assistance Account Program (FCAAP).
- Department of Transportation Emergency Relief Program.
- Office of Community Development Community Development Block Grants
- Programs administered by the Washington State Transportation Improvement Board
- Programs administered by the Washington State County Road Administration Board
- Other sources as yet to be identified.

NOTE: An extensive listing of state funding opportunities is available at the following web site:

[www.infracfunding.wa.gov](http://www.infracfunding.wa.gov)

#### Federal Funding Sources

- Stafford Act, Section 406 – Public Assistance Program Mitigation Grants.
- Stafford Act, Section 404 – Hazard Mitigation Grant Program.
- Disaster Mitigation Act of 2000– Pre-Disaster Mitigation Program Competitive Grants.
- United States Fire Administration – Assistance to Firefighters Grants.
- United States Small Business Administration Pre and Post Disaster Mitigation Loans.
- United States Department of Economic Development Administration grants.
- United States Department of Housing and Urban Development Grants such as the Community Development Block Grant Program.
- United States Army Corps of Engineers.
- United States Department of the Interior, Bureau of Land Management.
- Federal Highway Administration.
- Other sources as yet to be identified.



## CITIZEN SUGGESTIONS & ANALYTICAL REPORTS RECOMMENDED MITIGATION STRATEGIES AND PROJECTS

The following list is a compilation of comments and suggestions made by various stakeholders, interested parties, and the public regarding possible mitigation strategies and projects. Those that start with an asterisk (\*) are known to be underway, regardless of whether the idea came from the public or was internally generated.

The following mitigation strategies and/or projects have been suggested by various stakeholders and citizens as part of the plan development process. Some may be in conflict with existing policies and procedures; others may be viable but lack funding. All will be looked at to see if and how they can fit into a comprehensive mitigation effort.

Some of these strategies and/or projects are currently funded, on-going programs within many of the participating communities. **However, funding for some of these strategies and/or projects is currently very limited; for many of these strategies and/or projects, local funding is simply not available at this time. Funding for the majority of these mitigation strategies and/or projects is heavily dependent upon local entities receiving future federal and/or state hazard mitigation grant funding.**

The organization of the ideas are by hazard in the same order as the hazards were presented in Section II, *Multi-jurisdictional Hazard Identification*. This is followed by excerpts from two reports that were developed to assess the vulnerability of Jefferson County and its inhabitants, and to assess the Olympic Peninsula's climate situation and propose how to adapt to changing conditions. They are:

1. FEMA, WADNR, WAECY, RiskMAP, and Resilienceaction Partners, *Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe* (Risk Report), January 2016.  
Available at: [http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
2. Petersen, S., Bell, J., Miller, I., Jayne, C., Dean, K., Fougerat, M., 2015. *Climate Change Preparedness Plan for the North Olympic Peninsula*. (NOPRCD Report) A Project of the North Olympic Peninsula Resource Conservation & Development Council and the Washington Department of Commerce, funded by the Environmental Protection Agency.  
Available at: [www.noprkd.org](http://www.noprkd.org)

Sections of the Risk Report that specifically address mitigation efforts in this Plan have been excerpted and added to suggested strategies for review by the various jurisdictions impacted. Mitigation strategies (30 pages) presented in the NOPRCD report are included by reference.

## **CITIZEN SUGGESTED MITIGATION STRATEGIES**

### **ALL NATURAL HAZARDS:**

- \*Preserve open space (e.g. Jefferson Land Trust; public acquisition)
- Building to current code
- \*Cooperative efforts to obtain funding
- \*Encourage the implementation of a variety of public education programs to better inform the public about natural hazards
- \*Preparedness plans
- Prepare 72 hour kits in advance
- \*Include block watch and CERT members in communities
- Provide NOAA Weather Radios to high risk areas
- Provide NOAA Weather Radios to CERT Teams
- \*Seattle TV alert systems should cover Jefferson County too
- \*Better public information over cable, scanners, TV
- \*Improve communications among first responders
- \*Educate the public about the “AHAB” capabilities
- Maintain current technology
- Early Warning Systems
- Spanish & Russian Emergency Alert messages
- Provide back-up generators for all critical facilities
- \*Codes, regulations and ordinances
- Create a database to coordinate resources (volunteers with skills, farmers, etc.) during a local or regional disaster. (rev. 2016)

### **AVALANCHE:**

- Avalanche is not a major concern in Jefferson County’s populated areas.
- Avalanche risk in Jefferson County is limited to the confines of the Olympic National Park, which is Federal jurisdiction.

### **DROUGHT:**

- Much of the drought mitigation goals coincide with fire mitigation goals.
- Conservation and assistance for private water districts in replenishing tanks were discussed. It is very expensive to replenish the private water districts tanks after they have been drained for fire. Perhaps a payback system could be established?
- \*Work with Port Townsend Paper on water consumption policies for drought.

**EARTHQUAKE:**

Jefferson County is located in seismic zone 3 as determined by the Uniform Building Code. Damage and loss due to earthquake was experienced as recently as the 2001 Nisqually earthquake when Port Ludlow Fire Station 3-2 was split in half.

- Build to current seismic code (and/or improve current seismic code)
- \*Educate the public by providing maps and liquefaction information.
- \*Retrofit (rev. 2009)
- Secure hot water tanks and other non-structural mitigation
- \*Upgrade buildings
- Utility company retrofits (water, communications, gas, etc.)
- \*Infrastructure retrofit
- Bladders in unused reservoir for emergency water supply.
- Geodesic Dome to cover the unused reservoir and make it pass State requirements
- Unused Reservoir is plumbed for a tank which could be installed in it for storage of emergency water supplies.
- Rotate food stores at schools for use as emergency kitchens.
- Underground the power lines that cross escape routes from Blue Heron Elementary School (rev. 2016).
- Seismically retrofit KPTZ (2016)

**FIRE:**

- \*Fire Wise Program (Washington State University Learning Center; Port Townsend Fire Dept; Jefferson County Fire Districts)
- Fire breaks
- Update building codes in high risk areas
- Public Education (recreational vs. refuse burning, smart building, etc.)
- Youth Education (Fire Safety House)
- \*Fire Works enforcement
- \*Burn Ban education
- Educate the public regarding the fact that local fire districts need to be equipped and trained to fight wildland fire. A red card is needed and that requires 36 hours of additional training.
- It is not a matter of “if” but rather a matter of “when” a wildland fire will occur.
- Enforce codes regarding propane tank placement.

**FLOOD:**

A significant portion of Jefferson County’s economic base is located within the 100-year floodplain. In addition, portions of the County are located within a designated floodway or are located in a coastal high-hazard V zone.

- \*Follow or establish better codes and ordinances (such as: building code, zoning code and critical areas ordinances) (Rev. 2009)
- \*Make code and ordinances more available to the public (i.e.: post on the internet and improve newspaper notices to include the title and/or purpose of the code and/or ordinance)
- Educate the public about codes and ordinances
- \*Government efforts to inform the public need to be improved (Rev. 2009)

- \*Open space preservation
- Acquisition of flood prone properties (Rev. 2009)
- Restrict building in flood prone areas
- \*Provide evacuation routes and education
- Elevate structures
- \*Flood proof structures
- \*Educate the public about flood risk and flood insurance
- Real Estate Disclosure
- \*Shelters
- Maintaining and expanding current programs (CRS activities, etc.) (Rev. 2009)
- \*Red Cross relations
- \*Evacuation plans
- \*Flood structure projects (i.e.: engineered logjams, etc.)
- Dredging (nearly impossible and expensive as we would have to maintain after the first time)
- Promote projects which reduce constriction to flood waters - especially transportation system barriers- and prohibit projects which add to restriction.
- Provide 100-year flood protection for all water treatment facilities within the floodplain
- Provide 100-year flood protection for all of the wastewater facilities within the floodplain
- Develop and implement a variety of flood control projects designed to reduce peak flow rates of the Hoh River during flood events

### **LAND MOVEMENT:**

Portions of Jefferson County are prone to landslide due to steep slopes, soil erosion, fractured rock faces, etc. Landslides occur with some frequency during winter storms, resulting in temporary road closures.

- Reduce or eliminate development in slide prone areas
- \*Move roads and/or improve roadside drainage
- Surface water management
- Educate the public
- \*Critical Areas Ordinance enforcement
- Land acquisition in slide prone areas
- Denial is a big issue.
- \*Notification of Road Closures need to improve
- \*Blockage plan
- Increase building set-back requirements from known unstable slopes and alluvial fans
- River Plans where rivers and roads parallel and are frequently flooded
- Engineered logjams and rip rap to armor banks against erosion

### **SEVERE STORMS:**

Jefferson County is located in a borderline high wind area. The design wind speed for Jefferson County is 80 mph. Some portions of Jefferson County are located in exposure B (1997 UBC) areas where some protection from winds is provided by forests and hills. Other portions of the County are in exposure C areas where there is little or no protection from high wind.

- Build to Snow Load code
- Wind Code
- \*Educate the public with Damage Reduction Programs (i.e.: cut trees back)

- Open space preservation
- Retrofit
- Tie-Downs

### **TSUNAMI:**

- Additional AHAB Units to provide better coverage. (rev. 2009)
- \*Early Warning. (Nixle, media) (rev. 2016)
- \*Education – work with Marine Science Center on public outreach. (rev. 2009)
- \*Evacuation Routes

### **VOLCANIC EVENT:**

- Relocate
- \*Early warning
- \*Public Education
- \*Use AHAB for volcanic events. (rev. 2009)
- \*Use Nixle for volcanic events (rev. 2016)

### **WILDFIRE – FOREST / URBAN INTERFACE:**

- Brush Reduction Program
- Defensible Landscaping (rev. 2009)
- Fire Hazard Atlas for Housing Developments in the County
- \*Volunteer Firefighter Recruitment in the County
- Emergency Call Trees at Homeowners Associations
- \*Firewise Education (rev. 2009)
- \*Evacuation Routes

### **PORT TOWNSEND WATER SYSTEM (2016):**

Selected mitigation strategies from the NOPRCD Report that interested citizens felt could be added to the Port Townsend Water System section of the Port Townsend profile<sup>1</sup>:

- CI-16: Use homeowner outreach to encourage relocation outside floodplains
- CI-17: Encourage relocation of infrastructure outside of coastal flood zone
- E-5: Increase regional capacity for water storage (preferable with natural systems)
- E-23: Develop a funding program appropriate for acquisition of high-risk structures in coastal or riverine flood zones
- WS-1: Enhance education on drought and water supplies issues for the peninsula
- WS-2: Adopt new regulations requiring water-efficient appliances
- WS-3: Promote and incentivize smart irrigation technologies for agriculture
- WS-12: Develop or increase incentives for low-water use landscaping
- WS-13: Adjust rate structure for water use to incentivize conservation where needed
- WS-14: Develop code and infrastructure for a municipal reclaimed water system
- WS-15: Enhance residential water conservation through incentives and outreach

**MARROWSTONE ISLAND (2016):**

- Rebuild Marrowstone Island Fire Station since it will be cut off from the mainland after a major earthquake event. (2016)
- Staff Marrowstone Island Fire Station (rev. 2016)
- Marrowstone Island Store is at a low spot on the island and will likely be lost in a tsunami. (2016)
- Need to have emergency food on the island or a Plan for getting it there or a Plan for evacuation. (2016)
- Mudslides will cut off Marrowstone for weeks; need a Plan for emergency shelter and food. (2016)
- Fort Flagler could have large numbers of tourists during a catastrophic event. Estimated at 1,200 – 1,500 by a retired Park Ranger (2016)
- \*Seismically retrofit or replace bridge to Marrowstone Island (2016)



## **Marrowstone Island Foundation Request for Support**

### THE CHALLENGE OF PROVIDING EMERGENCY SERVICES

TO MARROWSTONE ISLAND, Jefferson County, WA

Fire, Rescue, Medical and Emergency Subsistence Supplies

Marrowstone Island enjoys unique geographical separation from the mainland of Washington. However, peaceful and scenic benefits pale when considering challenges of providing emergency services to the more than 750 homes. Connected by a single 50+ year old bridge which also carries all utilities of water, power and communications, the separation poses the threat of not only being cut-off from help, but potentially not being able to communicate that help is needed. Cell phone coverage of the island is less than 50% meaning that calling for help in such a circumstance is severely limited. A windstorm two years ago provided real demonstration of this potential by downing power, phone and cable lines on the mainland side of the bridge for several days and blocking the sole access road for a number of hours due to a downed tree. Simply stated, it is highly likely that in the event of a severe storm, or earthquake and subsequent tsunami, Marrowstone Island residents will be unreachable for an extended period of time. Therefore, specific consideration should be given to Marrowstone Island when building the [Jefferson County – City of Port Townsend All Hazard Mitigation Plan](#).

Marrowstone Island has responded to this challenge for many years by taking local initiative to provide on-island services. Residents raised money and purchased their own ambulance 30+ years ago and established trained volunteer emergency medical and firefighter personnel. They built a small “fire station” to house the ambulance and later, a water tanker truck. More recently they have established a 2-way radio network of ham and FRS radio equipped residents to enable contact with the 911 emergency dispatch center on the mainland. Further, there is an active emergency preparedness committee on the island to help residents be individually prepared to help themselves and their immediate neighbors.

The “fire station” on Marrowstone Island was transferred to Chimacum Fire Department in 1980 and later absorbed by East Jefferson Fire and Rescue Department (EJFR). However, with primary response provided by this station located on the mainland, the Marrowstone station has been minimally maintained and is not staffed. Provision of emergency services following a major natural disaster may be dependent on resources located on the island or brought to the island by boat. There have been discussions with EJFR regarding upgrading the Marrowstone Station and providing resident staff and equipment at least during the summer months when there is an influx of tourists to Fort Flagler State Park. There is strong interest by all parties, but funding has not allowed realization of this much needed improvement. Marrowstone Island requests inclusion of a commitment for upgrade to the island fire station, and disaster preparations such as radio communications, water, food and medical supplies, when finalizing the Jefferson County Natural Disaster Hazard Mitigation Plan.

Source: Email to Project Coordinator



## RISK REPORT FOR JEFFERSON COUNTY INCLUDING CITY OF PORT TOWNSEND AND THE HOH TRIBE (Relevant Excerpts)

“The Jefferson County Hazard Mitigation Plan, which expired June 6, 2015, identified the following Hazard Mitigation Projects that can be aided by the information in this Risk Report. The County is currently updating their Plan.<sup>2</sup>” Table RR-1 is the “Risk Report” analysis of the 2009 Plan and how the authors feel their report can be used to enhance the 2016 Revision of the Plan.<sup>3</sup> Some of that has already been included in the Hazard Profiles in this document.

<b>Table RR-1 – Jefferson County Hazard Mitigation Plan Analysis<sup>4</sup></b>		
<b>Hazard</b>	<b>Projects</b>	<b>Additional information from Risk Report</b>
Multi-hazard	Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.	Use information from the Risk Report and Risk Database to inform public outreach campaigns.
Earthquake	Create an earthquake awareness program conducted by various jurisdictions in which the vulnerability to earthquakes is high.	Use information from the Risk Report and Risk Database to identify areas with high earthquake vulnerability.
Multi-hazard	Encourage the establishment of policies at the local level to help ensure the prioritizing and implementation of mitigation strategies and/or projects designed to benefit critical/essential facilities, services, and infrastructure.	Use information from the Risk Report and Risk Database to identify critical facilities and other structures most vulnerable and most in need of mitigation.
Multi-hazard	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	Use information from the Risk Report and Risk Database to develop inventories and prioritize mitigation projects.

Based on the recommendations in Table RR-1, the *Risk Report for Jefferson County* suggested the strategies in Table RR-2.<sup>3</sup>

<b>Table RR-2 – Jefferson County Recommended Mitigation Strategies<sup>5</sup></b>	
<b>Problem Statement</b>	<b>Recommended Strategy</b>
Jefferson County has 681 properties in the Special Flood Hazard Area (but only 162 flood insurance policies), representing \$4.9 million in losses after a 1-percent-annual-chance flood.	<ul style="list-style-type: none"> <li>• Develop an outreach strategy to help homeowners, realtors, and insurance agents understand the value of flood insurance.</li> <li>• Use the Risk Report to conduct a Benefit-Cost Analysis and apply for FEMA funding to elevate or relocate structures out of the floodplain.</li> </ul>
Jefferson County has 8 percent of its buildings located in the moderate-high liquefaction zone, with 2,139 of them built before modern building codes, increasing the risk of significant damage to an earthquake.	<ul style="list-style-type: none"> <li>• Develop priority list for essential facility earthquake retrofit.</li> <li>• Develop an outreach strategy or mitigation program for homeowners or businesses to retrofit older buildings.</li> </ul>
Jefferson County’s building dollar losses are \$164 million for a Whidbey M7.4 earthquake. Essential facilities and infrastructure are of particular concern and are likely to lose function immediately after an event.	<ul style="list-style-type: none"> <li>• Develop priority list for essential facility earthquake retrofit.</li> </ul>

## Climate Change Preparedness Plan for the North Olympic Peninsula<sup>6</sup>

The *Climate Change Preparedness Plan*, developed under the auspices of the North Olympic Peninsula Resource Conservation and Development Council (NOPRCD), analyzes the potential climatic change for Jefferson County and vicinity, and recommends strategies for anticipation those potential changes. Appendix “A” of that document provides a comprehensive list of strategies. Extracts of the analysis and some recommendations have been included throughout the Plan.

Since that appendix is thirty pages long, we incorporate it by reference rather than adding to the weight of this tome. The illustration below shows the format of each recommendation in *Climate Change Preparedness Plan* Appendix “A”:

<b>ECOSYSTEMS Adaptation Strategies</b>					
<b>E-1: Enhance efforts to encourage breeding and planting of drought tolerant, resilient plant species</b>					
Score	Type of Strategy	Timeframe for Implementation*	Lead Group (s)	Opportunities or Concerns	Focus Area Co-benefits
20	Awareness	Near-term	Agricultural/Forestry Sectors, Educational Organizations	<i>Highly adaptive, feasible, in line with political and social goals</i>	<i>Water Supplies</i>

\*Near-term (0-3 years), Medium-term (3-10 years), Long-term (>10 years)

Key Action Steps:

- Identify most drought tolerant, resilient plant species for the region.
- Work with partners to develop and distribute education materials to homeowners, renters, and businesses.

## References – Risk Report for Jefferson County

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1. *Comments on the Jefferson County Hazard Mitigation Plan*, by Robert Bindschadler (NASA Emeritus Scientist) and Cindy Jayne, Email to Hazard Mitigation Plan Project Coordinator, January 6, 2017, p.6.
2. “FEMA, WADNR, WAECY, RiskMAP, and Resilienceaction Partners, *Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe*, January 2016, p. 25.
3. [http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
4. Ibid.
5. Ibid.
6. Petersen, S., Bell, J., Miller, I., Jayne, C., Dean, K., Fougerat, M., 2015. Climate Change Preparedness Plan for the North Olympic Peninsula. A Project of the North Olympic Peninsula Resource Conservation & Development Council and the Washington Department of Commerce, funded by the Environmental Protection Agency, Appendix A. Available: [www.noprce.org](http://www.noprce.org).

## Tables – Risk Report for Jefferson County

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- RR-1 Jefferson County Hazard Mitigation Plan Analysis  
RR-2 Jefferson County Recommended Mitigation Strategies

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# **SECTION IV**

## **Jurisdiction Specific Information**

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## **Jurisdiction Specific Information**

This section of the Natural Hazards Mitigation Plan contains jurisdictional-specific information regarding vulnerability to natural hazards and proposed mitigation strategies.

Each entity participating in the multi-jurisdictional process worked independently utilizing various locally-developed forms to help assess their vulnerability to various natural hazards. This assessment process was made on a subjective basis considering past events and the best available information. In addition, each entity did their best to list mitigation strategies currently in place as well as identify new mitigation strategies and/or projects that would benefit their specific community.

The information contained in this section regarding vulnerability and mitigation strategies are specific to each participating jurisdiction, or special purpose district that participated in the development of this plan.

In addition, some communities that currently participate in the National Flood Insurance Program Community Rating System (CRS) elected to include jurisdictional-specific CRS-related information in this section of the plan.

### **Potential Dollar Losses Within Jurisdictions**

Estimates for potential dollar losses of assets are provided within the profiles of each participating jurisdiction. Since all participating jurisdictions are at risk for a magnitude-9 earthquake, we simply asked for the value of capital assets. The value of public assets at risk for the City of Port Townsend, Jefferson County, and the special districts were obtained by getting the summaries of the insured infrastructure for each jurisdiction. The value of private assets within Jefferson County was obtained by getting the current assessor roles.

Additionally, the Earthquake hazard write-up in Section II contains an Hazus analysis that predicts loss based on historical probabilities for earthquakes in the region. Since that last magnitude 9+ earthquake occurred in 1700, prior to significant infrastructure being in the area, we place more credence on merely cataloging the value of current assets. We are now within the cyclic period when it is possible for a catastrophic seismic event to recur in Jefferson County.

It is recognized that this understates the potential losses because it only focuses on publicly documented assets, and does not include such things as state highways.



## NATURAL HAZARD RATING PROCESS

Using a scoring matrix available in the 20/20 Mitigation Software provided to Jefferson County by the Washington State Military Department, Emergency Management Division, each jurisdiction participating in the development of the **Jefferson County Natural Hazards Mitigation Plan** calculated a risk analysis for the following natural hazards:

Avalanche	Public Health Emergency
Damaging Winds	Tornado
Drought	Tsunami / Seiche
Earthquake	Volcano Event
Flood	Wildfire – Urban Interface
Heat Wave	Winter Storm (Snow)

To begin the risk analysis process, each jurisdiction completed the 20/20 scoring matrix using a subjective evaluation based on historical events by assigning numerical values for each natural hazard based upon the following risk categories:

- The area(s) impacted by the hazard (ranked 0-4)
- Probability of persons injured or killed (ranked 0-3)
- Probability of property damaged or destroyed (ranked 0-3)
- Probability of environmental damage (ranked 0-3)
- Probability of Economic disruption (ranked 0-3)

In addition, a Probability or Frequency of Occurrence value was assigned to each natural hazard (ranked 1 - 5) based upon the known frequency of incidents resulting from each natural hazard.

For each natural hazard, the numerical values for each risk category were totaled (with a maximum possible score of 16) and this number was then multiplied by the Probability or “Frequency of Occurrence” value to determine the risk rating for each natural hazard. Using this formula, the maximum numerical risk value that could be assigned to each hazard is 80. Based on this scoring matrix, the maximum numerical risk value that could be assigned to calculate the combined risk rating for all natural hazards considered is 720.

The completed 20/20 scoring matrix and risk rating for each participating jurisdiction can be found in their individual portion of SECTION IV of this plan.

The NATURAL HAZARD RATING TABLE shown on the following page was compiled based upon the risk analysis calculated by each participating jurisdiction. In addition, the top 3 identified hazards of each jurisdiction were carried over to its Special District profile.

The NATURAL HAZARD RATING TABLE provides a useful tool to compare the extent to which each natural hazard affects each community involved in the development of the Plan. It also captures the change in attitude (priorities) among participating jurisdictions towards each hazard.

### 2016 Natural Hazard Risk Rating by Jurisdiction

Jurisdiction	Natural Hazard Rating													Total Score
	Avalanche	Damaging Winds	Drought	Earthquake	Flood	Heat Wave	Land Movement	Public Health Emergency	Tornado	Tsunami	Volcanic Activity	Wildland Fire	Winter Storms	
Jefferson County	6	40	28	45	40	32	50	24	6	10	40	45	28	394
City of Port Townsend	3	65	22	45	20	20	24	18	8	36	7	16	65	349
<b>Subtotal: Primary Jurisdictions</b>	<b>9</b>	<b>105</b>	<b>50</b>	<b>90</b>	<b>60</b>	<b>52</b>	<b>74</b>	<b>42</b>	<b>14</b>	<b>46</b>	<b>47</b>	<b>61</b>	<b>93</b>	<b>743</b>
Jefferson County Fire District 1 (East Jefferson Fire & Rescue)	0	30	16	48	10	22	15	16	28	18	30	33	36	302
Jefferson County Fire District 2 (Quilcene Fire Department)	0	40	7	13	24	7	5	10	11	0	0	12	40	169
Jefferson County Fire District 3 (Port Ludlow Fire & Rescue)	0	60	18	64	24	11	12	14	9	39	42	48	60	401
Jefferson County Fire District 4 (Brinnon Fire Department)	3	50	14	11	30	18	32	10	7	8	4	70	36	293
Jefferson County Fire District 5 (Discovery Bay Volunteer Fire & Rescue)	0	6	0	2	0	0	0	0	0	0	0	3	4	15
JeffCom 9-1-1	0	44	5	32	30	5	8	16	0	18	0	30	30	218
Public Hospital District No. 2	0	18	14	48	9	14	10	9	0	42	5	18	16	203
Jefferson County Library District	5	18	1	14	5	1	5	5	0	4	11	8	7	84
Port of Port Townsend	0	20	0	8	7	0	4	1	0	15	0	1	20	76
Queets/Clearwater School District No. 20	0	44	1	33	0	0	0	8	0	0	10	33	20	149
Brinnon School District No. 45	0	7	0	10	24	0	5	0	0	24	0	4	8	82
Quilcene School District No. 48	0	18	5	75	B	8	0	7	0	16	10	48	8	203
Chimacum School District No. 49	0	45	0	52	30	0	0	16	0	39	27	3	40	252
Port Townsend School District No. 50	0	27	1	14	9	0	0	10	0	9	8	5	27	110
Quillayute Valley School District No. 402	5	16	5	20	8	0	35	0	0	5	16	27	16	153
Public Utility District No. 1 of Jefferson County (Electrical)	0	36	12	8	3	5	2	7	0	9	1	5	24	112
Public Utility District No. 1 of Jefferson County (Water & Sewer)	0	16	6	7	6	6	3	7	0	7	0	3	14	75
<b>Subtotal: Special Districts</b>	<b>13</b>	<b>495</b>	<b>105</b>	<b>459</b>	<b>227</b>	<b>97</b>	<b>136</b>	<b>136</b>	<b>55</b>	<b>253</b>	<b>164</b>	<b>351</b>	<b>406</b>	<b>2897</b>
<b>Grand Totals:</b>	<b>22</b>	<b>600</b>	<b>155</b>	<b>549</b>	<b>287</b>	<b>149</b>	<b>210</b>	<b>178</b>	<b>69</b>	<b>299</b>	<b>211</b>	<b>412</b>	<b>499</b>	<b>3640</b>

Source: Jefferson County Department of Emergency Management

<b>Criteria for Scoring - based on 20/20 software</b>		
<b>Probability of Occurrence</b>	<b>Impact Area</b>	<b>Health and Safety</b>
1 = Unknown but rare occurrence	1 = Less than 25% of developed areas	1 = Few injuries/illnesses
2 = Unknown but anticipated	2 = Less than 50% of developed areas	2 = Few fatalities but many injuries/illnesses
3 = 100 years or less	3 = Less than 75% of developed areas	3 = Numerous fatalities
4 = 25 years or less	4 = Over 75% of developed areas	
5 = Once per year or more		<b>Economic</b>
	<b>Environment</b>	1 = Low direct and/or low indirect costs
<b>Property</b>	1 = Resources damaged with short term recovery	2 = High direct and low indirect costs
1 = Few properties destroyed/damaged	2 = Resources damaged with long term recovery	3 = High direct and high indirect costs
2 = Few destroyed/many damaged	3 = Resources damaged beyond recovery	
3 = Few damaged - many destroyed		
4 = Many properties destroyed and damaged		

# City of Port Townsend

## CITY OF PORT TOWNSEND

### **Jurisdiction-Specific Vulnerability Assessment & Mitigation Strategies**

The purpose of this section of the plan is to assess the vulnerability of the City of Port Townsend in regards to the various natural hazards previously identified in SECTION II of this plan. In addition, mitigation strategies that are currently in place relating to these natural hazards as well as newly proposed mitigation strategies have been included in this section of the plan.

To complete the vulnerability assessment process, various city staff utilized a series of locally developed forms as well as forms available in the 20/20 Mitigation Software that were provided to Jefferson County by the Washington State Military Department, Emergency Management Division.

As part of the vulnerability assessment process, City of Port Townsend government started an inventory of all critical facilities and is considering these critical facilities in our planning and mitigation strategy development process. Basic information on these facilities is available from public sources, and therefore, it is included in this report. Sensitive information about critical facilities has not been published.

Representatives from City of Port Townsend government worked closely with other jurisdictions, agencies, and the Jefferson County Natural Hazards Planning Committee to develop a comprehensive, coordinated mitigation plan intended to reduce the vulnerability to natural hazards within the City of Port Townsend.

The information contained in this document presents the results of this effort to identify the specific natural hazards threatening the City of Port Townsend, to characterize the vulnerability of the City of Port Townsend regarding these hazards, and to identify current as well as proposed mitigation strategies, projects and/or programs to address those vulnerabilities.

The analyses conducted by Port Townsend staff were based on the best currently available information and data regarding the characteristics of the neighborhoods identified, the natural hazards that threaten the people, property, and environment of these neighborhoods as well as the impacts these neighborhoods have suffered in past disasters. This information includes, when available, United States Census data, local tax records, local and national geographic information system data, Flood Insurance Rate Maps, hazard specific analyses, and other environmental and demographic facts. However, very often authoritative or current information simply was not available for the planning effort. In these cases, the experience, knowledge and judgment of local officials representing the City of Port Townsend, the judgment of knowledgeable officials and simplified analyses is considered acceptable at this stage to allow the participating organizations to complete the tasks needed to develop this multi-jurisdictional natural hazards mitigation plan. As the planning continues in future years, or at the time when a proposed mitigation initiative is intended to be funded and/or implemented, the participating organizations/jurisdictions recognize that additional information and analyses may be required.

The City of Port Townsend government is committed to the implementation of the mitigation related projects/programs described in this section of the plan when and if resources become available. City of Port Townsend government is also committed to continuing the mitigation planning process that has resulted in the development of this document, and to the ongoing cooperation with other agencies, organizations, and jurisdictions to make the City more resistant to the damages and hardships that could otherwise be the result of future natural disasters.

**Port Townsend Overview:**  
**Contact Information:**

**360-379-5047      Port Townsend City Hall**  
**250 Madison St**  
**Port Townsend WA 98368**

Population of Jurisdiction:                      9,485 (April 1, 2016 Pop Est. – WA OFM)

Principal Economic Base:                      Pulp and Paper; Marine Trades / Boatbuilding; Wood Products / Logging; Diversified Manufacturing; Tourism; and Health Care

Current Hazard Mitigation Codes/Plans/Ordinances:

- Comprehensive Land Use Plan
- Shoreline Master Program
- Port Townsend Zoning Code (PTMC Title 17)
- Adopted Building Codes (International Building Codes, State Historic Building Code)
- Adopted Fire or Life Safety Code (International Fire Code)
- Local Water Quality Plan
- Municipal Code
- Flood Damage Prevention Ordinances (PTMC Chapter 16.08, Portions of Title 17 Zoning, 18 Land Division, and 19.05 Environmentally Sensitive Areas)
- Participation in NFIP Program
- 2009 Jefferson County – City of Port Townsend Hazard Mitigation Plan

**NFIP PARTICIPATION**<sup>1,2,3</sup>

Date Joined NFIP: <b>06/14/1974</b> CID: <b>520070#</b> Last Community Assistance Visit: <b>08/10/2012</b> Nbr of NFIP policies in Jurisdiction: <b>61 (06/2016)</b> Floodplain Ordinance: <b>PTMC Chapter 16.08</b>	Total Number of Paid Claims: <b>9</b> \$ Amount of Paid Claims: <b>\$26,687</b> Total Number of Repetitive Claim Properties: <b>0</b> Value of Repetitive Claim Properties: <b>\$0</b>
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<sup>1</sup> Policy Information by State, NFIP BureauNet, June 30, 2016. Accessed September 2016. Available at: <http://bsa.nfipstat.fema.gov/reports/1011.htm#WAT>

<sup>2</sup> Claim Information by State, NFIP, June 30, 2016. Accessed September 2016. Available at: <http://bsa.nfipstat.fema.gov/reports/1040.htm#WAT>

<sup>3</sup> WYO and Direct Data by Community with County and State, June 30, 2016, Accessed September 2016. Available at: <http://bsa.nfipstat.fema.gov/reports/w2rhudrp.htm>

The City of Port Townsend is a participant in good standing in the NFIP program. NFIP participation has been institutionalized as part of the city’s risk management efforts, thus assuring that NFIP requirements are routinely reviewed and that changes to local ordinances, the Shoreline Master Plan, etc. are made consistent with those requirements. Since the city’s Comprehensive Use Plan, its Shoreline Master Plan, and others have specific review and update cycles, NFIP-related changes normally occur during a planned review and update unless specific circumstances such as an externally mandated implementation date dictates otherwise. No additional priority has been attached to NFIP participation per se because the process to stay current has been institutionalized.

The city pays its NFIP insurance premiums as part of the Association of Washington Cities (AWC) risk pool and thus has the additional benefit of having the AWC also monitoring requirements and notifying the city when changes are required.

## Planning Methodologies

To make jurisdiction-wide analysis of the population at risk for each hazard type feasible and practical for mitigation planning purposes, a simplified approach has been used. The estimate of the population at risk for specific hazards is accomplished in the following manner: The population in a specific neighborhood is estimated by local planners, based on readily available data or their best judgment in the absence of suitable data. The population could be residents, workers, visitors, institutionalized individuals, mixed population types, etc., depending on the characteristics of the neighborhood. The percentage of the area of the specific neighborhood threatened by the identified hazard is then estimated by local planners, again based on readily available data or their best judgment. The percent of the neighborhood at risk is then used as a multiplier to determine the estimated number of people at risk from that hazard. The methodology is simplistic but conservative, in that it assumes occupied structures are uniformly distributed throughout the neighborhood in relation to the area of risk, that the population is present in the neighborhood on a 24 hour, 7-day basis, and that all individuals are equally vulnerable to the impacts of the hazard event. The derived estimates for the number of people at risk may therefore be higher than actually is the case, but the estimates are considered satisfactory to support the local mitigation planning process.

To make jurisdiction-wide analysis of the dollar value of properties at risk for each hazard type feasible and practical for mitigation planning purposes, a simplified approach has been used to provide input to the cost benefit analysis. The estimate of the dollar value of properties at risk for specific hazards is accomplished in the following manner: The number of structures in a specific neighborhood and the average dollar value for those structures is estimated by local planners, based on readily available data or their best judgment in the absence of suitable data. The percentage of the specific neighborhood threatened by the identified hazard is then estimated by local planners, again based on readily available data or their best judgment. The percent of the neighborhood at risk is then used as a multiplier to determine the estimated number of structures at risk from that hazard. This number is then multiplied by the estimated average cost of the structures to derive an estimated total value of the property at risk of damage in that neighborhood from the identified hazard. The methodology is simplistic but conservative, in that it assumes structures are uniformly distributed throughout the neighborhood in relation to the area of risk; that the hazard threatens the entire value of each structure; and that structures are equally vulnerable to the impacts of the hazard. The derived estimates for the dollar value of property at risk may therefore be higher than would actually be the case, but the estimates are considered satisfactory to support the local mitigation planning process.

To make analysis of the dollar value of critical assets for each hazard type, insurance records were obtained for all public buildings. Tax roles were used for the valuation of districts and of specific buildings or locations, as appropriate.



**DISASTER EVENTS - PORT TOWNSEND**

<b>NO</b>	<b>DATE</b>	<b>LOCATION</b>	<b>DESCRIPTION</b>
1	Dec 27, 1866	Downtown Port Townsend	Flood Tide inundated all of downtown. Water was reported as being up to the armpits of a man at the current location of the Bishop Hotel.
2	Jan 6, 1880	Port Townsend	Major Snow Storm; 4 feet of snow; drifts up to 10 feet high.
3	Jan 1893	Port Townsend	Major Snow Storm
4	Feb 3, 1916	Port Townsend	Major Snow Storm; Reported as 30.5 inches in 24 hours.
5	Dec 25, 1919	Port Townsend	Major Snow Storm
6	Dec 22, 1955	Port Townsend	Major Snow Storm
7	Oct 12, 1962	Region	Columbus Day Storm; Blew roof off of building that currently houses PTPD. Many trees down. Much damage.
8	Dec 28-29 1968	Port Townsend	Ice Storm
9	2002	Port Townsend	Prolonged Drought. Port Townsend Paper lays off workers and shuts down production to conserve Port Townsend's water supply.
10	2009	Region / Port Townsend	Major Snow Storm – PA applied for in the amount of \$17,500 for snow removal.
11	2014 - 2015	Region	Prolonged Drought. Lords Lake reservoir down to 11 feet from normal 70 feet. Planning shutdown of Port Townsend Paper if water level drops below 3 feet. <sup>2</sup>

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
Comprehensive Land Use Plan <sup>3</sup>	<p>Reduce city exposure to flooding and landslides, and to minimize reliance on federal and state programs for disaster mitigation, protect public and private property, save lives, and use community resources wisely.</p> <p>(a) Integrate regulatory standards such as buffers and setbacks with hazard avoidances measures.</p> <p>(b) Coordinate hazard vulnerability assessments with programs for purchase or preservation of open space.</p> <p>(c) Update hazard mitigation and disaster plans every three years.</p> <p>(d) Coordinate related activities of city departments with the County, State, and Federal agencies.</p> <p style="padding-left: 40px;">a. Mapping designations - Continue to revise and compile mapping of vulnerable areas by using City, County, State, and Federal databases...</p> <p>Development Regulations - Revise the Zoning, Subdivision, Critical Areas Ordinances and the regulations portion of the Shoreline Master Program to incorporate hazard avoidance provisions and assure consistency of definitions and mapping.</p> <p>Policy 8.7: Assess the risks (e.g., increased incidence of drought, flooding, and sea level rise) and potential impacts on both City government operations and on the larger community due to climate change. The assessment of risk and potential responses – both in terms of mitigation and adaptation – should evaluate the full range of issues, paying particular attention to those arising from the city’s location on Puget Sound.</p> <p>8.7.1: Develop a climate change risk assessment and impact analysis for city government facilities and operations.</p> <p>8.7.2: Develop a climate change risk assessment and impact analysis for the community which considers the potential long-term impacts to economic, land use, and other community patterns as well as the risks associated with periodic weather or climate events.</p>	Annual Minor Reviews & Updates – Major Review under way. Due June 2016 to be effective thru 2036.

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
Engineering Design Standards	<p>The purpose of the Engineering Design Standards is to establish minimum requirements for all development in the City relating to water, sewer, storm drainage, transportation, utilities, clearing and grading, erosion control and construction activities.<sup>5</sup></p> <p>These standards are notable in that a significant amount of its focus is dealing with the 100-year flood plain. See the FEMA FIRMS in the FLOOD topic in Section II of the Plan.</p>	On Demand or as a subset of the regular review process for the Comprehensive Plan.

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
Port Townsend Municipal Code	<p><b>PTMC Chapter 2.24 CIVIL DEFENSE ADMINISTRATION</b></p> <p>This has never been revoked, even though Chapter 9.40 supersedes it.</p> <p><b>PTMC Chapter 9.40 EMERGENCY MANAGEMENT PROGRAM</b></p> <p><b>9.40.020 Emergency management policy.</b></p> <p>It is the policy of the city of Port Townsend to make effective preparation and use of manpower, resources, and facilities for dealing with any emergency or disaster that may occur. Disasters and emergencies, by their very nature, may disrupt or destroy existing systems and the capability of the city of Port Townsend to respond to protect life, public health, and public property. Therefore, citizens are advised to be prepared to be on their own for up to 72 hours should an emergency or disaster occur. (Ord. 2452 § 1, 1995).</p> <p><b>Commentary:</b> Recommendations will be made to City Council to update Chapter 9.40.020. City recommends 1-3 weeks for wide-scale event. (2016)</p> <p><b>9.40.090 Emergency operations center (EOC).</b></p> <p>Emergency services shall establish and staff an emergency operations center equipped with a communications system to support government operations and emergencies and provide other essential facilities and equipment for agencies and activities assigned an emergency function. The second floor of the city library shall be so designated as the emergency operations center (EOC). (Ord. 2452 § 1, 1995).</p> <p><b>Commentary:</b> Recommendations will be made to City Council to update Chapter 9.40 to reflect the current set-up of JCFD1 Fire Station 1-6 as the City’s primary EOC, with the city library being the command center for policy makers. (2016)</p> <p>Paragraph 9.40.090 is the City EOC for policy makers, but JCFD1 Station 1-6 is set up as an Alternate EOC for the County, and the City Command Center for operational coordination</p>	As needed. In constant revision.

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	<p>between the County and the City during crises. It has a full range of communications to mirror the County EOC, along with an Alternate 9-1-1 console to backup JeffCom.</p> <p>PTMC Chapter 17.50 ESSENTIAL PUBLIC FACILITIES</p> <p><b>17.50.010 Purpose.</b></p> <p>The purpose of this chapter is to fulfill the requirements of the Growth Management Act by accommodating essential public facilities of statewide or regional significance, including but not limited to airports, state education facilities, state or regional transportation facilities; prisons, jails and other correctional facilities; secure community transition facilities; and solid waste facilities. (Ord. 2879 § 6.4, 2005).</p> <p>PTMC Chapter 19.05 Critical Areas.</p> <p><b>19.05.010 Purpose.</b></p> <p>The Washington Growth Management Act (GMA) requires that critical areas within the city are to be protected by establishing protection standards for minimizing the impact of development of properties within critical areas. The goal of this chapter is to protect and improve the city of Port Townsend's critical areas for the present and future generations.</p> <p>Many elements of Port Townsend's natural environment are fragile resources that are sensitive to the impacts of urban development, or may pose hazards to the community if developed. These include the following areas and ecosystems: wetlands; critical aquifer recharge areas; fish and wildlife habitat conservation areas; frequently flooded areas; and geologically hazardous areas. These are termed "critical areas," which also include their protective buffers, and are of special concern to the city and the citizens of the state. This document addresses only the city's critical areas – it has been determined that the city will not designate any natural resource lands as defined by the Growth Management Act. It is the intent of this chapter to protect the public health, safety, and welfare by:</p>	

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	<p>A. Reducing the potential for personal injury, loss of life or property damage due to flooding, erosion, landslides, seismic events or soil subsidence;</p> <p>B. Using the ARC approach to critical area impacts – Avoid, Reduce, and Compensate:</p> <ol style="list-style-type: none"> <li>1. First, if at all possible, avoid adverse impacts;</li> <li>2. Second, if that is not reasonable or possible, reduce adverse impacts by:                             <ol style="list-style-type: none"> <li>a. Minimizing or limiting the degree or magnitude of the development and its implementation by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts,</li> <li>b. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the development activity;</li> </ol> </li> <li>3. Finally compensate for the impact by:                             <ol style="list-style-type: none"> <li>a. Rectifying the adverse impact by repairing, rehabilitating, or restoring the affected environment,</li> <li>b. Compensating for unavoidable impacts by replacing, enhancing or providing substitute resources or environments;</li> </ol> </li> </ol> <p>C. Protecting against publicly financed expenditures due to the misuse of critical areas which cause on-site or off-site:</p> <ol style="list-style-type: none"> <li>1. Unnecessary maintenance and replacement of public facilities;</li> <li>2. Public funding of mitigation for avoidable impacts;</li> <li>3. Cost for public emergency rescue and relief operations where the causes are avoidable;</li> <li>4. Degradation of the natural environment;</li> </ol> <p>D. Protecting unique, fragile and valuable elements of the environment, including fish and wildlife and their habitats;</p> <p>E. Alerting appraisers, assessors, owners, potential buyers or lessees to the development limitations of critical areas;</p> <p>F. Providing city officials with sufficient information to adequately protect critical areas when approving, conditioning or denying public or private development proposals;</p>	

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	G. Implementing the policies of the State Environmental Policy Act, the State Growth Management Act, this code, and the city comprehensive plan. (Ord. 2899 § 1, 2005; Ord. 2319 § 1, 1992).	
Quality Management Plan	Objectives: (a) Prevent property damage from flooding, (b) Perform the necessary analysis and recommend solutions for existing flooding problems, (c) Employ management strategies in flood- prone areas to ensure that new development is not exposed to significant flood risk, (d) Preserve wetlands and implement a wetlands management strategy, (e) Review the city’s critical areas ordinances to ensure consistency with the surface water management program goals, (f) Ensure adequate funding for program implementation, (g) Coordinate the City Storm Water program with the Jefferson County program.	6 Year
Shoreline Master Plan	<p>In order to protect the public interest in the preservation and reasonable use of the shorelines of the state, the Shoreline Management Act establishes a planning program coordinated between the state and local jurisdictions to address the types and effects of development occurring along the state's shorelines. By law, the City is responsible for the following:</p> <ul style="list-style-type: none"> <li>A. Development of an inventory of the natural characteristics and land use patterns along “shorelines of the state” within the City’s territorial limits.</li> <li>B. Preparation of a "Shoreline Master Program" to determine the future of the shorelines. This future is defined through the goals developed for the following land and water use elements: economic development, public access, circulation, recreation, shoreline use, conservation, historical/cultural protection, and floodplain management.</li> </ul> <p><b>Policy 6.3.1</b> Protect the environment through implementation of this Master Program in concert with the City’s Critical Areas Ordinance and through the use of the AMRRC mitigation sequence (Avoid, Minimize, Rectify, Reduce, Compensate) (WAC 173-26-201(e)).</p> <p><b>Policy 6.7.1</b> Ensure that new development in areas prone to periodic</p>	Last update May 12, 2012



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	<p>flooding comply with the City’s Flood Damage Prevention standards (Chapter 16.08, PTMC) to minimize health hazards and property damage due to flooding.</p> <p><b>Policy 6.7.2</b> Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses and schools.</p> <p><b>Policy 6.7.3</b> Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in frequently flooded areas.</p> <p><b>Policy 6.7.4</b> Coordinate and support the development of improved tsunami warning systems.</p>	
Comprehensive Storm Water Plan	This title is intended to require compliance with the city’s <i>Engineering Design Standards</i> manual for public improvements necessary to serve all areas of the city and the out-of-city water service areas, to ensure that appropriate public services and facilities, including utilities, are provided concurrently with development in accordance with the Growth Management Act, Chapter <a href="#">36.70A</a> RCW, and to ensure that all properties in the city uniformly comply with all regulatory standards and requirements to protect public health, safety and welfare and the protection of the built environment.	
Flood Damage Prevention Ordinance <sup>3</sup> PTMC Chapter 16.08	It is the purpose of this ordinance to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed: (1) to protect human life and health; (2) to minimize expenditure of public money and costly flood control projects; (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; (4) To minimize prolonged business interruptions; (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard; (6) To help maintain a stable tax base by	As needed to improve the PTMC or required by external agencies.

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	providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas; (7) To ensure that potential buyers are notified that property is in an area of special flood hazard; and, (8) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.	
International Building Code	International Building Code - The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures within this jurisdiction.	
International Fire Code	International Fire Code - this code prescribes regulations consistent with nationally recognized good practice for the safeguarding to a reasonable degree of life and property from the hazards of fire, explosion, and dangerous conditions arising from the storage, handling and use of hazardous materials and devices, and from conditions hazardous to life or property in the use or occupancy of buildings or premises and provisions to assist emergency response personnel.	
Jefferson County – City of Port Townsend Hazard Mitigation Plan (Hazmit Plan)	<p>This Plan documents the County, City, and participating Special Districts strategic planning to reduce the effects of natural disasters in Jefferson County. This Hazmit Plan is unique in that:</p> <ul style="list-style-type: none"> <li>(1) It is an All-Hazard Plan that not only deals with natural disasters, but those man-made disasters that can significantly impact one or more of the participants of the Plan, e.g the presence here of the second largest Navy Munitions Depot on the west coast adds the risk of an Ordnance Mishap that other locales do not have.</li> <li>(2) In 2016, where appropriate, commentary on climate change having an effect on a type of natural disaster has been added. This was requested by FEMA, but is voluntary and consistent with the attitudes of local government officials.</li> </ul>	FEMA requires a major update every 5 years. The current Plan (2009) expired in June, 2015. The 2016 Update is underway.

**LIST OF INFORMATION FOR HAZARD MITIGATION PLAN**

<b>NO.</b>	<b>REQUEST</b>	<b>AVAILABLE YES/NO/?</b>	<b>LOCATION OF INFORMATION</b>	<b>MAINTAINED BY</b>	<b>NOTES</b>
1	Critical Areas Maps	Yes	PTGIS	Tyler Johnson, Public Works	See Coastal Zone Atlas for Jefferson County, Stormwater Management Plan
2	Parks Plan Map	Yes	Parks Dept.	Engineering	
3	Sewer Plan Map	Yes	Engineering	Engineering	
4	Storm Sewer Plan Map	Yes	Engineering	Engineering	
5	Street/Bridge Map	Yes	Engineering	Engineering	
5.1	Zoning Map	Yes	Planning/Bldg.	Engineering	
6	Critical Facilities Map	Yes	PTGIS	Public Works	
7	ISO Rating - Fire	Yes	Fire Department	Fire Department	
8	BCEG Rating - Building	Yes	Building Dept.	Building Official	
9	Repetitive Loss Properties And Address	Yes	Building Dept.	Building Official	
10	List of Recent Events	Yes	Building Dept.	Building Dept.	
11	Comprehensive Land Use Plan	Yes	Planning Dept.	Planning	
12	Comprehensive <i>Storm Water Plan</i>	Yes	Public Works	Public Works	Identifies drainage basins, general soil conditions, recommends drainage ordinances and drainage system development
13	Comp. Transportation Plan	Yes		Public Works	
14	Comp Wastewater Plan	Yes	Public Works	Public Works	
15	Comp. Water System Plan	Yes	Public Works	Public Works	
16	Flood Hazard Reduction Plan		Building Dept.	Building Official	
17	Disaster Preparedness Plan	Yes	Various	Public Safety Public Works	Under the purview of the Jefferson County Department of Emergency Management.

**LIST OF INFORMATION FOR HAZARD MITIGATION PLAN (Cont.)**

18	Parks and Recreation Comp. Plan	Yes	Parks Dept	Planning	
19	Capital Improvement Plan	Yes	Planning	Planning	
20	Building Code	Yes	Building Dept.	Building Official	International Building Code
21	Fire Code	Yes	Fire Dept.	Fire Marshal	International Fire Code
22	Surface Water Management Code	Yes			
23	Critical Areas Code	Yes	Planning Dept.	Planning Dir.	
24	Zoning Code	Yes	Planning Dept.	Planning Dir.	
25	Subdivision Code	Yes	Planning Dept. Engineering Dept.	Planning Dir. City Engineer	
26	Sewer Code		Public Works	Public Works	
27	Traffic and Street Code				Uniform Traffic code adopted by Reference
28	Total Acreage of city and UGA	Yes	Jefferson Co. Planning	Jefferson Co. Planning	
29	Zoning Acreage Breakdown	Yes	Jefferson Co. Planning	Jefferson Co. Planning	
30	Vacant land available for development	Yes	Jefferson Co. Planning	Jefferson Co. Planning	
31	20 year population forecast	Yes	Jefferson Co. Planning	Jefferson Co. Planning	
32	Water Shortage Response Plan	Yes	Public Works	Public Works	

## **CITY OF PORT TOWNSEND PRIORITIZATION OF ACTION ITEMS**

The City of Port Townsend operates under the requirements of the Growth Management Act of the State of Washington. City government format is a Council - Manager form of government. City staff evaluates actions based on community needs as expressed in the growth management act and the various comprehensive plans adopted by council. Staff prepares recommendations for specific actions to the council for consideration. Council weighs the input from staff and citizens before making any decision.

Before an action may proceed there must be a demonstrated need and funding must be secured. When funding is available and approval of council is given, the project is included in the annual budget. Need for an action to proceed may be determined in a variety of ways including but not limited to: action items identified in adopted plans, benefit cost analysis, necessary service, emergency, directive from state or federal agency, safety or other benefit to the community. For planning purposes projects are evaluated and included in the annual update of the 6-year capital facilities plan. Many projects in the capital facilities plan are dependent of outside funding. Possible sources of funding are the general fund, capital improvement funds, utility reserves, local improvement district, grant funding from a variety of sources including but not limited to private agencies, economic development organizations, state agencies, federal agencies and philanthropic sources. Other sources of funding may, from time to time, become available for specified actions that may or may not be included in the community planning process.

### **Economic Analysis of Mitigation Projects**

The Federal Emergency Management Agency's approaches to identify costs and benefits associated with natural hazard mitigation strategies or projects fall into two general categories: benefit/cost analysis (BCA) and cost-effectiveness analysis. Where appropriate, proposed activities will be evaluated using the BCA tools and Hazus modeling software, along with empirical data to assess whether or not the mitigation strategy is justified.

### **Repetitive Loss Properties**

The City of Port Townsend has one repetitive loss property. It is a residence built within 100' of the Puget Sound and the building is valued at \$303,150 based on current assessments. Since there is only one repetitive loss property at risk, identifying its location more specifically would violate federal disclosure regulations.

**Port Townsend Assets at Risk  
City of Port Townsend - 2016 Art Asset Schedule**

<b>Loc #</b>	<b>Description</b>	<b>Address</b>	<b>Value</b>	<b>Dept.</b>	<b>Year Built</b>	<b>Added</b>	<b>Modified</b>
0	Bronze "Courting Guillemots"	431 Water St	\$20,000			5/14/2014	5/14/2014
0	Haller Fountain - Galatea statue, foundation, pumps	Washington and Taylor Sts.	\$75,000			6/19/2009	6/19/2009
0	Salish Sea Circle	200 Battery Way	\$70,000	PW-Parks		8/8/2014	8/8/2014
2	"LEAFWING" JAQUA SCULPTURE	LARRY SCOTT TRAIL	\$53,060			12/11/2006	
3	WAVE GALLERY	MADISON & WATER STREETS	\$265,302			12/11/2006	
4	JAQUA SCULPTURE CITY HALL RAILING	250 Madison St	\$53,060			12/11/2006	
18	"Chief Chetzemoka" BRONZE STATUE	1948 Blaine St	\$27,061			12/8/2005	12/8/2005
<b>Grand Totals:</b>			<b>\$563,483</b>				

<p style="text-align: center;"><b>Port Townsend Assets at Risk</b>  <b>City of Port Townsend - 2016 Auto Asset Schedule</b></p>											
Year	Make	Model	VIN	Rep	Unit #	Dept.	Equipment Description	Equipment Value	Vehicle Value	Total Value	Date
2014	Ford	Police EP	1FM5K8AR6EGA81110	YES	332-100-14	Police	Data Terminal System, Upfit package	\$20,000	\$29,877	\$49,877	12/16/2013
2014	Ford	Police EP	1FM5K8ARXEGA81109	YES	331/100/14	Police	Data Terminal System, Upfit package	\$20,000	\$29,877	\$49,877	12/16/2013
2014	Ford	Police EP	1FM5K8AR8EGA81108	YES	330/100/14	Police	Data Terminal System, Upfit package	\$20,000	\$29,877	\$49,877	12/16/2013
2010	Ford	Crown Victoria	2FABP7BVXAX130107	YES	314	POLICE	Light bar, VHF, scrambler, computer, Coban	\$5,000	\$28,338	\$33,338	11/5/2014



<p style="text-align: center;"><b>Port Townsend Assets at Risk</b>  <b>City of Port Townsend - 2016 Auto Asset Schedule</b></p>											
Year	Make	Model	VIN	Rep	Unit #	Dept.	Equipment Description	Equipment Value	Vehicle Value	Total Value	Date
2010	FORD	CROWN VICTORIA	2FABP7BV1AX130108	YES	300	PO	Light bar, VHF, scrambler, computer, Coban	\$5,000	\$28,338	\$33,338	11/5/2014
2008	FORD	EXPLORER	1FMEU73E98UA50115	YES	0	City Manager		\$0	\$32,492	\$32,492	1/2/2015
2008	FORD	F250 SUPERCAB 4x4	1FTSX21508ED64024	YES	306	Parks Department		\$0	\$33,266	\$33,266	11/5/2014
2008	International	Dump Truck	1HTWDAZR98J632669	YES	49/300/07	Street	plow, tailgate sander	\$53,896	\$76,199	\$130,095	10/29/2014
2007	Ford	Crown Victoria	2FAFP71W97X156475	YES	321	Police	Light bar, VHF, scrambler, computer, Coban	\$6,793	\$23,831	\$30,624	11/5/2014
2007	Ford	Crown Victoria	2FAFP71W07X156476	YES	318	Police	Light bar, VHF, scrambler, computer, Coban	\$6,793	\$23,831	\$30,624	11/5/2014

<p align="center"><b>Port Townsend Assets at Risk</b>  <b>City of Port Townsend - 2016 Auto Asset Schedule</b></p>											
Year	Make	Model	VIN	Rep	Unit #	Dept.	Equipment Description	Equipment Value	Vehicle Value	Total Value	Date
2007	FORD	CROWN VICTORIA	2FAFP71W27X156477	YES	319	POLICE	Light bar, VHF, scrambler, computer, Coban	\$6,793	\$23,831	\$30,624	11/5/2014
2007	Ford	Crown Victoria	2FAFP71W67X156479	YES	320	POLICE	Light bar, VHF, scrambler, computer, Coban	\$6,793	\$23,831	\$30,624	11/5/2014
2007	Ford	Crown Victoria	2FAFP71W27X156480	YES	328	Police	Light bar, VHF, scramblers, computer, Coban	\$6,793	\$23,831	\$30,624	11/5/2014
2007	FORD	CROWN VICTORIA	2FAFP72W47X156478	YES	317	PO	Light bar, VHF, scrambler, computer, Coban	\$20,000	\$29,877	\$49,877	11/5/2014
2004	CHEVROLET	Silverado 35	1GBJK34U24E283950	YES	61	PW-Water		\$0	\$48,000	\$48,000	1/2/2015
2004	CHEVROLET	SILVERADO FLATBED	1GBJC34U44E276575	YES	92	Street	NONE LISTED	\$0	\$48,000	\$48,000	1/2/2015

<p style="text-align: center;"><b>Port Townsend Assets at Risk</b>  <b>City of Port Townsend - 2016 Auto Asset Schedule</b></p>											
Year	Make	Model	VIN	Rep	Unit #	Dept.	Equipment Description	Equipment Value	Vehicle Value	Total Value	Date
2004	FORD	CROWN VICTORIA	2FAFP71W84X150081	YES	315	PO	Light bar, VHF, scrambler, computer, Coban	\$20,000	\$29,877	\$49,877	11/5/2014
2004	FORD	CROWN VICTORIA	2FAFP71WX4X150082	YES	316	PO	Light bar, VHF, scrambler, computer, Coban	\$20,000	\$29,877	\$49,877	11/5/2014
2003	FORD	CROWN VICTORIA 4D	2FAHP71W53X187497	YES	326	POLICE	Light bar, VHF radio, scrambler, computer, Coban	\$20,000	\$29,877	\$49,877	11/5/2014
2003	FORD	VICTORIA4D	2FAHP71W73X187498	YES	327	POLICE	Light bar, VHS radio, scrambler, computer, Coban	\$3,500	\$27,700	\$31,200	11/5/2014
2002	ELGIN CROSSWIND SWEEPER	SC8000	49HAADB12DJ48427	YES	0	Waste Water Collection		\$0	\$113,745	\$113,745	10/29/2014

<p style="text-align: center;"><b>Port Townsend Assets at Risk</b>  <b>City of Port Townsend - 2016 Auto Asset Schedule</b></p>											
Year	Make	Model	VIN	Rep	Unit #	Dept.	Equipment Description	Equipment Value	Vehicle Value	Total Value	Date
2000	FORD	CROWN VICTORIA	2FAFP71W6YX201857	YES	322	WWT	NONE LISTED	\$0	\$29,877	\$29,877	1/2/2015
1998	CHEVROLET	FLATBED 1 TON TRUCK	1GBJK34JXWF072241	YES	37	Water	NONE LISTED	\$0	\$48,000	\$48,000	1/2/2015
1998	INTERNATIONAL	4900 SERIES 5/6 DUMP TRUCK	IHTSDADR6XH636268	YES	46	Waste Water Collection	RADIO, SNOWPLOW, SANDER, EMERGENCY LIGHT	\$14,000	\$94,000	\$108,000	10/29/2014
1998	INTERNATIONAL	VACTOR	1HTGBADR1XH663616	YES	0	Waste Water Collection		\$0	\$230,000	\$230,000	10/29/2014
1994	CHEVROLET	FLATBED 1 TON TRUCK	1GBJC34K2RE271493	YES	131	Parks	NONE LISTED	\$0	\$48,000	\$48,000	1/2/2015
1994	INTERNATIONAL	DUMP TRUCK, 15 YD.	1HTSHAAR4RH5710903	YES	122	Biosolids	NONE LISTED	\$0	\$75,000	\$75,000	10/29/2014
1991	GMC	DUMP TRUCK	1GMD7H1J5MJ501531	YES	70	Water	NONE LISTED	\$0	\$75,000	\$75,000	10/29/2014
1990	GMC	DUMP TRUCK 5 YD.	1GDM7H1J5MJ501545	YES	40	Street	NONE LISTED	\$0	\$85,000	\$85,000	10/29/2014
1985	GMC	DUMP TRUCK	619617	YES	54	PWSM	NONE LISTED	\$0	\$75,000	\$75,000	
1984	FORD	VACTOR	A47276	YES	42	Waste Water Collection	NONE LISTED	\$0	\$125,000	\$125,000	10/29/2014
<b>Grand Totals:</b>								<b>\$255,361</b>	<b>\$1,649,249</b>	<b>\$1,904,610</b>	

<b>Port Townsend Assets at Risk</b> <b>City of Port Townsend - 2016 Building Asset Schedule</b>										
Loc #	Description	Address	Vacant	Building Value	Contents Value	Total Value	Dept.	Sq.Ft.	Year Built	Date
0	Golf Course Maintenance Building	1948 Blaine St		\$150,000	\$0	\$150,000	Public Works Parks	2400	2009	9/21/2010
0	Irrigation System Civic District	Water, Madison, Monroe Streets	NO	\$30,000	\$0	\$30,000		50000	2011	12/11/2012
0	Mt. View - main building	1925 Blaine St		\$6,510,500	\$133,000	\$6,643,500		26042	1961	7/8/2010
0	Mt. View - Pool/Gym - Library/Cafeteria	1919 Blaine St	NO	\$4,636,750	\$80,500	\$4,717,250		18547	1984	11/1/2013
0	Mt. View - portables one single, one double	1925 Blaine St		\$750,000	\$4,000	\$754,000		3000	1995	1/11/2010
1	SEWAGE LIFT STATION	SEC MONROE ON WATER STREET		\$84,360	\$585,830	\$670,190		300	1967	
2	SEWAGE LIFT STATION	SEC GAINES ON WATER STREET		\$276,020	\$828,060	\$1,104,080		500	2002	3/11/2004
3	TREATMENT PLANT & MAIN CONTROL CENTER	5300 Kuhn St		\$9,000,000	\$585,830	\$9,585,830		5320	1993	9/15/2011
4	SEWAGE LIFT STATION	SEC JEFFERSON ON SAN JUAN AVE		\$58,582	\$58,582	\$117,164		100	1971	
6	Cotton Building & Public Restrooms	607 Water ST		\$2,000,000	\$45,695	\$2,045,695		2350	1896	9/15/2011
7	LIBRARY (Historic)	1232 Lawrence St		\$2,395,855	\$644,413	\$3,040,268		5882	1913	12/5/2005
9	WATERWORKS WAREHOUSE	1234 Garfield St		\$21,793	\$0	\$21,793		4108	1910	
11	SHOPS	1818 Beach St		\$462,816	\$105,449	\$568,265		14772	1980	
13	(COMPOST COVER) BUILDING	603 Landfill Rd		\$276,020	\$0	\$276,020		7728	1993	8/12/2004
14	(OFFICE) BUILDING	603 Landfill Rd		\$16,792	\$5,858	\$22,650		200	1993	
15	(EQUIPMENT STORAGE) BUILDING	603 Landfill Rd		\$15,102	\$292,914	\$308,016		310	1993	

<b>Port Townsend Assets at Risk</b> <b>City of Port Townsend - 2016 Building Asset Schedule</b>										
Loc #	Description	Address	Vacant	Building Value	Contents Value	Total Value	Dept.	Sq.Ft.	Year Built	Date
19	OFFICE	5210 Kuhn St		\$109,845	\$110,428	\$220,273		1443	1901	
21	CARETAKERS DWELLING	CHETZEMOKA PARK		\$88,327	\$53,060	\$141,387		797	1930	8/12/2004
24	POPE MARINE PARK BLDG	100 Madison St		\$250,250	\$0	\$250,250		1925	1992	2/3/2011
26	SEWAGE LIFT STATION	ISLAND VISTA BLVD		\$29,291	\$35,149	\$64,440		339	1985	
27	SEWAGE LIFT STATION	31ST STREET		\$58,582	\$35,149	\$93,731		339	1996	
28	GAEL STUART BUILDING	1610 Blaine St		\$0	\$191,342	\$191,342		1000	1951	3/10/2004
30	GIRL SCOUT HOUSE	848 Tyler St		\$187,466	\$0	\$187,466		1050	1940	
31	HALLER FOUNTAIN	TAYLOR & WASHINGTON		\$58,582	\$0	\$58,582		50	1993	
33	SEWAGE LIFT STATION	POINT HUDSON		\$29,291	\$29,291	\$58,582		64	1985	
34	SEWAGE LIFT STATION	HAMILTON HEIGHTS		\$58,582	\$117,165	\$175,747		96	1997	
35	STORMWATER LIFT STATION	KEARNEY STREET		\$0	\$29,291	\$29,291		200	1983	
36	PINK HOUSE (Historic)	1256 Lawrence St		\$354,742	\$128,406	\$483,148		2070	1867	12/5/2005
37	SWIMMING POOL (LEASED)	1919 Blaine St		\$0	\$58,582	\$58,582		12000	1995	
40	STANDPIPE RESERVOIR, 1 MILLION GALLON	2911 20th St		\$1,171,660	\$2,343	\$1,174,003		2000	1996	8/12/2004
41	RESERVOIR, 5 MILLION GALLON	2911 20th St		\$5,858,297	\$11,716	\$5,870,013		50000	1979	8/12/2004
42	CARETAKER'S HOUSE	End of FS Rd 2600-010 - 2005 Big Quilcene River Rd		\$234,333	\$11,716	\$246,049		700	1927	
43	CHLORINE STATION	530 Grouse Ln		\$29,291	\$58,582	\$87,873		100	1980	9/5/2008
44	SCREEN ROOM	530 Grouse Ln		\$117,165	\$11,716	\$128,881		800	1927	9/5/2008
45	SHOP	530 Grouse Ln		\$29,291	\$11,716	\$41,007		800	1927	12/5/2005
46	CARETAKER'S HOUSE	530 Grouse Ln		\$140,600	\$11,716	\$152,316		700	1927	12/5/2005

<b>Port Townsend Assets at Risk</b> <b>City of Port Townsend - 2016 Building Asset Schedule</b>										
Loc #	Description	Address	Vacant	Building Value	Contents Value	Total Value	Dept.	Sq.Ft.	Year Built	Date
51	GOLF COURSE MAIN CLUBHOUSE	1948 Blaine St		\$468,663	\$0	\$468,663		4200	1990	
52	GOLF COURSE--FOUR-CAR GARAGE	1948 Blaine St		\$46,866	\$0	\$46,866		1200	1990	
53	PUMP STATION	F and Chestnut		\$883,264	\$0	\$883,264		800	2004	3/11/2004
54	LITTLE QUILCENE DIVERSION	Little Quilcene River		\$386,428	\$0	\$386,428		500	1994	3/15/2004
55	HYDROPNEUMATIC TANK	Reed Street		\$44,163	\$0	\$44,163		200	2004	3/11/2004
56	BIG QUILCENE DIVERSION	Big Quilcene River		\$552,040	\$0	\$552,040		1600	1929	3/15/2004
78	ANTENNA & ICE BRIDGE	701 Harrison St		\$54,121	\$0	\$54,121		100	2005	12/8/2005
80	BELL TOWER	Tyler St		\$541,216	\$0	\$541,216		400	1851	12/8/2005
81	CHETZEMOKA GARAGE	Jackson St		\$43,297	\$0	\$43,297		250	1930	12/8/2005
82	CHETZEMOKA GAZEBO	Jackson St		\$54,121	\$0	\$54,121		400	1930	12/8/2005
83	CHETZEMOKA KITCHEN & SHELTER	Jackson St		\$54,121	\$0	\$54,121		500	1930	12/8/2005
84	CHETZEMOKA PLAYGROUND EQUIPMENT	Jackson St		\$64,945	\$0	\$64,945		250	1930	12/8/2005
85	CHETZEMOKA RESTROOMS	Jackson St		\$108,243	\$0	\$108,243		500	1930	12/8/2005
86	CITY HALL	540 WATER ST/250 MADISON ST		\$6,710,008	\$1,515,442	\$8,225,450		11795	2005	9/5/2008
87	GOLF COURSE GREENS	1948 Blaine St		\$270,608	\$0	\$270,608		100000	1930	12/8/2005
88	GOLF COURSE IRRIGATION SYSTEM	1948 Blaine St		\$703,581	\$0	\$703,581		100000	1938	12/8/2005
89	KAH TAI RESTROOMS (12th & Landes)	1235 Landes St		\$108,243	\$0	\$108,243		250	1985	12/8/2005
91	SKATEPARK	Monroe & Jackson		\$487,095	\$0	\$487,095		25000	2005	12/8/2005
93	CHLORINE TRANSFER STATION	2002 20th St		\$212,242	\$0	\$212,242		500	1996	



<b>Port Townsend Assets at Risk</b> <b>City of Port Townsend - 2016 Building Asset Schedule</b>										
Loc #	Description	Address	Vacant	Building Value	Contents Value	Total Value	Dept.	Sq.Ft.	Year Built	Date
			Grand Totals:	\$47,283,450	\$5,792,941	\$53,076,391				

**Port Townsend Assets at Risk**  
**City of Port Townsend - 2016 Inland Marine Asset Schedule**

Loc #	Description	Serial Number	Value	Dept.	Year Built	Added	Modified
0	Kubota Tractor Loader Back Hoe	52044	\$30,000	Parks	2010	10/29/2014	10/29/2014
0	Mobile Light Tower	C06-10-01863	\$22,733	Waste Water Collections	2007	10/29/2014	10/29/2014
0	Roto-Mix Mixer	11673	\$84,783	Biosolids	2009	10/29/2014	10/29/2014
0	Tractor	ACP277400	\$50,147		2007	8/16/2007	8/16/2007
2	JOHN DEERE BACKHOE	T0310DG808213/48PWW	\$68,979	Water	1995	10/29/2014	10/29/2014
3	JOHN DEERE GRADER	J.D. 672B/27PWS	\$159,181	Stormwater	1989	10/29/2014	10/29/2014
4	CASE LOADER	621B, JEE0056336/151PWR	\$97,419	Biosolids	1998	10/29/2014	10/29/2014
6	JOHN DEERE LOADER	544G, DW544GB540215/99PWR	\$111,427	Biosolids	1993	10/29/2014	10/29/2014
7	JOHN DEERE LOADER	DW544EB525714/20PWS	\$127,345	Waste Water Collections	1990	10/29/2014	10/29/2014

9	ARIES Industry Sewer Camera/16' Pace trailer lic#38029D	WT03101302 Camera & 40LFB12114P098446 trailer/99PWS	\$47,754	Waste Water Treatment	2003	10/29/2014	10/29/2014
11	JOHN DEERE 310SG Backhoe Loader	T0310SG945443/34PWS	\$63,672	Biosolids	2005	10/29/2014	10/29/2014
13	INGERSOL RAND ROLLER	C22761/47PWSM	\$76,407	Street	1997	10/29/2014	10/29/2014
14	PK-40H PATCHER	73PWSM	\$40,797	Street	2004	10/29/2014	10/29/2014
18	COMPOST SCREEN	128PWR	\$106,121	Biosolids	1994	10/29/2014	10/29/2014
21	John Deere Backhoe Loader	1T0410TKEDE239075	\$129,470	Waste Water Collection	2013	10/29/2014	10/29/2014
Grand Totals:			\$1,216,235				

**Port Townsend Public Assets at Risk**  
**City of Port Townsend - 2016 Public Asset Schedule Totals**

Asset Type	Asset Schedule Value
<b>Art</b>	<b>\$563,483</b>
<b>Auto</b>	<b>\$1,904,610</b>
<b>Building</b>	<b>\$53,076,391</b>
<b>Inland Marine</b>	<b>\$1,216,235</b>
<b>Grand Total:</b>	<b>\$56,760,719</b>

## Critical Facility Categories

Critical facilities are any facility or combination of facilities that if severely damaged or destroyed would cause significant risk to: Public Health and Safety, Economic vitality, or the environment. The facilities listed here are for both the city and the county.

### Emergency Service Centers (Fire, police, 911 PSAP)

#### Six City/County Fire Districts

JCFD1 - dba East Jefferson Fire & Rescue

JCFD2 - dba Quilcene Volunteer Fire Department

JCFD3 - dba Port Ludlow Fire - Rescue

JCFD4 - dba Brinnon Fire Department

JCFD5 – dba Discovery Bay Volunteer Fire Department

*JCFD6 - Merged into JCFD1; no longer exists as a stand-alone department.*

JCFD7 - Clearwater

*Port Townsend Fire Department has been absorbed by Jefferson County Fire District 1, which is doing business as East Jefferson Fire & Rescue.*

JCFD8 – contracted to Clallam County Fire District 3 for service to Gardner area.

Three Sheriff's Office Facilities: Port Hadlock, Quilcene, Clearwater.

One Police Department Headquarters Station: Port Townsend (Mountain View)

Primary 911 PSAP - 81 Elkins Road, Port Hadlock

Back-up 911 PSAP - 701 Harrison St, Port Townsend

#### Emergency Operations Center

Primary EOC - 81 Elkins Road, Port Hadlock

Alternate EOC - 701 Harrison St, Port Townsend

City Command Center - 701 Harrison St, Port Townsend

Back-up City Command Center – Port Townsend Police Dept @ Mountain View

Public Works Facility

County Road Maintenance - Port Hadlock

County Road Shops - Quilcene Shop; Brinnon Shop; Clearwater Shop.

Hazardous Materials Facility - See SARA Title III List Hospital

Jefferson General Hospital, 834 Sheridan, Port Townsend

Nursing Home / Rehabilitation Center

Life Care Center of Port Townsend, 751 Kearney St, Port Townsend

Critical Community Employer

Port Townsend Paper Company

Naval Magazine Indian Island

County Government (Courthouse)

City Government (City Hall)

Port of Port Townsend

Library

Jefferson County Library System

Port Townsend Library

School

- Chimacum School District
- Quilcene School District
- Brinnon School District
- Port Townsend School District
- Queets / Clearwater School District
- Quillayute Valley School District

Transportation Facility

- Jefferson Transit Authority
- Washington Ferry System

Key Transportation/Evacuation Routes

- Hood Canal Bridge (Highway 104 E)
- Discovery Bay (Highway 101 W)
- Duckabush River Bridge (Highway 101 S)

Utilities Facilities

- Kearney St Substation (JPUD)
- Discovery Bay Substation (JPUD)
- City Water Distribution System (Lords Lake Dam Complex)
- City Wastewater Treatment Facility (China Lake)

## Port Townsend Police Department

**Critical Facilities (Leased by City):**

1. 1925 Blaine Street approximate value: \$6,510,500

**Equipment:**

Vehicle	\$412,670
Equipment	\$187,465
Contents	\$133,000
 Total:	 \$7,243,635

**Value of Area Served: \$1,340,801,391**

**Outline of Area Served:** The Port Townsend Police Department serves the only incorporated city within Jefferson County, serving a permanent population of more than 9,485 residents in 5,300 housing units. The City of Port Townsend is 6.3 Sq. Mi. located on the most northern tip of East Jefferson County.

**Current and Anticipated Service Trends:** The response area of the Port Townsend Police Department continues to grow at moderate levels with crime rates escalating. Serving an aging population base and a high tourist area the calls for service have increased dramatically and will continue to do so.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>	
Type of Event	Date Total Public Damage
Earthquake	02/28/2001 Minor damage

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Damaging Winds
2. Winter Storms
3. Earthquake
4. Tsunami

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Not Applicable

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity	Mitigation Measure	Lead Agency	Funding Source	Time Line
LT-EQ-7*	Move current police station, out of tsunami, flood, and liquefaction zone.	Public Works	City Budget	Completed September 2009
OG-MH-3	Public Education through the Citizen's Academy Program	PTPD & Sheriff	Grant/City Budget	Annual
ST-MH-8*	Improve interoperability through coordinated purchase and use of communications equipment, and OPSCAN program.	DEM, JeffCom 911, PTPD, JCSO, and all Fire Districts including PTFD.	DHS Grants	Completed 2007 - 2009

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

**See "Codes and Comprehensive Plans" for City of Port Townsend**

## Port Townsend Library

**Property Profile:**

Critical Facilities:

1. Library (the Library is a community resource and a gathering/meeting place for the community)

Estimated cost to build the Library: \$ 7,000,000 in 2016 dollars. (Seismic Retrofit Completed – 2014)

Estimated cost of contents:            \$700.000 \_\_\_\_\_

Estimated cost of volumes:            \$1.500.000 \_\_\_\_\_

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>		
Type of Event	Date	Total Public
Severe Local Storm	Annually since 2007	
Earthquake	Periodic	None since 1975

**Natural Hazard Vulnerability Analysis Rating**

This property is most vulnerable to the following natural hazards ranked in order:

1. Severe Local Storm
2. Earthquakes
3. Volcanic Activity

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. See City of Port Townsend “Codes and Comprehensive Plans” above.

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity	Mitigation Measure	Lead Agency	Funding Source	Time Line
LT-EQ-8*	Seismic Reinforcement of Historic Carnegie Building	City Manager; City Council	PDM-2007 - \$1,238 million award; 25% match from city and/or corporate donors.	Start: 09/2009. Completed: 2012



## City of Port Townsend Water System

### Water District Profile

The City of Port Townsend is supplied by a water system known as the Olympic Gravity Water Supply System that delivers the water required by Port Townsend and the Port Townsend Paper Company. The Paper Company paid for the construction of the system, and operates the system under an agreement with the City. The City owns the system and is responsible for paying the costs when it becomes necessary to replace the system. The system has a delivery capacity of 20 million gallons per day, most of which is used by the Paper Company. **Due to both drought and economic conditions, the Port Townsend Paper Company has been working to reduce its demand on water resources and has cut its daily consumption to less than 10 million gallons.**

In the present agreement, the City is responsible for all capital improvements, unless a facility item is irreparably damaged due to an “Act of God”, such as earthquake, landslide, or flooding event. Under this circumstance, the City and Company share in the replacement of the structure.

The system consists of two water surface diversion structures, Lords Lake, City Lake and 30 miles of pipeline. Replacement costs have been estimated at \$54,000,000 for total replacement of the pipeline, \$300,000 for the dam at the Big Quilcene River Diversion, and \$500,000 for hydraulic structures and gates at the diversion dams.

### Natural Hazard Vulnerability Analysis Rating

This Water District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Severe Storm
- 3.

### Proposed Natural Hazard Mitigation Measures

Mitigation Activity	Mitigation Measure	Lead Agency	Funding Source
See City List			

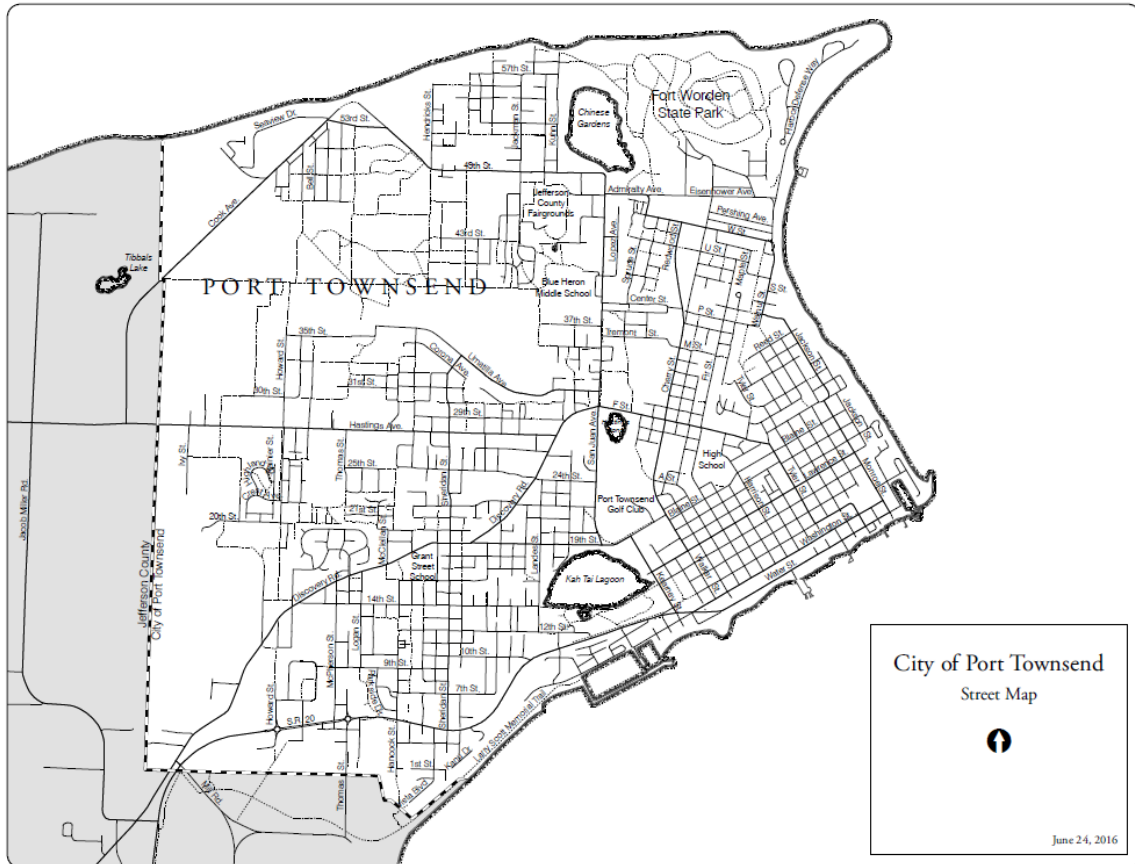
### **Port Townsend Local Hazard Assessment (Maps)**

The following 10 maps are intended to portray the local hazard assessment for Port Townsend graphically. GIS databases are available to document the source data used to create them.

These maps are for illustration only. The source maps are often poster size, and do not shrink to page size well without significant changes to text size and positioning. We just want to demonstrate that we know what our situation is and are working to improve it.

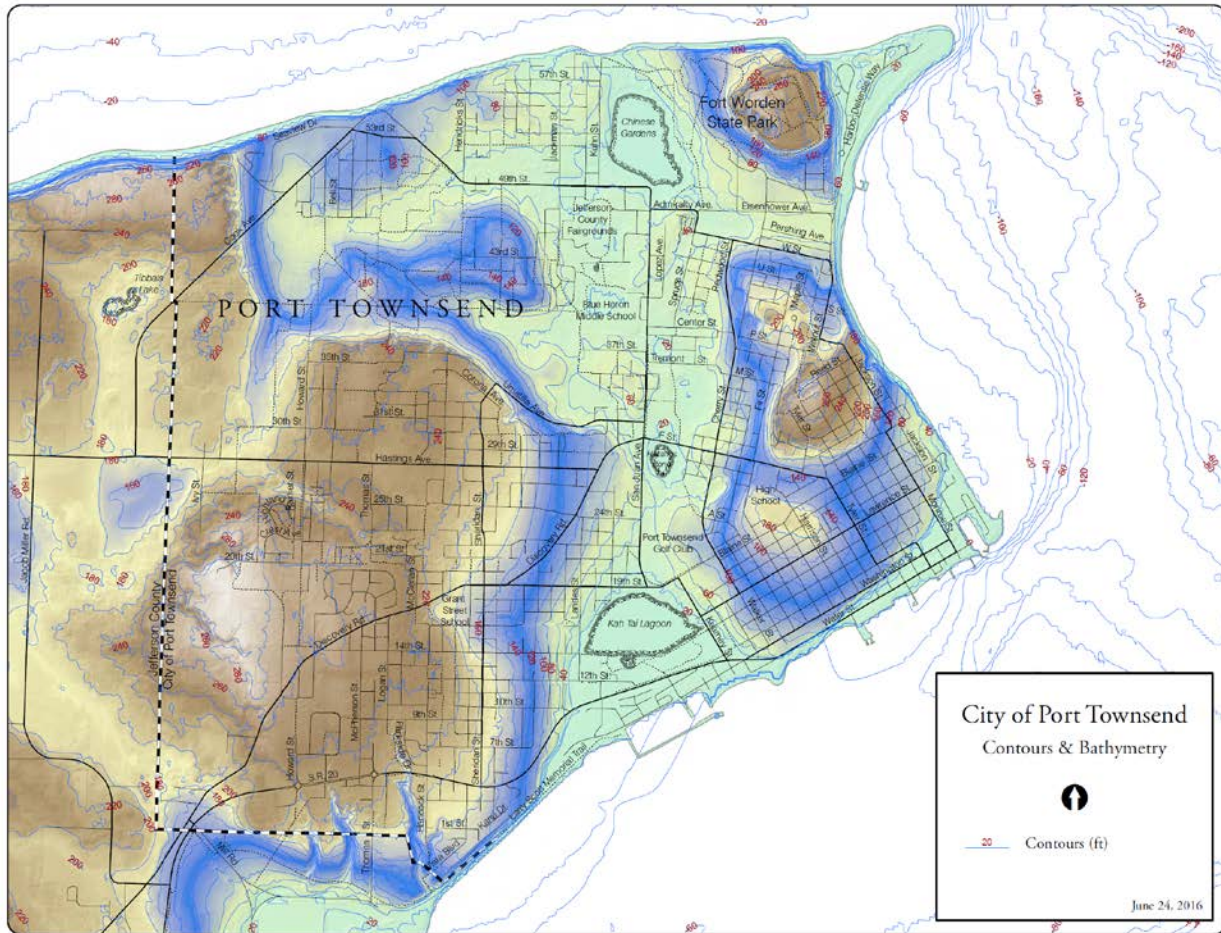
1. City of Port Townsend Street Map
2. City of Port Townsend Relief Map & Bathymetry
3. Environmentally Sensitive Areas
4. Sample FEMA Preliminary FIRMS (Draft February 2016) for Port Townsend
5. Critical Drainage Corridors & Frequently Flooded Areas
6. Seismic, Landslide, and Erosion Hazard Areas
7. Shoreline Modifications
8. Port Townsend Tsunami Evacuation Routes
9. Wildfire - Urban Interface Atlas Sample
10. Location of Critical Buildings

### 1. City of Port Townsend Street Map

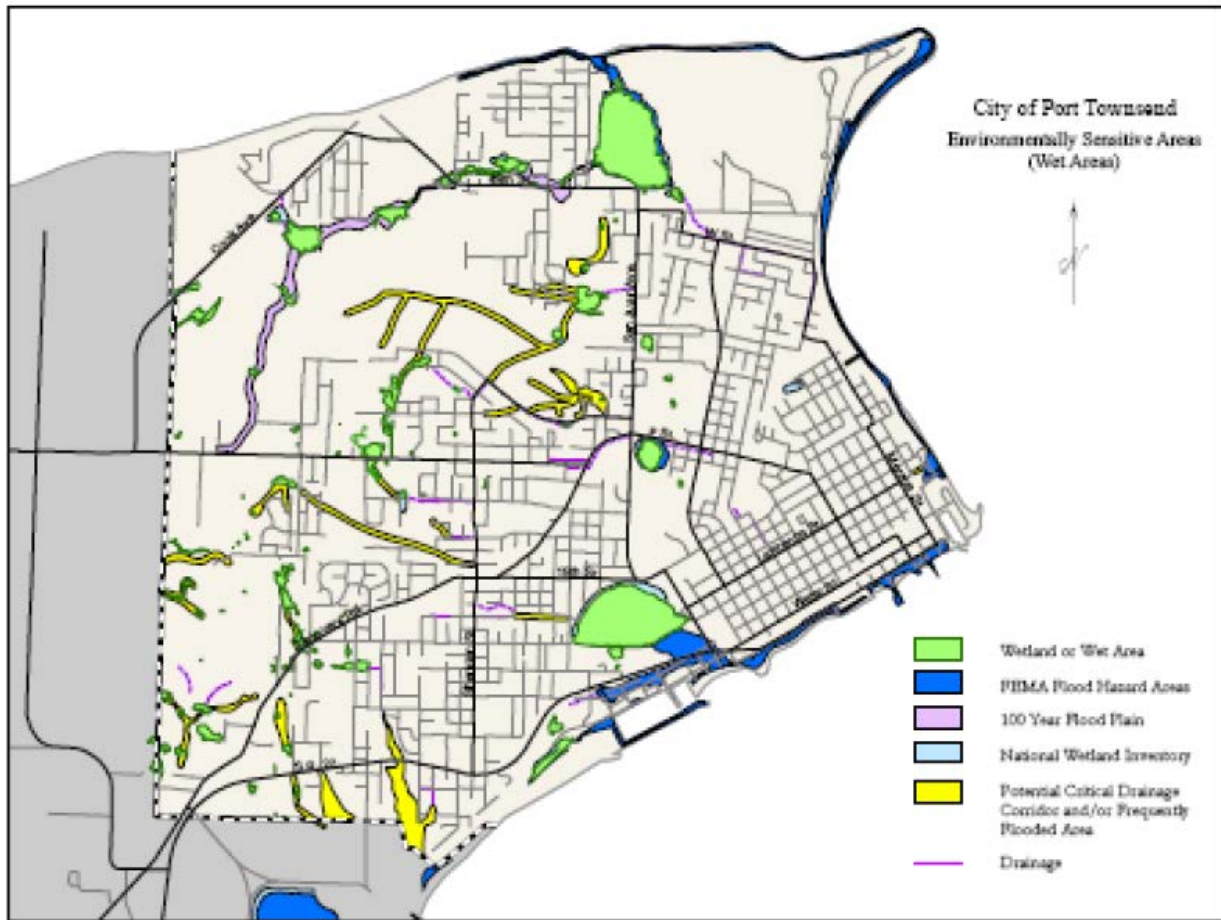


Port Townsend GIS

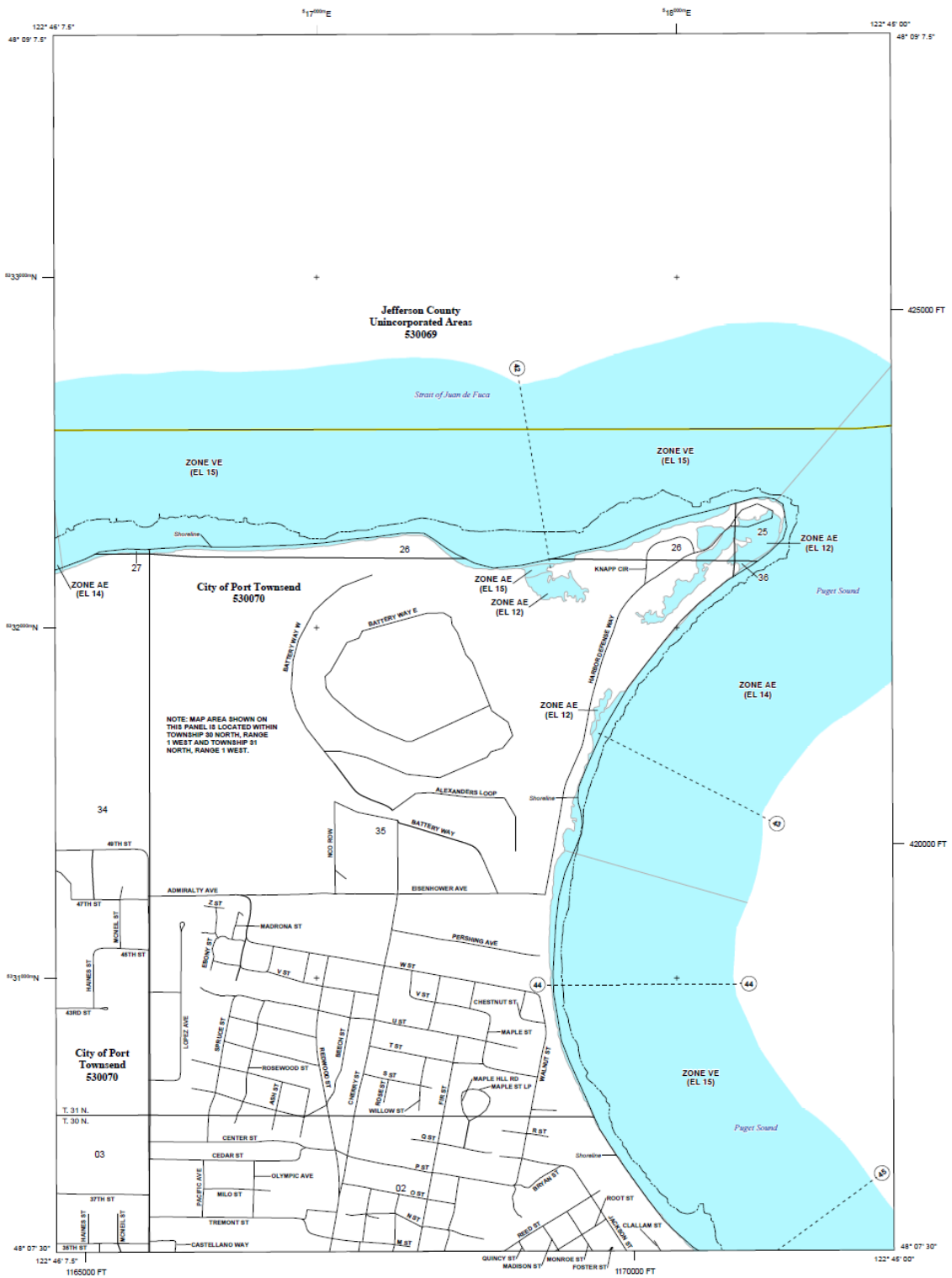
## 2. City of Port Townsend Relief & Bathymetry Map



### 3. Environmentally Sensitive Areas



### 4. FEMA – Sample Preliminary FIRMS for Port Townsend (02/2016)





Sample FEMA FIRM (Cont.)

**FLOOD HAZARD INFORMATION**

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP  
 THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING  
 DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT  
[HTTP://MSC.FEMA.GOV](http://MSC.FEMA.GOV)

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
OTHER AREAS		Area with Reduced Flood Risk due to Levee See Notes, Zone X
		Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer Accredited or Provisionally Accredited Levee, Dike, or Floodwall
OTHER FEATURES		Non-accredited Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
OTHER FEATURES		Coastal Transect
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary

**NOTES TO USERS**

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information Exchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. Available products may include: previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information Exchange.

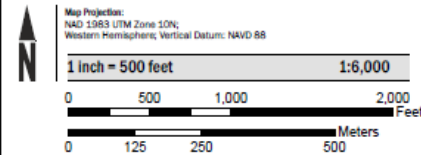
Communities owning land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-8620.

Base map information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS), the United States Census Bureau, and the Bureau of Land Management.

**SCALE**



**PANEL LOCATOR**



**NATIONAL FLOOD INSURANCE PROGRAM  
 FLOOD INSURANCE RATE MAP**

JEFFERSON COUNTY, WA  
 AND INCORPORATED AREAS  
 PANEL 69 of 1670



Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
JEFFERSON COUNTY	530069	0069	C
PORT TOWNSEND, CITY OF	530070	0069	C

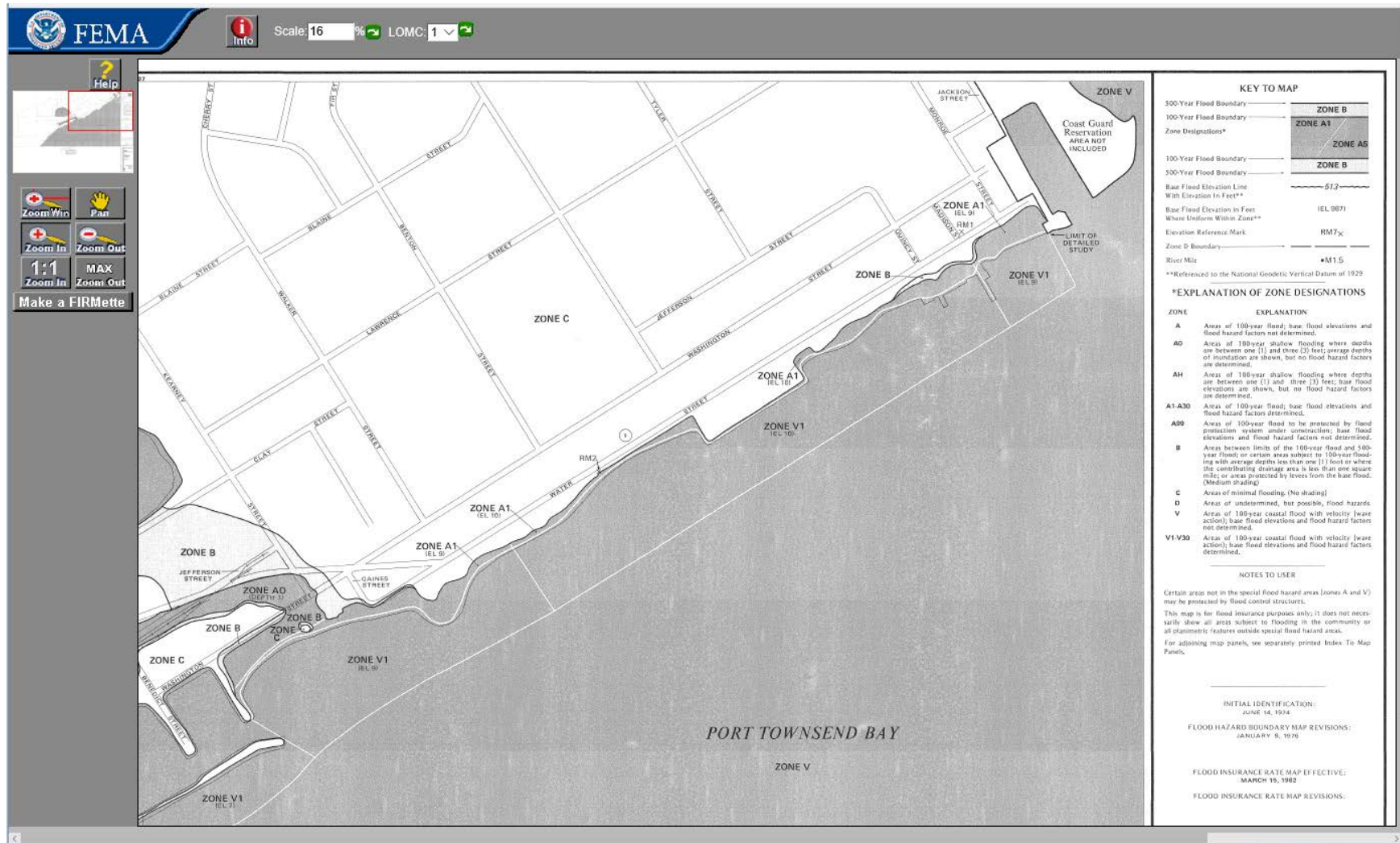
**PRELIMINARY**  
 2/12/2016

VERSION NUMBER  
 2.3.2.2  
 MAP NUMBER  
 53031C0069C  
 EFFECTIVE DATE

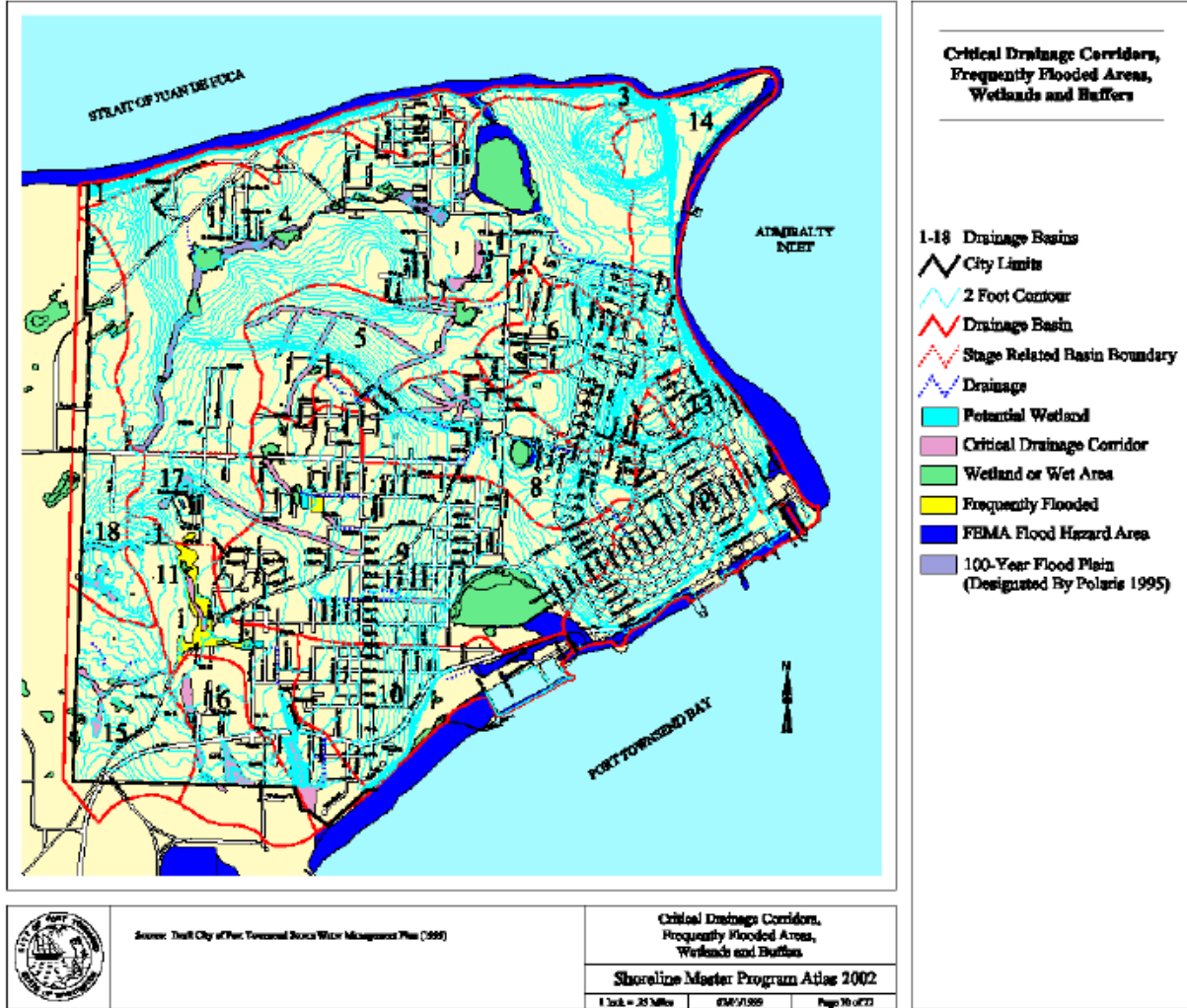
The maps are 24" x 36" and can be downloaded as a PDF at <https://hazards.fema.gov/femaportal/prelimdownload/searchResult.action>.



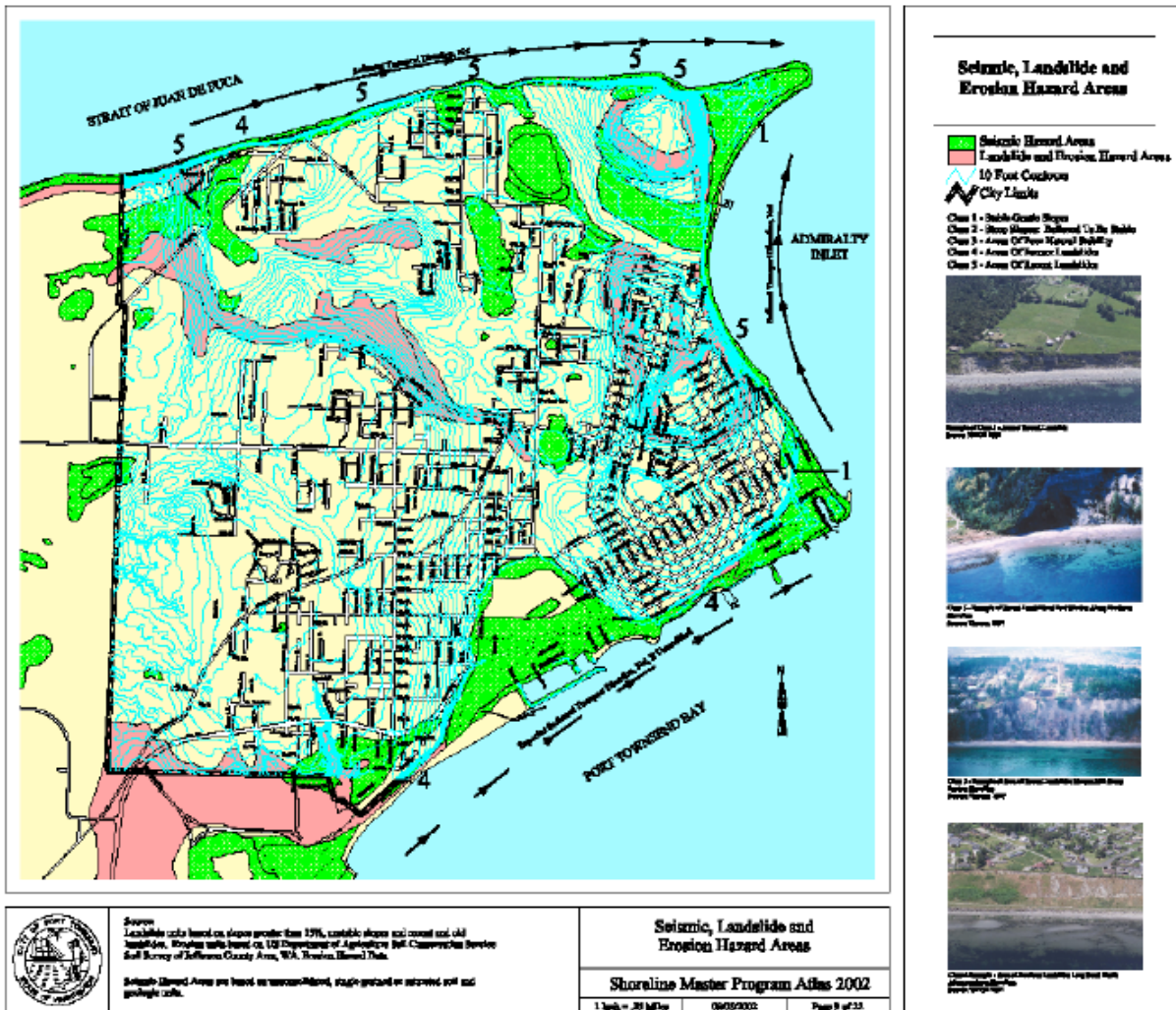
Old FEMA FIRMs Can Still Be Obtained at: <https://msc.fema.gov/portal/>



### 5. Critical Drainage Corridors & Frequently Flooded Areas

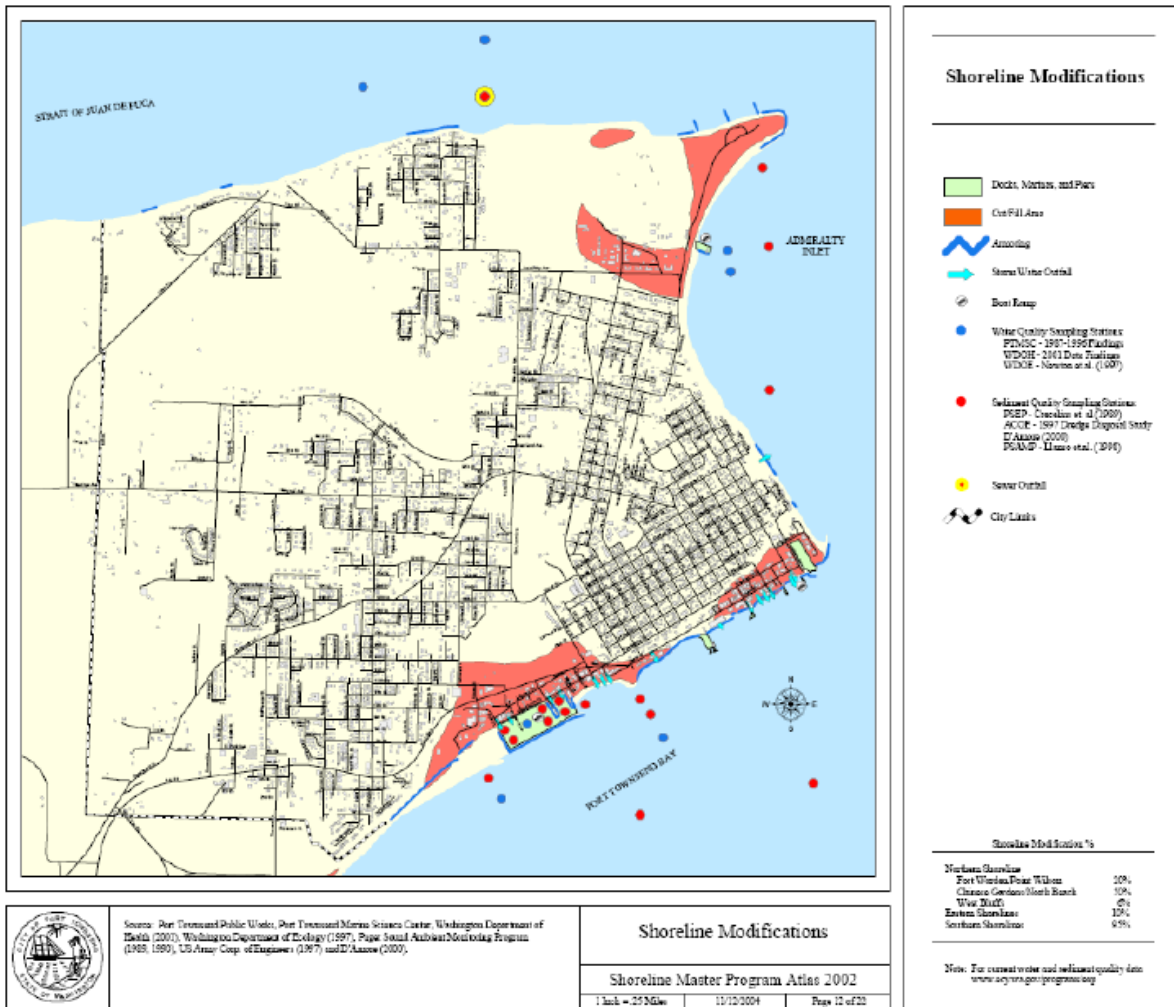


### 6. Seismic, Landslide and Erosion Hazard Areas

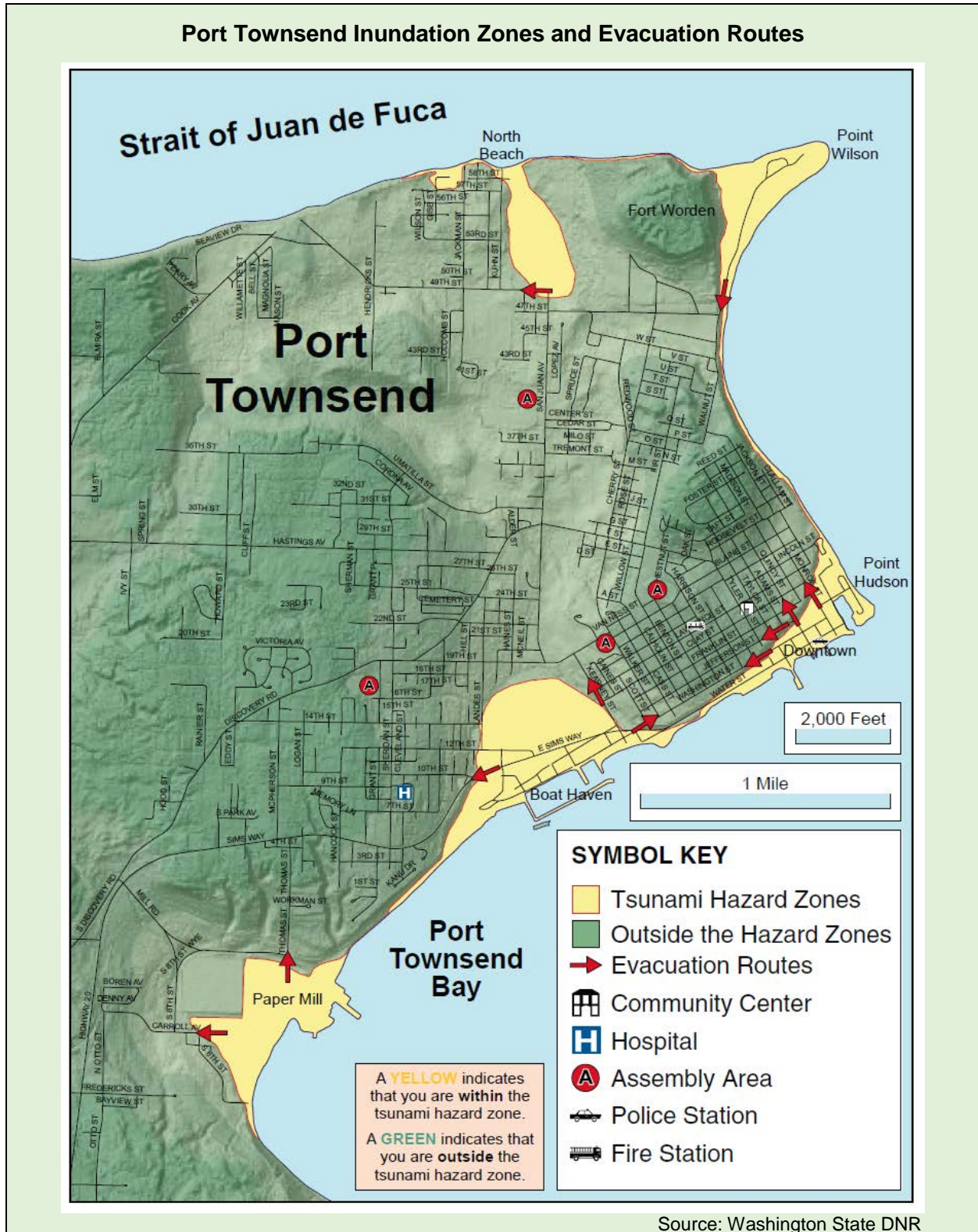




### 7. Shoreline Modifications



8. Tsunami Evacuation Routes – Port Townsend

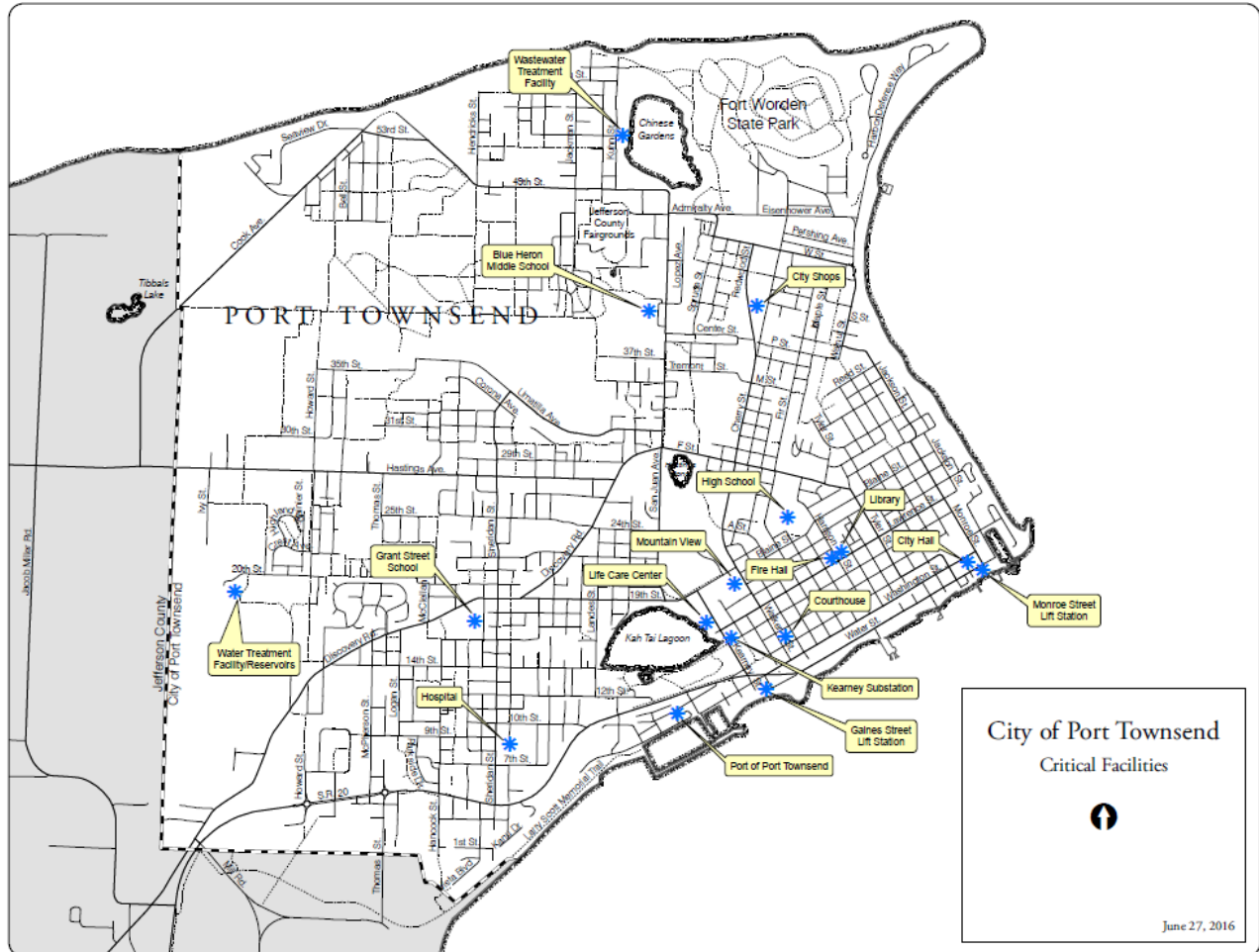


### 9. Wildfire - Urban Interface Atlas Sample





### 10. Location of Critical Buildings





<b>City of Port Townsend - Mitigation Strategies</b>	
<b>Activity ID</b>	<b>Mitigation Activity Description</b>
OG-MH-O	Adopt and Participate in the Jefferson County - City of Port Townsend Hazard Mitigation Plan as official plan.
OG-MH-1	Identify and pursue funding opportunities to develop and implement city and county mitigation activities.
OG-MH-2	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.
OG-MH-3	Educate the citizenry in the role of the 1 <sup>st</sup> Responder through Citizen's Police Academy.
OG-MH-4	Train personnel on how to react in a natural disaster.
ST-MH-1	Establish a formal role for the Jefferson County Natural Hazards Mitigation Advisory Committee to develop a sustainable process for implementing, monitoring, and evaluating countywide mitigation activities.
<del>ST-MH-2*</del> Complete	Integrate goals and action items from the Jefferson County Natural Hazard Mitigation Plan into existing regulatory documents and programs where appropriate. <b>Processes for updating the Comprehensive Plan, etc. now include policy dovetailing with the Hazard Mitigation Plan.</b>
ST-MH-3*	Develop public and private partnerships to foster natural hazard mitigation program coordination in Jefferson County. <b>(See Resilience Center concept below.)</b>
ST-MH-6	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.
ST-MH-7*	Evaluate and integrate citizen ideas into planning and implementation efforts. <b>(Integrated into both City planning processes and Mitigation Plan update cycle.)</b>
<del>ST-MH-8*</del> Completed 2009	Improve interoperability through coordinated purchasing, grant seeking, development of procedures and use of communications equipment and OPSCAN 1 <sup>st</sup> -Responder back bone. (Rev. 2009)
<del>LT-MH-4*</del> Ongoing	Strengthen emergency services preparedness and Long-Term response by linking emergency services with natural Multi-Hazard hazard mitigation programs, and enhancing public education on a regional scale. <b>(This is being done with NPREP, neighborhood participation in the multi-agency Cascade Rising Exercise (CRX) and with coordination with other counties.)</b>
LT-MH-3	Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.
<del>ST-DR-1*</del> Completed 2015	Coordinate drought policies with Port Townsend Paper. Most recent reiteration of the process occurred in 2015 as the result of Lords Lake reservoir dropping to 11 feet from its normal 70 feet. If the reservoir hits 3 feet, Port Townsend Paper will stop operations.
LT-EQ-1	Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.

<b>City of Port Townsend - Mitigation Strategies</b>	
<b>Activity ID</b>	<b>Mitigation Activity Description</b>
LT-EQ-2* Completed	Seismically Retrofit Tunnel Lids throughout the Historic Downtown Business District. (High Priority - Underway starting in 2009.) (Rev. 2009)
LT-EQ-3	Encourage seismic strength evaluations of critical facilities in the City to identify vulnerabilities for mitigation.
LT-EQ-4	Encourage reduction of nonstructural and structural hazards in homes, schools, business, and government offices.
LT-EQ-5* Completed	Seismically retrofit Port Townsend Historical City Hall. (Completed - 2005) (Rev. 2009)
LT-EQ-6* Completed 2006	Replace Port Townsend Fire Station with seismically sound station. (Completed - 2006) (Rev. 2009)
LT-EQ-7* Completed 2009	Move Port Townsend Police Station outside of liquefaction zone. (Completed - 2009) (Rev. 2009)
LT-EQ-8* Completed 2012	Seismically Reinforce Port Townsend Library (High Priority -Under way - 2009) (Rev. 2009)
ST-FL-2* Completed 2012	Recommend revisions to standards required for development within the flood plain, where appropriate. <b>(Shoreline Master Plan updated.)</b>
ST-FL-3	Develop better flood warning systems.
LT-FL-2* Completed 2012	Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in the floodplain. <b>(Policy included in Shoreline Master Plan update in 2012.)</b>
ST-WS-1	Enhance strategies for debris management for severe winter storm events.
ST-WS-2	Develop and implement programs to identify and remove hazard trees located in public right-of-way to reduce potential danger to lives, property, and public infrastructure during windstorms events. (Under way since 2007.)
LT-WS-1	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.
LT-WS-2* Complete	Increase public awareness of severe winter storm mitigation activities. <b>Ongoing as needed through JPREP and NPREP.</b>
LT-WS-4	Support/encourage electrical utilities in mitigation activities to reduce power outages from storms.
LT-TS-1* Completed 2009	Move PT Police Station outside of inundation zone. (Completed Sept 2009.) (Rev. 2009)
ST-WF-1* N/A	Enhance Emergency Services to increase efficiency of wildfire response and recovery activities. <b>(Responsibility of JCFD1; not Port Townsend.)</b>
ST-WF-2	Educate district personnel on federal cost-share and grant programs, Fire Protection agreements, etc. so that full array of assistance to local agencies is understood.

<b>City of Port Townsend - Mitigation Strategies</b>	
<b>Activity ID</b>	<b>Mitigation Activity Description</b>
ST-WF-3	Create wildfire hazard atlas for City of Port Townsend.
LT-WF-1	Encourage development and dissemination of maps relating to the fire hazard to help educate and assist builders and homeowners in being engaged in wildfire mitigation activities, and to help guide emergency services during response.
LT-WF-3	Increase communication, coordination, and collaboration between wildland/urban interface property owners, local and county planners, and fire prevention crews and officials to address risks, existing mitigation measures, and federal assistance.
Completed 2009	Consolidate PTFD and District 6 to make more effective use of apparatus and personnel on wildfires. <b>(Completed PTFD and JCFD6 have been annexed by JCFD1 dba East Jefferson Fire &amp; Rescue.)</b>
Completed 2006	Develop a “battalion” strategy to more effectively coordinate rural districts on wildfires. <b>(Completed - 2006.) (Rev. 2009)</b>

**NEW MITIGATION ACTIVITY: PORT TOWNSEND RESILIENCY CENTER  
ACTIVITY ID: LT-MH-7**

Since 2003, when Port Townsend replaced its fire station with one that was designed to whether earthquakes better, the City has systematically been hardening and seismically retrofitting critical public infrastructure to improve the survivability of the public within those or using those structures. This includes building the fire station, seismically retrofitting two city halls, the historic Carnegie library, the police station, downtown tunnel lids, and the water distribution facility that is a critical node in the City's water system.

While commendable, it has become clear that after a four to 5-minute magnitude 9+ earthquake, such as can happen at any time now if the Cascadia Subduction Zone ruptures along the Washington coast, Port Townsend and Jefferson County will become a refugee zone for months. It is easy to see that highways and bridges will be compromised, the power grid can cease to function for months, and public and private infrastructure will be devastated. Just-in-time supply lines will be destroyed and the entire Olympic Peninsula could be thrown back to the equivalent of having to survive in the late 1800's. Depending on where such an event occurred, the kind of help promised in exercises may not be available to send.

Mitigating the effects of such a disaster goes beyond improving infrastructure per se. Survival is not just making it through the 5-minutes of terror in a major earthquake, it is making it through the 5-months following when mere survival is job number one for everyone.

The Plan Goals include implementing activities that assist in protecting lives by making ... property more resistant to losses from natural hazards, and providing citizens from all areas of Jefferson County with the information and tools they need to help them...in the hours and days immediately following an emergency or disaster event. There are also Plan Goals that encourage the development of public – private partnerships to implement local and regional mitigation activities.

In the spirit of the above goals, the City of Port Townsend, the Port Townsend School District, the Jefferson County Public Hospital District No.2 (Jefferson HealthCare) and the YMCA have assembled a partnership that are willing to contribute assets to create a Port Townsend Resiliency Center to assist the community with pre and post long term recovery.

This concept takes the proposed YMCA facility to be built on School District property and re-scopes the design to "Essential Facility" code and prioritizes the design to meet "key" activities for the partnership to promote resiliency through Wellness, Access, Education, Engagement and Self Sufficiency.

## **Unincorporated Jefferson County**

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## **Unincorporated Jefferson County Jurisdiction-Specific**

### **Vulnerability Assessment**

As part of the vulnerability assessment process, Jefferson County government started an inventory of all critical facilities and is considering these critical facilities in our planning and mitigation strategy development process. Basic information on these facilities is available from public sources, and therefore, it is included in this report. Sensitive information about critical facilities has not been published.

The information contained in this document presents the results of this effort to identify the specific natural hazards threatening Jefferson County, to characterize the vulnerability of Jefferson County regarding these hazards, and to identify current as well as proposed mitigation strategies, projects and/or programs to address those vulnerabilities.

The analyses conducted by the County staff were based on the best currently available information and data regarding the characteristics of the neighborhoods identified, the natural hazards that threaten the people, property, and environment of these neighborhoods as well as the impacts these neighborhoods have suffered in past disasters. This information includes, when available, United States Census data, local tax records, local and national geographic information system data, Flood Insurance Rate Maps, hazard specific analyses, and other environmental and demographic facts. However, very often authoritative or current information simply was not available for the planning effort. In these cases, the experience, knowledge and judgment of local officials representing Jefferson County, the judgment of knowledgeable officials and simplified analyses is considered acceptable at this stage to allow the participating organizations to complete the tasks needed to develop this multi-jurisdictional natural hazards mitigation plan. As the planning continues in future years, or at the time when a proposed mitigation initiative is intended to be funded and/or implemented, the participating organizations/jurisdictions recognize that additional information and analyses may be required.

Jefferson County is committed to the implementation of the mitigation related projects/programs described in this section of the plan when and if resources become available. County government is also committed to continuing the mitigation planning process that has resulted in the development of this document, and to the ongoing cooperation with other agencies, organizations, and jurisdictions to make the County more resistant to the damages and hardships that could otherwise be the result of future natural disasters.



**Jefferson County**

**Overview:**

**Contact**

**(360) 385-8100**

**County Courthouse  
1820 Jefferson St  
Port Townsend, WA 98368**

**Population of Jurisdiction**<sup>1</sup>

30,880 (2015 Census Estimate)  
21,500 (Unincorporated)

**Principle Economic Base:**

Government, Pulp and Paper; Marine Trades / Boatbuilding; Wood Products/Logging; Diversified Manufacturing; Tourism; and Health Care

**Current Hazard Mitigation Codes/Plans/Ordinances:**

- Comprehensive Plan under the Growth Management Act
- Adopted Unified Development Code (January 2001)
- Adopted Fire Code
- Adopted Building Code (2003 International Code)
- Local Water Quality Plan
- County Code
- Flood Damage Prevention Ordinances
- Participation in NFIP Program

**NFIP Participation** <sup>1,2,3</sup>

<p>Date Joined NFIP: <b>06/14/1974</b> CID: <b>530069</b>                  Last Community Assistance Visit<sup>2</sup>: <b>08/16/2005</b>                  Nbr of NFIP policies in the Jurisdiction: <b>162 (06/2016)</b>                  Floodplain Ordinance: <b>Chap 15.15 Jefferson County Code</b></p>	<p>Total Number of Paid Claims: <b>43</b>                  \$ Amount of Paid Claims: <b>\$546,202</b>                  Total Number of Repetitive Claim Properties: <b>1</b>                  Value of Repetitive Claim Properties: <b>\$??? (2016)</b></p>
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<sup>1</sup> Policy Information by State, NFIP BureauNet, June 30, 2016. Accessed September 2016. Available at:

<http://bsa.nfipstat.fema.gov/reports/1011.htm#WAT>

<sup>2</sup> Claim Information by State, NFIP, June 30, 2016. Accessed September 2016. Available at:

<http://bsa.nfipstat.fema.gov/reports/1040.htm#WAT>

<sup>3</sup> WYO and Direct Data by Community with County and State, June 30, 2016, Accessed September 2016. Available at:

<http://bsa.nfipstat.fema.gov/reports/w2rhudrp.htm>

Jefferson County is a participant in good standing in the NFIP program. NFIP participation has been institutionalized as part of the county’s risk management efforts, thus assuring that NFIP requirements are routinely reviewed and that changes to local ordinances, the Shoreline Master Plan, etc. are made consistent with those requirements. Since the county’s Comprehensive Use Plan, its Shoreline Master Plan, and others have specific review and update cycles, NFIP-related changes normally occur during a planned review and update unless specific circumstances such as an externally mandated implementation date dictates otherwise.

Jefferson County attempted to become a participant in the Community Rating System (CRS) in 2008, but the effort fell short due to the loss of key personnel working on the project. In 2009 and 2010, the Jefferson County Department of Community Development (DCD) was reduced by 50% due to the loss of revenue from construction permits. This resulted in the effort to become a CRS participant being pushed back in priority as the remaining staff focused primarily on revenue generating activities and external mandates. The county is still operating with reduced staffing in DCD.

## Planning Methodologies

To make jurisdiction-wide analysis of the population at risk for each hazard type feasible and practical for mitigation planning purposes, a simplified approach has been used. The estimate of the population at risk for specific hazards is accomplished in the following manner: The population in a specific neighborhood is estimated by local planners, based on readily available data or their best judgment in the absence of suitable data. The population could be residents, workers, visitors, institutionalized individuals, mixed population types, etc., depending on the characteristics of the neighborhood. The percentage of the area of the specific neighborhood threatened by the identified hazard is then estimated by local planners, again based on readily available data or their best judgment. The percent of the neighborhood at risk is then used as a multiplier to determine the estimated number of people at risk from that hazard. The methodology is simplistic but conservative, in that it assumes occupied structures are uniformly distributed throughout the neighborhood in relation to the area of risk, that the population is present in the neighborhood on a 24 hour, 7-day basis, and that all individuals are equally vulnerable to the impacts of the hazard event. The derived estimates for the number of people at risk may therefore be higher than actually is the case, but the estimates are considered satisfactory to support the local mitigation planning process.

To make jurisdiction-wide analysis of the dollar value of properties at risk for each hazard type feasible and practical for mitigation planning purposes, a simplified approach has been used. The estimate of the dollar value of properties at risk for specific hazards is accomplished in the following manner: The number of structures in a specific neighborhood and the average dollar value for those structures is estimated by local planners, based on readily available data or their best judgment in the absence of suitable data. The percentage of the specific neighborhood threatened by the identified hazard is then estimated by local planners, again based on readily available data or their best judgment. The percent of the neighborhood at risk is then used as a multiplier to determine the estimated number of structures at risk from that hazard. This number is then multiplied by the estimated average cost of the structures to derive an estimated total value of the property at risk of damage in that neighborhood from the identified hazard. The methodology is simplistic but conservative, in that it assumes structures are uniformly distributed throughout the neighborhood in relation to the area of risk; that the hazard threatens the entire value of each structure; and that structures are equally vulnerable to the impacts of the hazard. The derived estimates for the dollar value of property at risk may therefore be higher than would actually be the case, but the estimates are considered satisfactory to support the local mitigation planning process.

To make analysis of the dollar value of critical assets for each hazard type, insurance records were obtained for all public buildings. Tax roles were used for the valuation of districts and of specific buildings or locations, as appropriate.

## DAMAGE & DISASTER EVENTS - JEFFERSON COUNTY<sup>3</sup>

The section following this one shows the Federal Disaster Declarations for Washington State for the last 53 years. However, every year since 2009, the County incurred significant damage from events that were not necessarily federally declared disasters. Most of the recovery funds came through a combination of county funds, Federal Highway Administration (FHWA), and the County Road Administration Board (CRAB). Table 1 shows the disaster expenditures on county roads for each year from 2010 thru 2015:

Table 1. Disaster Expenditures on County Roads 2010 - 2015	
Year	Expenditure
2010	\$861,731
2011	\$1,180,090
2012	\$597,005
2013	\$699,108
2014	\$601,585
2015	\$503,981

Table 2 illustrates some of the damage repairs that FEMA participated in funding:

Table 2 – Selected Significant Jefferson County Road Damage		
Event Year	Amount	Characterization
2009	\$23,000	FEMA participated in repair of Rainforest Road
2009	\$60,000	FEMA participated in snow storm event.
08/2015	\$80,000	FEMA participated in windstorm event.
2008 - 2015	\$1,000,000	Project to relocate the Dowans Creek road. 2008 event that to time to acquire permits and rights of way.
<b>Seeking Funding in 2016 to Assist Recovery from November and December 2015 storm events.</b>		
2015	\$300,00	Oil City Road; M.P. 8.8-8.9; Flood Damage
2015	\$85,000	Oil City Road; M.P. 7.8; Landslide
2015	\$200,000	Emergency Measures for Undie Road; M.P. 1.1-1.2; Landslide
2015	\$1,000,000	Undie Road Relocation

## **DISASTER EVENTS - JEFFERSON COUNTY<sup>4</sup>**

The following table shows the Federal Disaster Declarations for Washington State for the last 53 years. Declarations that directly affected Jefferson County are highlighted in **RED**, while declarations that affected adjacent counties are highlighted in **BLUE**. Jefferson County is impacted by disasters in neighboring counties in two ways:

1. It has mutual aid agreements with adjacent counties, so wildfires, windstorms, and landslides, for example, can and do result in Jefferson County resources being expended; and
2. Since Jefferson County is on a peninsula, strategically occurring disasters in neighboring counties can disrupt deliveries of food and fuel to Jefferson County just when it is needed most. An earthquake or storm that takes out the Hood Canal Bridge, for example, will cause major economic damage to Jefferson County.

**Federal Disaster Declarations Washington State 1956-2016**

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
4253	2/2/2016	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Skamania, and Wahkiakum counties	Severe Winter Storm, Straight-Line Winds, Flooding, Landslides, Mudslides, and a Tornado	\$19,258,007	\$77,852.15	Major Disaster Declaration
4249	1/15/2016	Chelan, Clallam, Garfield, Island, Jefferson, Kittitas, Lewis, Lincoln, Mason, Pend Oreille, Skamania, Snohomish, Spokane, Stevens, Wahkiakum, and Whitman counties	Severe Storms, Straight-line Winds, Flooding, Landslides, and Mudslides	\$21,743,433.00	\$1,209,209.13	Major Disaster Declaration
4243	10/20/2015	Chelan, Ferry, Lincoln, Okanogan, Pend Oreille, Stevens, Whatcom and Yakima; as well as the Confederated Tribes of the Colville Reservation	Wildfires and Mudslides	\$41,736,858	\$4,809,743.86	Major Disaster Declaration
4242	10/15/2015	Clallam, Grays Harbor, Island, Jefferson, Snohomish and Whatcom counties	Severe Windstorm	\$12,021,594	\$1,222,139.66	Major Disaster Declaration
5113	9/14/2015	Klickitat County	Horsethief Butte Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5109	8/24/2015	Skagit and Whatcom counties	Goodell Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5108	8/21/2015	Ferry and Stevens County	Renner Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
3372	8/21/2015	Asotin, Chelan, Douglas, Ferry, Klickitat, Okanogan, Pend Oreille, Skamania, Spokane, Stevens, and Yakima and the Confederated Tribes of the Colville Reservation, the Kalispel Tribe of Indians, the Spokane Tribe of Indians, and the Confederated Tribes and Bands of the Yakama Nation	Wildfires	NO PDA AVAIL	Not Yet Available	Emergency Declaration
5106	8/19/2015	Okanogan County	Twisp River Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5104	8/15/2015	Okanogan County	Okanogan County Fire Complex	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5103	8/15/2015	Stevens County	Stevens County Fire Complex	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5101	8/15/2015	Ferry County	Stickpin Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5100	8/14/2015	Ferry County, Colville Reservation	Chelan Fire Complex	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5098	8/14/2015	Okanogan County	Nine Mile Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5094	8/5/2015	N/A	Highway 8 Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5090	7/21/2015	Walla Walla County	Blue Creek Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5087	6/29/2015	Chelan County	Sleepy Hollow Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
4188	8/11/2014	Kittitas County, Okanogan County and the Confederated Tribes of the Colville Reservation	Wildfires	\$34,978,421	\$23,679,025.91	Major Disaster Declaration
5072	8/6/2014	N/A	Hansel Fire	NO PDA AVAIL	\$11,319.08	Fire Management Assistance Declaration
5071	8/3/2014	N/A	Snag Canyon Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
3371	7/23/2014	State of Washington	Wildfires	NO PDA AVAIL	Not Yet Available	Emergency Declaration
5064	7/19/2014	N/A	Saddle Mountain Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5063	7/19/2014	N/A	Watermelon Hill Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5062	7/17/2014	N/A	Carlton Complex Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5061	7/17/2014	N/A	Chiwaukum Fire	NO PDA AVAIL	\$47,278.34	Fire Management Assistance Declaration
5059	7/10/2014	N/A	Mills Canyon Fire	NO PDA AVAIL	\$88,250.84	Fire Management Assistance Declaration
5058	7/10/2014	N/A	Lake Spokane Fire	NO PDA AVAIL	\$272,586.98	Fire Management Assistance Declaration
4168	4/2/2014	Snohomish County, including the lands associated with the Sauk-Suiattle, Stillaguamish, and Tulalip Tribes	Flooding and Mudslides	\$53,235,000	\$27,351,662.07	Major Disaster Declaration
3370	3/24/2014	State of Washington	Flooding and Mudslides	NO PDA AVAIL	Not Yet Available	Emergency Declaration
5048	8/21/2013	N/A	Eagle Fire	NO PDA AVAIL	\$2,273,317.23	Fire Management Assistance Declaration



Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
5042	8/10/2013	N/A	Mile Post 10 Fire	NO PDA AVAIL	\$908,893.49	Fire Management Assistance Declaration
5038	7/30/2013	N/A	Colockum Tarps Fire	NO PDA AVAIL	\$6,824,731.93	Fire Management Assistance Declaration
4083	9/25/2012	Ferry and Okanogan counties and the Confederated Tribes of the Colville Reservation	Severe Storm, Straight-line Winds, and Flooding	NO PDA AVAIL	\$2,860,240.58	Major Disaster Declaration
5020	9/20/2012	Kittitas and Chelan counties	Table Mountain Fire	NO PDA AVAIL	\$3,030,510.33	Fire Management Assistance Declaration
5018	9/13/2012	Chelan County	Peavine Fire	NO PDA AVAIL	\$285,252.85	Fire Management Assistance Declaration
5017	9/12/2012	Chelan County	Poison Fire	NO PDA AVAIL	Not Yet Available	Fire Management Assistance Declaration
5015	9/10/2012	Chelan County	Byrd Canyon Fire	NO PDA AVAIL	\$219,570.61	Fire Management Assistance Declaration
5012	9/9/2012	Chelan County, Douglas and Grant counties	1st Canyon Fire	NO PDA AVAIL	\$528,668.37	Fire Management Assistance Declaration
5013	9/9/2012	Chelan County	Barker Canyon Fire	NO PDA AVAIL	\$775,643.48	Fire Management Assistance Declaration
5011	9/6/2012	N/A	Highway 141 Fire Complex	NO PDA AVAIL	\$1,803,712.29	Fire Management Assistance Declaration
5005	8/14/2012	N/A	Taylor Bridge Fire	NO PDA AVAIL	\$6,669,639.04	Fire Management Assistance Declaration
4056	3/5/2012	Clallam, Grays Harbor, King, Klickitat, Lewis, Mason, Pierce, Skamania, Snohomish, Thurston, and Wahkiakum	Severe Winter Storm, Flooding, Landslides, and Mudslides	\$32,345,445	\$29,701,941.59	Major Disaster Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
2966	9/8/2011	N/A	Monastery Fire Complex	NO PDA AVAIL	\$1,392,551.94	Fire Management Assistance Declaration
1963	3/25/2011	King, Kittitas, Klickitat, Lewis, Skagit, Skamania, and Wahkiakum.	Severe Winter Storm, Flooding, Landslides, and Mudslides	\$8,697,563	\$3,480,030.93	Major Disaster Declaration
2854	8/27/2010	N/A	Slide Creek Fire	NO PDA AVAIL	\$579,945.39	Fire Management Assistance Declaration
2848	7/19/2010	Yakima County	Cowiche Mills Fire	NO PDA AVAIL	\$675,577.69	Fire Management Assistance Declaration
2827	8/22/2009	N/A	Dry Creek Fire Complex	NO PDA AVAIL	\$225,175.41	Fire Management Assistance Declaration
2826	8/22/2009	N/A	Oden Road Fire	NO PDA AVAIL	\$1,781,984.76	Fire Management Assistance Declaration
2823	7/29/2009	Chelan County	Union Valley Fire	NO PDA AVAIL	\$640,027.58	Fire Management Assistance Declaration
1825	3/2/2009	Clallam, Clark, Columbia, Cowlitz, Garfield, Grays Harbor, Island, Jefferson, King, Klickitat, Lewis, Lincoln, Mason, Pacific, Pend Oreille, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Wahkiakum, Walla Walla, and Whatcom counties	Severe Winter Storm and Record and Near Record Snow	\$28,544,162	\$26,272,104.00	Major Disaster Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
1817	1/30/2009	Adams, Asotin, Benton, Chelan, <b>Clallam</b> , Columbia, Cowlitz, Franklin, Grays Harbor, <b>Jefferson</b> , King, Kittitas, Klickitat, Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Wahkiakum, Walla Walla, Whatcom, Whitman, and Yakima counties.	Severe Winter Storm, Landslides, Mudslides, and Flooding	No P.A. Cost Estimate in the PDA	\$51,030,994.18	Major Disaster Declaration
2783	7/11/2008	Spokane County	Spokane Valley Fire	NO PDA AVAIL	\$1,816,465.98	Fire Management Assistance Declaration
2784	7/11/2008	N/A	Badger Mountain Fire Complex	NO PDA AVAIL	\$2,020,851.57	Fire Management Assistance Declaration
1734	12/8/2007	<b>Clallam</b> , Grays Harbor, <b>Jefferson</b> , King, <b>Kitsap</b> , Lewis, <b>Mason</b> , Pacific, Skagit, Snohomish, Thurston and Wahkiakum Counties.	Severe Storms, Flooding, Landslides, and Mudslides	No P.A. Cost Estimate in the PDA	\$60,627,680.14	Major Disaster Declaration
2731	9/21/2007	Skamania County	Broughton Fire	NO PDA AVAIL	\$390,948.83	Fire Management Assistance Declaration
2714	7/16/2007	N/A	Tunk Grade Fire	NO PDA AVAIL	\$1,115,187.66	Fire Management Assistance Declaration
2711	7/8/2007	State of Washington	Easy Street Fire	NO PDA AVAIL	\$1,104,733.00	Fire Management Assistance Declaration
1682	2/14/2007	<b>All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program</b>	Severe Winter Storm, Landslides, and Mudslides	NO PDA AVAIL	\$30,374,675.17	Major Disaster Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
1671	12/12/2006	<b>All counties in the State of Washington are eligible to apply for assistance under the Hazard Mitigation Grant Program.</b>	Severe Storms, Flooding, Landslides, and Mudslides	NO PDA AVAIL	\$31,624,961.74	Major Disaster Declaration
2674	9/11/2006	N/A	Flick Creek Fire	NO PDA AVAIL	\$80,510.28	Fire Management Assistance Declaration
2668	8/22/2006	N/A	Columbia Fire Complex	NO PDA AVAIL	\$6,979,271.97	Fire Management Assistance Declaration
2663	8/8/2006	N/A	Valley Mill Fire	NO PDA AVAIL	\$619,658.59	Fire Management Assistance Declaration
1641	5/17/2006	<b>Clallam, Grays Harbor, Island, Jefferson, Kitsap, Mason, Pacific, Pend Oreille, San Juan, Snohomish, and Wahkiakum Counties</b>	Severe Storms, Flooding, Tidal Surge, Landslides, and Mudslides	NO PDA AVAIL	\$6,585,337.32	Major Disaster Declaration
3227	9/7/2005	<b>All 39 counties of Washington are included in the designation.</b>	Hurricane Katrina Evacuation	NO PDA AVAIL	\$1,730,746.78	Emergency Declaration
2575	8/7/2005	Garfield and Columbia Counties	School Fire	NO PDA AVAIL	\$3,986,571.64	Fire Management Assistance Declaration
2572	8/1/2005	Chelan County	Dirty Face Fire	NO PDA AVAIL	\$1,061,643.32	Fire Management Assistance Declaration
2546	8/12/2004	Washington State	Mud Lake Fire	NO PDA AVAIL	\$892,685.29	Fire Management Assistance Declaration
2543	8/11/2004	Washington State	Fischer Fire	NO PDA AVAIL	\$3,033,966.29	Fire Management Assistance Declaration
2538	7/30/2004	Washington State	Elk Heights Fire	NO PDA AVAIL	\$1,051,894.17	Fire Management Assistance Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
2537	7/30/2004	Washington State	Deep Harbor Fire	NO PDA AVAIL	\$47,179.51	Fire Management Assistance Declaration
2527	7/6/2004	Washington State	Beebe Fire	NO PDA AVAIL	\$721,938.56	Fire Management Assistance Declaration
1499	11/7/2003	Clallam, Grays Harbor, Island, Jefferson, Kitsap, Mason, Pacific, Pend Oreille, San Juan, Snohomish, and Wahkiakum Counties	Severe Storms and Flooding	NO PDA AVAIL	\$9,125,551.24	Major Disaster Declaration
2498	9/6/2003	Washington State	Needle Fire	NO PDA AVAIL	\$458,796.73	Fire Management Assistance Declaration
2481	7/16/2003	Washington State	Okanogan City Fire	NO PDA AVAIL	\$71,060.87	Fire Management Assistance Declaration
2477	7/12/2003	Washington State	Middle Fork Fire	NO PDA AVAIL	\$1,456,420.31	Fire Management Assistance Declaration
2451	7/25/2002	Washington State	Pickens Fire	NO PDA AVAIL	\$449,514.35	Fire Management Assistance Declaration
2449	7/20/2002	Washington State	Deer Point Fire	NO PDA AVAIL	\$2,573,214.31	Fire Management Assistance Declaration
2378	8/17/2001	Washington State	Mt. Leona FireComplex	NO PDA AVAIL	\$1,641,186.86	Fire Management Assistance Declaration
2379	8/17/2001	Washington State	Rex Creek Fire Complex	NO PDA AVAIL	\$1,008,947.13	Fire Management Assistance Declaration
2377	8/16/2001	Washington State	Spruce Dome Fire Complex	NO PDA AVAIL	\$2,761,493.04	Fire Management Assistance Declaration
2376	8/16/2001	Washington State	Tonasket Fire Complex	NO PDA AVAIL	\$536,017.54	Fire Management Assistance Declaration
2372	8/14/2001	Washington State	Virginia Lakes Fire Complex	NO PDA AVAIL	\$1,707,296.80	Fire Management Assistance Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
2374	8/14/2001	Washington State	Icicle Fire Complex	NO PDA AVAIL	\$1,186,851.58	Fire Management Assistance Declaration
2373	8/14/2001	Washington State	Brewster Fire Complex	NO PDA AVAIL	\$2,722,101.81	Fire Management Assistance Declaration
2368	7/28/2001	Washington State	Union Valley Fire	NO PDA AVAIL	\$1,121,445.74	Fire Management Assistance Declaration
1361	3/1/2001	Benton, Chelan, <b>Clallam</b> , Clark, Cowlitz, Douglas, Grays Harbor, <b>Island</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, Walla Walla, Whatcom, Yakima	Nisqually Earthquake	NO PDA AVAIL	\$66,734,226.22	Major Disaster Declaration
2323	8/25/2000	Washington State	Mule Dry Fire	NO PDA AVAIL	\$925,982.68	Fire Management Assistance Declaration
2313	7/22/2000	Okanogan County	Rocky Hull Fire	NO PDA AVAIL	\$1,829,514.81	Fire Management Assistance Declaration
2311	2/29/2000	Benton County (Hanford Area)	Two Fork Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
1255	10/16/1998	Cowlitz County (Kelso)	Landslide In The City Of Kelso	NO PDA AVAIL	\$6,183,513.64	Major Disaster Declaration
1252	10/5/1998	Ferry and Stevens Counties	Flooding	NO PDA AVAIL	\$2,022,392.91	Major Disaster Declaration
2248	9/25/1998	Columbia County	Columbia County - Toncannen Fire	NO PDA AVAIL	\$18,718.34	Fire Management Assistance Declaration
2237	9/3/1998	Cowlitz County	Cowlitz County - Ballpark Fire	NO PDA AVAIL	\$230,928.14	Fire Management Assistance Declaration
2225	7/28/1998	Klickitat County	Cleveland County Fire	NO PDA AVAIL	\$1,184,534.16	Fire Management Assistance Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
2194	8/27/1997	Department of Natural Resources	Olympia Command Fire	NO PDA AVAIL	\$134,398.60	Fire Management Assistance Declaration
2193	8/14/1997	Department of Natural Resources	Tum-Tum Fire	NO PDA AVAIL	\$537,898.90	Fire Management Assistance Declaration
2192	7/21/1997	Department of Natural Resources	Benton City Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
1182	7/21/1997	Pend Oreille	Snowmelt/Flooding	NO PDA AVAIL	Not Available	Major Disaster Declaration
1172	4/2/1997	Grays Harbor, <b>Jefferson</b> , King, <b>Kitsap</b> , Lincoln, <b>Mason</b> , Pacific, Pierce, Pend Oreille, Stevens	Severe Storms/Flooding/Landslides/Mudslides	NO PDA AVAIL	Not Available	Major Disaster Declaration
1159	1/17/1997	Adams, Asotin, Benton, Chelan, <b>Clallam</b> , Clark, Columbia, Cowlitz, Douglas, Ferry, Franklin, Garfield, Grant, Grays Harbor, <b>Island</b> , <b>Jefferson</b> , King, <b>Kitsap</b> , Kittitas, Klickitat, Lewis, Lincoln, <b>Mason</b> , Okanogan, Pacific, Pend Oreille, Pierce, San Juan, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Walla Walla, Whatcom, Yakima	Severe Winter Storms/Flooding	NO PDA AVAIL	Not Available	Major Disaster Declaration
1152	1/7/1997	Klickitat, Pend Oreille and Spokane	Ice and Snow Storms	NO PDA AVAIL	Not Available	Major Disaster Declaration
2186	8/11/1996	Department of Natural Resources, Military Department	Bowie Road Fire	NO PDA AVAIL	\$272,044.68	Fire Management Assistance Declaration



Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
1100	2/9/1996	Adams, Asotin, Benton, Clark, Columbia, Cowlitz, Garfield, Grays Harbor, King, <b>Kitsap</b> , Kittitas, Klickitat, Lewis, Lincoln, Pierce, Skagit, Skamania, Snohomish, Spokane, Thurston, Wahkiakum, Walla Walla, Whitman, Yakima, and Yakima Indian Reservation	Severe Storms/Flooding	NO PDA AVAIL	Not Available	Major Disaster Declaration
1079	1/3/1996	Chelan, <b>Clallam</b> , Clark, Cowlitz, Grays Harbor, <b>Island</b> , <b>Jefferson</b> , King, Kittitas, Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom, Yakima	Storms/High Winds/Floods	NO PDA AVAIL	Not Available	Major Disaster Declaration
1037	8/2/1994	Department of Natural Resources, Military Department	El Nino Effects (The Salmon Industry)	NO PDA AVAIL	Not Available	Major Disaster Declaration
2105	7/29/1994	N/A	White Salmon Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
2104	7/28/1994	Department of Natural Resources, Military Department	Hatchery Creek/Round Mountain Fire	NO PDA AVAIL	\$12,218,145.60	Fire Management Assistance Declaration
2103	7/26/1994	Department of Natural Resources, Military Department	Tyee Wildfire	NO PDA AVAIL	\$17,711,728.14	Fire Management Assistance Declaration
2101	7/11/1994	N/A	Riverside Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
981	3/4/1993	King, Lewis, <b>Mason</b> , Pierce, Snohomish, Thurston, Wahkiakum	Severe Storm, High Winds	NO PDA AVAIL	Not Available	Major Disaster Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
2085	8/6/1992	Department of Natural Resources	Skookum Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
922	11/13/1991	Pend Oreille, Spokane, Stevens, Whitman, Department of Natural Resources	Fires	NO PDA AVAIL	Not Available	Major Disaster Declaration
2079	10/18/1991	N/A	Eastern Washington Fires	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
896	3/8/1991	Island, Jefferson, King, Kitsap, Lewis, Pierce, San Juan, Skagit, Snohomish, Whatcom	High Tides, Severe Storm	NO PDA AVAIL	Not Available	Major Disaster Declaration
883	11/26/1990	Chelan, Clallam, Grays, Harbor, Island, Jefferson, King, Kitsap, Kittitas, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom, Yakima	Flooding, Severe Storm	NO PDA AVAIL	Not Available	Major Disaster Declaration
852	1/18/1990	Benton, Grays Harbor, King, Lewis, Pierce, Thurston, Wahkiakum	Flooding, Severe Storm	NO PDA AVAIL	Not Available	Major Disaster Declaration
822	4/14/1989	Douglas, Okanogan, Stevens, Whitman	Heavy Rains, Flooding, Mudslides	NO PDA AVAIL	Not Available	Major Disaster Declaration
2070	9/6/1988	Department of Natural Resources	Dinkleman Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
784	12/15/1986	Cowlitz, King, Lewis, Pacific, Snohomish, Wahkiakum	SEVERE STORMS, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
769	7/26/1986	Spokane	SEVERE STORMS, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
762	3/19/1986	Cowlitz	Heavy Rains, Flooding, Landslides	NO PDA AVAIL	Not Available	Major Disaster Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
757	2/15/1986	Clallam, Jefferson, King	SEVERE STORMS, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
2058	8/30/1985	Department of Natural Resources	Tonasket/Baker Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
676	1/27/1983	Whatcom	SEVERE STORMS, HIGH TIDES, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
3086	8/19/1982	Skamania, Cowlitz, US Army Corps of Engineers, National Weather Service, US Geological Survey	Threat of Flooding at Spirit Lake	NO PDA AVAIL	Not Available	Emergency Declaration
623	5/21/1980	All 39 counties	VOLCANIC ERUPTION, MT. ST. HELENS	NO PDA AVAIL	Not Available	Major Disaster Declaration
612	12/31/1979	Clallam, Grays Harbor, Jefferson, King, Mason, Skagit, Snohomish, Whatcom	STORMS, HIGH TIDES, MUDSLIDES, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
2033	7/23/1979	Department of Natural Resources	Salmon Creek Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
3070	3/12/1979	Town of Mesa, Franklin County	Flooding	NO PDA AVAIL	Not Available	Emergency Declaration
545	12/10/1977	Benton, Clark, Cowlitz, Garfield, Grays Harbor, King, Kittitas, Klickitat, Lewis, Pacific, Pierce, Snohomish, Thurston, Wahkiakum, Whitman, Yakima	SEVERE STORMS, MUDSLIDES, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
3037	3/31/1977	Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, Yakima	Drought	NO PDA AVAIL	Not Available	Emergency Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
492	12/13/1975	Benton, Cowlitz, Grays Harbor, King, Kittitas, Lewis, <b>Mason</b> , Pierce, Skagit, Snohomish, Thurston, Whatcom, Yakima	SEVERE STORMS, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
414	1/25/1974	Asotin, Benton, Columbia, Ferry, <b>Kitsap</b> , Klickitat, Lewis, <b>Mason</b> , Pend Oreille, Stevens, Thurston, Whitman, Yakima	SEVERE STORMS, SNOWMELT, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
334	6/10/1972	Chelan, Douglas, Okanogan	SEVERE STORMS, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
328	3/24/1972	King, Pierce, Thurston	Heavy Rains, Flooding	NO PDA AVAIL	Not Available	Major Disaster Declaration
322	2/1/1972	Asotin, Cowlitz, Grays Harbor, Lewis, Pacific, Skamania, Thurston, Wahkiakum, Whitman	SEVERE STORMS, FLOODING	NO PDA AVAIL	Not Available	Major Disaster Declaration
300	2/9/1971	Columbia, Garfield, Grays Harbor, Lewis, Skagit, Whatcom, Yakima	Heavy Rains, Melting Snow, Flooding	NO PDA AVAIL	Not Available	Major Disaster Declaration
2002	7/18/1970	Department of Natural Resources	Grassland & Forest Fire	NO PDA AVAIL	Not Available	Fire Management Assistance Declaration
196	5/11/1965	King, <b>Kitsap</b> , <b>Mason</b> , Pierce, Snohomish, Thurston	Earthquake	NO PDA AVAIL	Not Available	Major Disaster Declaration
185	12/29/1964	Asotin, Benton, Clark, Columbia, Cowlitz, Garfield, Grays Harbor, King, Kittitas, Klickitat, Lewis, <b>Mason</b> , Pacific, Pierce, Skamania, Snohomish, Wahkiakum, Walla Walla, Whitman, Yakima	Heavy Rains & Flooding	NO PDA AVAIL	Not Available	Major Disaster Declaration
146	3/2/1963	Columbia, Garfield, Grant, Whitman, City of Spokane	FLOODS	NO PDA AVAIL	Not Available	Major Disaster Declaration

Number	Date	Counties	Incident Description	Total Event P.A. Cost Estimate	Public Assistance Awarded	Declaration Type
137	10/20/1962	Clark, Cowlitz, Grays Harbor, <b>Jefferson</b> , <b>Kitsap</b> , Lewis, <b>Mason</b> , Pacific, Pierce, Skagit, Snohomish, Thurston, Wahkiakum, Whatcom	SEVERE STORMS	NO PDA AVAIL	Not Available	Major Disaster Declaration
70	3/6/1957	Douglas, Grant, Lincoln	FLOODS	NO PDA AVAIL	Not Available	Major Disaster Declaration
50	2/25/1956	Adams, Benton, Franklin	FLOOD	NO PDA AVAIL	Not Available	Major Disaster Declaration

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
<p>Comprehensive Land Use Plan<sup>3</sup></p>	<p>Reduce county exposure to flooding and landslides, and to minimize reliance on federal and state programs for disaster mitigation, protect public and private property, save lives, and use community resources wisely.</p> <p>(a) Integrate regulatory standards such as buffers and setbacks with hazard avoidances measures.</p> <p>(b) Coordinate hazard vulnerability assessments with programs for purchase or preservation of open space.</p> <p>(c) Update hazard mitigation and disaster plans every three years.</p> <p>(d) Coordinate related activities of city departments with the City, State, and Federal agencies.</p> <p style="padding-left: 40px;">a. Mapping designations - Continue to revise and compile mapping of vulnerable areas by using City, County, State, and Federal databases...</p> <p>Development Regulations - Revise the Zoning, Subdivision, Critical Areas Ordinances and the regulations portion of the Shoreline Master Program to incorporate hazard avoidance provisions and assure consistency of definitions and mapping.</p> <p>Goals:</p> <p><b>ENG 9.0</b> Ensure that landslide and erosion hazard areas are appropriately designated and that measures to protect public health and safety are implemented for hazardous areas.</p> <p><b>ENG 10.0</b> Minimize seismic risk to life and property on new and existing structures.</p> <p><b>ENG 11.0</b> Protect flood hazard areas from development and uses that compromise the flow, storage and buffering of flood waters, normal channel functions, and fish and wildlife habitat and to minimize flood and river process risk to life and property.</p> <p><b>ENG 13.0</b> Protect aquifer recharge areas from depletion of aquifer quantity or degradation of aquifer quality.</p> <p><b>ENG 14.0</b> Protect and enhance wetlands in all their functions.</p>	<p>Annual - Major Review under way. Due June 2018.</p>

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
<p>Title 18 UNIFIED DEVELOPMENT CODE<sup>1</sup></p>	<p>(2) Purpose. The general purposes of this Unified Development Code are:</p> <ul style="list-style-type: none"> <li>(a) To encourage land use decision-making in accordance with the public interest, protection of private property rights and the public good, and applicable laws of the state of Washington;</li> <li>(b) To protect the general public health, safety, and welfare and encourage orderly economic development;</li> <li>(c) To implement the Jefferson County Comprehensive Plan goals and policies through land use and other regulations;</li> <li>(d) To provide for the economic, social, and aesthetic advantages of orderly development through harmonious groupings of compatible and complementary land uses and the application of appropriate development standards;</li> <li>(e) To provide for adequate public facilities and services in conjunction with development; and</li> <li>(f) To promote general public safety by regulating development of lands containing physical hazards and to minimize the adverse environmental impacts of development.</li> </ul>	



<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
JCC <a href="#">18.22</a> CRITICAL AREAS <sup>2</sup>	<p><b>18.22.010 Purpose – Generally.</b></p> <p>The purpose of the Jefferson County critical areas ordinance is to comply with state law and to describe authorized methods and procedures established to ensure the functions and values of critical areas are not degraded when allowing approved uses and development activities in the county. This regulation offers landowners a choice of two methods for ensuring the functions and values of critical areas are not degraded:</p> <p>(1) For any critical area, landowners may use a prescriptive method, as described herein; or</p> <p>(2) For fish and wildlife habitat conservation areas (FWHCA) and wetlands, landowners may choose an adaptive method by providing a site-specific stewardship plan (see Article IX, JCC <a href="#">18.22.460</a>).</p>	

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
<p>JCC 18.25 SHORELINE MASTER PROGRAM</p>	<p>In order to protect the public interest in the preservation and reasonable use of the shorelines of the state, the Shoreline Management Act establishes a planning program coordinated between the state and local jurisdictions to address the types and effects of development occurring along the state's shorelines. By law, the City is responsible for the following:</p> <ul style="list-style-type: none"> <li>A. Development of an inventory of the natural characteristics and land use patterns along "shorelines of the state" within the City's territorial limits.</li> <li>B. Preparation of a "Shoreline Master Program" to determine the future of the shorelines. This future is defined through the goals developed for the following land and water use elements: economic development, public access, circulation, recreation, shoreline use, conservation, historical/cultural protection, and floodplain management.</li> </ul> <p><b>Policy 6.3.1</b>      Protect the environment through implementation of this Master Program in concert with the City's Critical Areas Ordinance and through the use of the AMRRC mitigation sequence (Avoid, Minimize, Rectify, Reduce, Compensate) (WAC 173-26-201(e)).</p> <p><b>Policy 6.7.1</b>      Ensure that new development in areas prone to periodic flooding comply with the City's Flood Damage Prevention standards (Chapter 16.08, PTMC) to minimize health hazards and property damage due to flooding.</p> <p><b>Policy 6.7.2</b>      Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses and schools.</p> <p><b>Policy 6.7.3</b>      Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in frequently flooded areas.</p>	<p>Last update May 12, 2012</p>

<b>CODES AND COMPREHENSIVE PLANS for NATURAL HAZARD REDUCTION</b>		
<b>DOCUMENT</b>	<b>PURPOSE</b>	<b>REVIEW SCHEDULE</b>
	<b>Policy 6.7.4</b> Coordinate and support the development of improved tsunami warning systems.	
Jefferson County – City of Port Townsend Hazard Mitigation Plan (Hazmit Plan)	This Plan documents the County, City, and participating Special Districts strategic planning to reduce the effects of natural disasters in Jefferson County. This Hazmit Plan is unique in that: <ul style="list-style-type: none"> <li>(1) It is an All-Hazard Plan that not only deals with natural disasters, but those man-made disasters that can significantly impact one or more of the participants of the Plan, e.g the presence here of the second largest Navy Munitions Depot on the west coast adds the risk of an Ordnance Mishap that other locales do not have.</li> <li>(2) In 2016, where appropriate, commentary on climate change having an effect on a type of natural disaster has been added. This was requested by FEMA, but is voluntary and consistent with the attitudes of local government officials.</li> </ul>	FEMA requires a major update every 5 years. The current Plan (2009) expired in June, 2015. The 2016 Update is underway.

## **JEFFERSON COUNTY**

### **PRIORITIZATION OF ACTION ITEMS**

Jefferson County operates under the requirements of the Growth Management Act of the State of Washington. County government format is a county administrator with board of commissioners. County staff evaluates actions based on community needs as expressed in the growth management act and the various comprehensive plans adopted by the commissioners. Staff prepares recommendations for specific actions to the commissioners for consideration. Board of Commissioners weighs the input from staff and citizens before making any decision.

Before an action may proceed there must be a demonstrated need and funding must be secured. When funding is available and approval of the Board is given, the project is included in the annual budget. Need for an action to proceed may be determined in a variety of ways including but not limited to: action items identified in adopted plans, cost benefit analysis, necessary service, emergency, directive from state or federal agency, safety or other benefit to the community. For planning purposes projects are evaluated and included in the annual update of the 6-year capital facilities plan. Many projects in the capital facilities plan are dependent of outside funding. Possible sources of funding are the general fund, capital improvement funds, utility reserves, local improvement district, grant funding from a variety of sources including but not limited to private agencies, economic development organizations, state agencies, federal agencies and philanthropic sources. Other sources of funding may, from time to time, become available for specified actions that may or may not be included in the community planning process.

#### **Economic Analysis of Mitigation Projects**

The Federal Emergency Management Agency's approaches to identify costs and benefits associated with natural hazard mitigation strategies or projects fall into two general categories: benefit/cost analysis (BCA) and cost-effectiveness analysis. Where appropriate, proposed activities will be evaluated using the BCA tools and HazusMH modeling software, along with empirical data to assess whether or not the mitigation strategy is justified.

#### **Repetitive Loss Properties**

Jefferson County has one repetitive loss property. It is a residence built within 150' of a small river in the south of the county. The building is valued at \$70,695, based on current assessments. Since there is only one repetitive loss property at risk, identifying its location more specifically would violate federal disclosure regulations. Suffice to say, it is located near U.S. HWY 101 within the 100-year FEMA Flood Zones shown in the maps on pages 117 of the FLOOD hazard analysis.

## Jefferson County Assets at Risk

### Jefferson County 2016 Building Asset Schedule

Asset Number	Location Name	Building Name	Replacement Cost New
JF-11-1-1	COURTHOUSE - PORT TOWNSEND	COURTHOUSE - PORT TOWNSEND	\$ 13,819,800.00
JF-11-1-2	COURTHOUSE - PORT TOWNSEND	COURTHOUSE ANNEX	\$ 173,700.00
JF-11-1-3	COURTHOUSE - PORT TOWNSEND	COURTHOUSE PARK	\$ -
JF-40-2-1	COMMUNITY CENTER - PORT TOWNSEND	COMMUNITY CENTER - PORT TOWNSEND	\$ 2,258,200.00
JF-65-3-2	RECYCLING CENTER	LANDFILL FLARE	\$ 185,000.00
JF-65-3-3	RECYCLING CENTER	TRANSFER STATION	\$ 893,700.00
JF-65-3-4	RECYCLING CENTER	STORAGE GARAGE	\$ 65,000.00
JF-65-3-5	RECYCLING CENTER	TRANSFER STATION OFFICE	\$ 9,300.00
JF-65-3-6	RECYCLING CENTER	SCALE HOUSE	\$ 172,000.00
JF-55-4-1	CLEARWATER ANNEX - CORRECTION FACILITY	CLEARWATER ANNEX - CORRECTION FACILITY	\$ 438,100.00
JF-50-5-1	CLEARWATER EQUIPMENT SHED	CLEARWATER EQUIPMENT SHED	\$ 79,461.00
JF-20-6-1	HOH MAINTENANCE SHOP	HOH MAINTENANCE SHOP	\$ 142,100.00
JF-40-7-1	QUILCENE COMMUNITY CENTER	QUILCENE COMMUNITY CENTER	\$ 471,900.00
JF-55-8-1	DISPATCH / CORRECTIONS CENTER / E.O.C.	DISPATCH / CORRECTIONS CENTER / E.O.C.	\$ 4,334,000.00
JF-20-9-1	MAINTENANCE SHOP - HADLOCK MAIN	MAINTENANCE SHOP - HADLOCK MAIN	\$ 1,103,000.00
JF-20-9-2	MAINTENANCE SHOP - HADLOCK MAIN	EQUIPMENT STORAGE 1 - EAST	\$ 164,403.00
JF-20-9-3	MAINTENANCE SHOP - HADLOCK MAIN	EQUIPMENT STORAGE 2 - SOUTH	\$ 200,023.00
JF-20-9-4	MAINTENANCE SHOP - HADLOCK MAIN	EQUIPMENT STORAGE 3 - WASH	\$ 22,358.00
JF-20-9-5	MAINTENANCE SHOP - HADLOCK MAIN	SURVEYOR'S ANNEX	\$ 149,334.00

Asset Number	Location Name	Building Name	Replacement Cost New
JF-20-9-6	MAINTENANCE SHOP - HADLOCK MAIN	HADLOCK SHOP FUEL STATION	\$ 32,000.00
JF-80-10-1	GARDINER COMMUNITY CENTER	GARDINER COMMUNITY CENTER	\$ 539,000.00
JF-20-11-1	DISCOVERY BAY EQUIPMENT SHOP	DISCOVERY BAY EQUIPMENT SHOP	\$ 71,242.00
JF-80-12-1	ANIMAL SHELTER	ANIMAL SHELTER	\$ 247,900.00
JF-40-13-1	TRI AREA COMMUNITY CENTER (CHIMACUM)	TRI AREA COMMUNITY CENTER (CHIMACUM)	\$ 654,300.00
JF-40-14-1	BRINNON COMMUNITY CENTER / MOTEL	BRINNON COMMUNITY CENTER / MOTEL	\$ 1,439,800.00
JF-30-15-1	FAIRGROUNDS	FAIRGROUNDS OFFICE	\$ 1,463,000.00
JF-30-15-2	FAIRGROUNDS	PORT TOWNSEND LITTLE LEAGUE FIELD	\$ 12,200.00
JF-30-15-3	FAIRGROUNDS	ART BUILDING	\$ 124,400.00
JF-30-15-4	FAIRGROUNDS	4H BUILDING	\$ 125,400.00
JF-30-15-5	FAIRGROUNDS	YESTERYEAR MUSEUM	\$ 118,300.00
JF-30-15-6	FAIRGROUNDS	4H CAT BUILDING	\$ 55,900.00
JF-30-15-7	FAIRGROUNDS	COMMERCIAL EXHIBITS	\$ 75,300.00
JF-30-15-8	FAIRGROUNDS	PORT TOWNSEND ROCK CLUB	\$ 101,100.00
JF-30-15-9	FAIRGROUNDS	COMMERCIAL EXHIBITS 2	\$ 186,400.00
JF-30-15-10	FAIRGROUNDS	RESTROOMS	\$ 163,900.00
JF-30-15-11	FAIRGROUNDS	SMALL STAGE AND PICNIC	\$ 63,000.00
JF-30-15-12	FAIRGROUNDS	SMALL ANIMALS	\$ 287,700.00
JF-30-15-13	FAIRGROUNDS	CAMPGROUND RESTROOMS	\$ 132,000.00
JF-30-15-14	FAIRGROUNDS	HORSE BARN A	\$ 71,100.00
JF-30-15-15	FAIRGROUNDS	HORSE BARN B	\$ 76,900.00
JF-30-15-16	FAIRGROUNDS	CATTLE BARN	\$ 126,600.00
JF-30-15-17	FAIRGROUNDS	STORAGE BUILDING	\$ 17,300.00

Asset Number	Location Name	Building Name	Replacement Cost New
JF-30-15-18	FAIRGROUNDS	4H ARENA BUILDING	\$ 24,400.00
JF-30-15-19	FAIRGROUNDS	HORTICULTURE BUILDING	\$ 134,100.00
JF-30-15-20	FAIRGROUNDS	MAIN GRANDSTAND	\$ 224,300.00
JF-30-15-21	FAIRGROUNDS	CRAFT VENDOR TENT	\$ 5,000.00
JF-30-15-22	FAIRGROUNDS	BBQ	\$ 9,300.00
JF-30-15-23	FAIRGROUNDS	INFORMATION BOOTH	\$ 2,500.00
JF-80-16-1	PORT LUDLOW RADIO TOWER	PORT LUDLOW RADIO TOWER	\$ 18,204.00
JF-70-17-1	LAKE LELAND PARK	LAKE LELAND PARK	\$ 32,133.00
JF-70-18-1	UPPER OAK BAY PARK	UPPER OAK BAY PARK	\$ 23,206.00
JF-70-19-1	LOWER OAK BAY PARK	LOWER OAK BAY PARK	\$ 9,834.00
JF-70-20-1	NORTH BEACH PARK	NORTH BEACH	\$ 34,251.00
JF-70-21-1	IRONDALE PARK	IRONDALE	\$ 20,133.00
JF-70-22-1	CHIMACUM PARK	CHIMACUM	\$ 32,100.00
JF-70-22-2	CHIMACUM PARK	WATERLESS RESTROOM 1	\$ 3,100.00
JF-70-22-3	CHIMACUM PARK	WATERLESS RESTROOM 2	\$ 3,100.00
JF-70-23-1	QUILCENE (MAIN) LIBRARY	QUILCENE (MAIN)	\$ 46,481.00
JF-70-24-2	MEMORIAL FIELD	GRANDSTAND	\$ 864,000.00
JF-70-24-4	MEMORIAL FIELD	MAINTENANCE SHOP	\$ 33,200.00
JF-70-24-5	MEMORIAL FIELD	CONCESSION STAND	\$ 12,200.00
JF-70-25-1	INDIAN ISLAND	INDIAN ISLAND	\$ 8,240.00
JF-70-26-1	EAST BEACH	EAST BEACH	\$ 35,179.00
JF-70-27-1	BEAUSITE LAKE	510 BEAUSITE	\$ 586,600.00
JF-70-27-2	BEAUSITE LAKE	780 BEAUSITE LAKE ROAD CARETAKER	\$ 161,100.00
JF-70-27-3	BEAUSITE LAKE	780 BEAUSITE LAKE BATHHOUSE	\$ 234,300.00
JF-70-28-2	GIBBS LAKE FACILITY	GIBBS LAKE CARETAKERS	\$ 127,400.00
JF-70-28-4	GIBBS LAKE FACILITY	GIBBS LAKE SHOP BLDG	\$ 40,000.00



Asset Number	Location Name	Building Name	Replacement Cost New
JF-70-28-5	GIBBS LAKE FACILITY	GIBBS LAKE RESTROOM BLDG.	\$ 6,500.00
JF-70-29-1	PT. COMMUNITY CENTER PARK	PT. COMMUNITY CENTER PARK	\$ 24,660.00
JF-70-30-1	QUILCENE PARK	QUILCENE PARK	\$ 35,179.00
JF-70-31-1	SEAGULL FIELD ? EAST JEFFERSON	SEAGULL FIELD ? EAST JEFFERSON	\$ 95,543.00
JF-70-32-1	DEEMA SMAKMAN FIELD	DEEMA SMAKMAN FIELD	\$ 22,594.00
JF-70-32-2	DEEMA SMAKMAN FIELD	IRONDALE BEACH (17 ACRES)	\$ 5,000.00
JF-20-33-1	QUILCENE MAINTENANCE SHOP	QUILCENE MAINTENANCE SHOP	\$ 79,761.00
JF-10-34-1	SHOLD BUSINESS PARK	SHOLD BUSINESS PARK	\$ -
JF-20-35-1	BRINNON MAINTENANCE SHOP	BRINNON MAINTENANCE SHOP	\$ 102,752.00
JF-70-36-1	US FOREST RESIDENCE	US FOREST RESIDENCE	\$ -
JF-70-37-1	H.J. CARROLL PARK	HJ CARROLL PARK AND PICNIC PAVILION 1	\$ 53,500.00
JF-70-37-3	H.J. CARROLL PARK	CONCESSIONS AND RESTROOMS	\$ 191,900.00
JF-70-37-4	H.J. CARROLL PARK	SHOP / CARETAKER	\$ 25,200.00
JF-70-37-5	H.J. CARROLL PARK	BASKETBALL COURTS	\$ -
JF-70-37-6	H.J. CARROLL PARK	PICNIC PAVILION	\$ 115,300.00
JF-70-37-7	H.J. CARROLL PARK	INFORMATION KIOSK	\$ 8,900.00
JF-65-38-1	MRW FACILITY	MRW FACILITY	\$ 26,000.00
JF-10-39-1	CASTLE HILL COMPLEX - BLDG. #1	CASTLE HILL COMPLEX - BLDG. #1	\$ 3,613,000.00
JF-20-43-1	CASTLE HILL ANNEX - BLDG. #2, PW	CASTLE HILL ANNEX - BLDG. #2, PW	\$ 1,075,100.00
JF-50-44-1	SHERIFF'S ADMINISTRATION BUILDING	SHERIFF'S ADMINISTRATION BUILDING	\$ 1,397,500.00
JF-20-45-1	QUILCENE FUEL STATION	QUILCENE FUEL STATION	\$ 32,000.00
JF-70-46-1	LARRY SCOTT MEMORIAL TRAIL	LARRY SCOTT MEMORIAL TRAIL	\$ -
JF-70-47-1	VISITORS CENTER	VISITORS CENTER	\$ 83,325.00
JF-70-48-2	LARRY SCOTT MEMORIAL TRAIL - SCHMUCKER	RESIDENCE WITH GARAGE	\$ 144,000.00

Asset Number	Location Name	Building Name	Replacement Cost New
JF-60-49-1	FIRE HALL COMMUNICATION TOWER	FIRE HALL COMMUNICATION TOWER	\$ 86,720.00
<b>Total - Building Assets at Risk:</b>			<b>\$ 40,814,916.00</b>

## Jefferson County Assets at Risk

### Jefferson County 2016 Movable Equipment Asset Schedule

Asset Number	Description	Serial Number	Replacement Cost New
1611	2015 NEW HOLLAND T6.155	ZFBD02318	\$76,823.53
1610	2015 NEW HOLLAND T4.85	ZFJT50308	\$45,820.94
1609	2015 TOYOTA FORKLIFT	8FGU18	\$22,984.39
1608	2015 CATERPILLAR 140M3	CAT0140MAN9M00141	\$262,159.39
1607	2015 CATERPILLAR 430F2	CAT0430FHHWE00350	\$126,119.54
1606	2014 CATERPILLAR 938K	CAT0938KTSWL03760	\$211,580.99
1605	2015 NEW HOLLAND T4.85	ZEJT50348	\$49,584.50
14648	ROADS RADIO SYSTEM	-	\$0.00
14647	SHERIFF RADIOS	-	\$0.00
14638	2014 US MOWER BRUSHCUTTER ATTACHMENT	102505	\$63,534.92
14636	COATS 5040A TIRE CHANGER	1412104337	\$3,815.00
14635	COATS 1175A WHEEL BALANCER	CMB1404999	\$4,349.10
14630	2014 LIFTMOORE L-8 CRANE	14-8685W117	\$2,506.98
14628	2014 JONES ANIMAL CENTRAL UNIT	-	\$10,107.57
14601	2014 YAMAHA MOTOR	64PX1016338	\$12,802.00
14600	2014 YAMAHA MOTOR	63PX1139009	\$12,802.00
14416	2014 JD 62D ONRAMP MOWER #844	M02362ACEM0740109	\$2,885.06
14415	2014 JD 62 D ONRAMP MOWER #844	1M02362AKEM070110	\$2,885.06
14414	2014 JD 2025R TRACTOR-PARKS	1LV2025RKDH110607	\$17,088.06
13911	CUMMINS REPAIR SOFTWARE	-	\$1,574.22
13910	BOBCAT 225 NT WELDER	LB229897	\$5,869.35

Asset Number	Description	Serial Number	Replacement Cost New
13909	MOHAWK ABOVE GROUND 1-A HOIST	9603420	\$5,071.30
13908	MOHAWK TR50 SHOP TRUCK HOIST	95121912	\$52,331.00
13907	WHEEL BALANCER/ADJUSTOR	50392454	\$4,451.63
13906	2013 MONROE V-BOX SANDER	12/6/7593	\$17,963.20
13905	V-BOX 5YD HOPPER SANDER	11/7/7422	\$16,482.98
13904	SALT DOG V-BOX P/U SANDER-GAS	5562	\$4,573.49
13903	8' P/U SNOW PLOW	M062002771	\$4,575.48
13882	KARCHER PRESSURE WASHER	10182	\$4,913.41
13881	WASHRACK - ULTRASORB SYSTEM	31141	\$22,163.68
13880	RICE LAKE HP FLOOR SCALE -MRW	A08185/RL3000A	\$2,372.82
13879	MANTLE TRUCK SCALES	24035-10C	\$45,438.00
13878	2001 JOHN DEERE MOWER	LV5320P137007	\$28,950.86
13877	20HP SHOP COMPRESSOR	-	\$7,495.86
13876	HONDA GENERATOR/AIR COMPRESSOR	-	\$2,320.89
13875	ONAN 40DGBC GENERATOR	H970647879	\$24,443.67
13874	EQUIPMENT - SIGN MFG. S&S	-	\$2,145.00
13864	2011 ELGIN VACUUM BROOM BEAR	1HTJTSKN9CJ440106	\$201,341.36
13863	2012 ROSCO FRONT MT BROOM	86919	\$73,466.00
13862	2012 ROSCO FRONT MT BROOM	83786	\$73,466.00
12428	2009 LEBOY 3000 BELT LOADER	55545	\$188,464.24
11152	TRAILER	4P2UB12189U094421	\$12,000.00
11142	2008 FORD T6030 BRUSHCUTTER	Z8BD12841	\$94,052.99
8786	1987 MOTOMAR 14' INFLATABLE BOAT	MFL43165K687	\$3,900.00
8785	2001 LEESHORE BOAT	NRGZ4PJCG101	\$29,870.00
8784	TARPING TRAILING	71C417127	\$15,350.98
8783	2003 EC0134 SNAPON AC RECYCLER	0319C0122	\$2,579.76

Asset Number	Description	Serial Number	Replacement Cost New
8782	EQUIPMENT - MECHANICAL SHOP	-	\$52,675.00
8781	MONROE V-HOPPER SANDER	MV-180-84-56 WA	\$14,374.08
8780	2000 TAILGATE SANDER	85605	\$2,152.45
8779	SWENSON EV-100 V-BOX SANDER	88211	\$12,134.96
8778	SWENSON EV100 V-BOX SANDER	75840	\$11,561.17
8777	SWENSON EV100 V-BOX SANDER	75839	\$11,561.17
8776	SWENSON EV100-15-54 SANDER	73737	\$11,137.03
8775	SWENSON EV100 SLIP-IN SANDER	65598	\$9,597.34
8774	SWENSON MODEL SA TAILGT SANDER	62156	\$1,731.20
8773	SWENSON MODEL SA TAILGT SANDER	62116	\$1,731.20
8771	SWENSON SA TAILGATE SANDER	57708	\$1,731.20
8770	SWENSON SA TAILGATE SANDER	56734	\$1,731.20
8769	TOYOTA 7FGU30 FORKLIFT-HADSHOP	65230	\$27,390.83
8768	1993 HYSTER FORKLIFT	-	\$22,936.00
8767	TOYOTA 4FG15 FORKLIFT RECONDITN	FG18-45646	\$7,984.59
8766	2004 10' FRINK SNOW PLOW	3910 PISA RR85	\$7,085.05
8765	FRINK 3911 SNOW PLOW	3911P1SA-RR85	\$7,663.21
8764	FRINK MODEL 3911 SNOW PLOW	3911P1SA-13N.M.	\$5,500.93
8763	FRINK MODEL 3911 SNOW PLOW	3911 PISA-347PF	\$6,674.10
8762	FRINK MODEL 3910 SNOW PLOW	3910 PISA-360PF	\$6,674.10
8761	FRINK MODEL 3910 SNOW PLOW	3910 PISA-358PF	\$6,674.10
8760	FRINK MODEL 3910 SNOW PLOW	3910 PISA-357PF	\$6,674.10
8759	FRINK 3910 SNOW PLOW	3910P1SA79PH	\$7,654.61
8758	FRINK 3911 SNOW PLOW	3911P1SA75PH	\$7,654.61
8757	TENCO TC132TE 11' SNOWPLOW	7756	\$8,020.87
8756	TENCO TC132TE 11' SNOW PLOW	7347	\$8,020.86

Asset Number	Description	Serial Number	Replacement Cost New
8755	1999 11' FRINK SNOW PLOW	3932 RR-3847	\$8,869.15
8754	2000 LAYTON BOX F525 PAVER	F10791N00/EH38630	\$28,190.51
8753	2000 PATCH KING PK30H HOTBOX	6439	\$23,372.08
8751	AQUATECH SJ600P CULVERT FLUSHR	20101056	\$33,192.45
8750	1994 320L CAT EXCAVATOR	9KK01957	\$91,175.50
8748	1980 MILLER CURB MAC/650S -GAS	1549/MTR 5965669	\$5,285.20
8747	2005 INGERSOLL-RAND COMPACTOR	185331	\$72,944.00
8746	2001 INGERSOLL DD24 COMPACTOR	167348	\$31,280.00
8745	1989 D4C WIDE TRACK TRACTOR/D	4GH01519	\$44,885.28
8744	GRADE MORE BLADE UNIT (USED)	-	\$16,260.00
8742	2006 JD 544J WHEEL LOADER-LF	DW544JH607520	\$172,011.69
8739	2003 JD 4110 MOWER/TRACTR-PARK	LV4110H210418	\$14,821.31
8738	2004 JD 5320 SHOULDER MOWER	LV5320P436162	\$43,251.45
8737	2001 JD TRACTOR-EDWARDS MOWER	LV5320P137290	\$42,006.52
8736	2001 JOHN DEERE MOWER	LV5320P137007	\$28,950.86
8735	1997 GRIZZLY KNUCKLEBOOM CRANE	-	\$91,499.20
8734	1993 WACKER PLATE TAMPER	67950166	\$1,688.84
8733	CUTMASTER 100 PLASMA CUTTER	SY105402231	\$2,767.76
8732	ROTOTILLER 550	M*00550X120715*	\$1,935.01
8731	SEVERE SERVICE ASPHALT CUTTER	190BM-231SRB	\$2,546.44
<b>Total Movable Equipment Assets at Risk:</b>			<b>\$ 2,901,136.41</b>

## Jefferson County Assets at Risk

### Jefferson County 2016 Vehicle Asset Schedule

Asset Number	Description	Make	Model	Model Year	Replacement Cost New
4288	2004 FORD CROWN VIC -BRASFIELD	FORD	CROWN VIC	2004	\$ 22,478.17
4291	2005 FORD CROWN VIC-PATROL	FORD	CROWN VIC	2005	\$ 1,530.00
4294	2005 FORD CROWN VIC-PATROL	FORD	CROWN VIC	2005	\$ 26,106.83
4299	2007 FORD CROWN VIC PATROL	FORD	CROWN VIC	2007	\$ 23,919.64
4303	2007 FORD CROWN VIC PATROL	FORD	CROWN VIC	2007	\$ 23,919.64
4304	1998 FORD ESCORT WAGON	FORD	ESCORT	1998	\$ 14,263.97
4307	2003 HONDA CIVIC HYBRID-MP SHP	HONDA	CIVIC HYBRID	2003	\$ 22,868.07
4308	2004 FORD TAURUS-JUV SVC	FORD	TAURUS	2004	\$ 13,399.52
4309	2005 FORD TAURUS 4DR-HEALTH	FORD	TAURUS	2005	\$ 13,531.65
4310	2005 FORD TAURUS 4DR-HEALTH	FORD	TAURUS	2005	\$ 13,531.65
4311	2005 FORD TAURUS 4DR-MOTORPOOL	FORD	TAURUS	2005	\$ 13,531.65
4312	2006 FORD TAURUS P53-SHERIFF	FORD	TAURUS P53	2006	\$ 14,161.62
4315	2004 FORD TAURUS-PW ENG	FORD	TAURUS	2004	\$ 13,399.52
4316	1951 FORD	FORD	SEDAN	1951	\$ 5,000.00
4318	2003 WORKHORSE WALK IN VAN-FAC	WORKHORSE	WALK IN VAN	2003	\$ 35,854.30
4321	2005 CHEVY CARGO VAN-LORING	CHEVROLET	CARGO VAN	2005	\$ 17,248.22
4322	2006 FORD FREESTAR VAN-RICK M	FORD	FREESTAR VAN	2006	\$ 13,968.23
4325	2006 FORD VAN	FORD	VAN	2006	\$ 21,997.00
4327	1985 DODGE RAM SW	DODGE	RAM SW	1985	\$ 1,500.00
4330	1999 FORD RANGER 4X4 P/U-RANCH	FORD	RANGER	1999	\$ 16,787.43
4333	2002 FORD RANGER 4X4 P/U-SIGNS	FORD	RANGER	2002	\$ 17,336.99
4334	2002 FORD RANGER 4X4 P/U-TERRY	FORD	RANGER	2002	\$ 17,336.99



Asset Number	Description	Make	Model	Model Year	Replacement Cost New
4335	2002 F250 FORD 4X4 P/U	FORD	F250	2002	\$ 7,500.00
4336	2002 F250 FORD 4X4 P/U-DAVE W	FORD	F250	2002	\$ 23,448.49
4337	2003 FORD 3/4T F250 P/U-PAUL W	FORD	F250 3/4	2003	\$ 22,327.25
4340	2005 DODGE RAM 3/4T PU	DODGE	RAM	2005	\$ 16,342.04
4342	2005 FORD 3/4T F250 P/U-MARK L	FORD	F250	2005	\$ 22,461.86
4343	1996 FORD 3/4T P/U W/LIFTGATE	FORD	3/4T P/U	1996	\$ 17,788.13
4344	1995 CHEV S10 P/U-ASSESSOR	CHEVROLET	S10 P/U	1995	\$ 1,669.19
4345	1995 CHEV S10 P/U -ASSESSOR	CHEVROLET	S10 P/U	1995	\$ 1,669.19
4348	2000 3/4 DODGE RAM PU-ANIMAL C	DODGE	RAM	2000	\$ 17,969.05
4349	2002 FORD RANGER 4X4 P/U-BLDG	FORD	RANGER	2002	\$ 17,336.99
4351	2004 CHEV COLORADO P/U 4X4-DCD	CHEVROLET	COLORADO	2004	\$ 17,398.50
4353	1991 FORD PICKUP (BOAT)	FORD	P/U (BOAT)	1991	\$ 12,000.00
4355	1995 JEEP CHEROKEE-ASSESSOR	JEEP	CHEROKEE	1995	\$ 21,436.00
4357	1997 JEEP CHEROKEE 4DR-ENG/CR	JEEP	CHEROKEE	1997	\$ 2,768.60
4359	2006 FORD ESCAPE-PW	FORD	ESCAPE	2006	\$ 17,954.80
4360	1987 INT. 5 YD. DUMP TRUCK-DSL	INTERNATIONAL	DUMP TRUCK 5 YD	1997	\$ 47,956.92
4361	1992 INT. 5 YD. DUMP DSL	INTERNATIONAL	DUMP TRUCK 5 YD	1992	\$ 51,947.74
4362	1987 INT'L 5YD DUMP (OLD #213)	INTERNATIONAL	DUMP TRUCK 5 YD	1987	\$ 12,000.00
4363	1998 INT'L 5YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 5 YD	1998	\$ 73,141.38
4364	2000 5YD INT'L DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 5 YD	2000	\$ 79,873.02
4365	2003 INT'L 5 YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 5 YD	2003	\$ 87,446.93
4366	1996 INT'L 10YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 10 YD	1996	\$ 94,675.52
4367	1996 INT'L 10YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 10 YD	1996	\$ 94,675.53
4368	1999 10YD INT'L DUMP	INTERNATIONAL	DUMP TRUCK	1999	\$ 99,669.79
4369	2000 INT'L 10 YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 10 YD	2000	\$ 101,362.96
4370	2001 INT'L 10 YARD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 10 YD	2001	\$ 103,284.23

Asset Number	Description	Make	Model	Model Year	Replacement Cost New
4371	2006 INT'L 10YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 10 YD	2006	\$ 116,414.35
4372	2007 INT'L 10YD DUMP TRUCK	INTERNATIONAL	DUMP TRUCK 10 YD	2007	\$ 122,976.70
4373	1986 KENWORTH TRACTOR (OLD#LF28	KENWORTH	TRACTOR	1986	\$ 18,379.54
4374	1978 BMC GEN TRC/TRK -(OLD#127)	BMC	TRUCK	1978	\$ 4,426.19
4377	2001 FORD F550 SHOP TRUCK	FORD	F550	2001	\$ 46,421.55
4378	2001 FORD F450 FLATBED-ROADS	FORD	F450 FLATBET	2001	\$ 25,857.42
4380	2004 F450 FORD FLATBED-MOLLY H	FORD	F450 FLATBED	2004	\$ 27,370.72
4381	2006 FORD 1 TON F450-MOLLY/PKS	FORD	F450	2006	\$ 28,939.65
4382	2002 INT'L BOOM TRUCK	INTERNATIONAL	BOOM TRUCK	2002	\$ 109,821.89
4385	2002 NUMACK TS110 BRUSHCUTTER	NUMACK	TS110 BRUSHCUTTER	2002	\$ 72,290.25
4387	2002 250X BRUSH BANDIT CHIPPER	BRUSH BANDIT	CHIPPER	2002	\$ 36,145.54
4392	JOHN DEERE 310D BACKHOE LOADER	JOHN DEERE	BACKHOE LOADER 310D	2000	\$ 58,663.07
4393	1998 JOHN DEERE 410E BACKHOE	JOHN DEERE	410E BACKHOE	1998	\$ 77,348.67
4394	2000 JD BACKHOE 310SE-ER&ROWND	JOHN DEERE	BACKHOE 310SE	2000	\$ 75,076.36
4395	2004 JOHN DEERE BACKHOE-HADSHP	JOHN DEERE	BACKHOE	2004	\$ 79,901.63
4397	1989 950C CAT LOADER/ DIESEL	CAT	950C	1989	\$ 111,423.19
4398	1997 CASE 621B WHL LOADER-DSL	CASE	621B LOADER	1997	\$ 92,089.54
4399	2000 CASE 621C FRNT END LOADER	CASE	621C LOADER	2000	\$ 100,095.54
4401	1994 CAT GRADER 140G - DSL	CAT	GRADER 140G	1994	\$ 130,290.16
4402	1999 CAT 140H GRADER	CAT	140H GRADER	1999	\$ 174,690.10
4403	1994 HAMM PNEU. ROLLER -DSL	HAMM	ROLLER	1994	\$ 43,749.28
4404	1994 HAMM PNEU. ROLLER -DSL	HAMM	ROLLER	1994	\$ 43,749.28
4405	1997 ETNYRE 14' CHIP SPREADER	ETNYRE	CHIP SPREADER	1997	\$ 131,472.55
4406	1999 INT'L DISTRIBUTOR TRUCK	INTERNATIONAL	DISTRIBUTOR TRUCK	1999	\$ 110,786.16
4407	2003 INT OIL DISTRIBUTOR TRUCK	INTERNATIONAL	OIL DIST TRUCK	2003	\$ 145,632.65

Asset Number	Description	Make	Model	Model Year	Replacement Cost New
4408	1953 BEALL ASPHALT TANKS (2)	BEALL	ASPHALT TANKS	1953	\$ 11,964.50
4409	1987 INT'L WATER TRUCK-OLD 5YD	INTERNATIONAL	WATER TRUCK 5 YD	1987	\$ 47,956.92
4410	1996 INT'L F2674 WATER TRUCK	INTERNATIONAL	F2674 WATER TRUCK	1996	\$ 65,742.44
4411	1998 TRAILMAX TILT TRAILER	TRAILMAX	TILT TRAILER	1998	\$ 25,058.35
4412	1999 TRAILMAX 3AX TILT TRAILER	TRAILMAX	3 AX TILT TRAILER	1999	\$ 21,515.26
4413	1999 TRAILMAX 3AX TILT TRAILER	TRAILMAX	3 AX TILT TRAILER	1999	\$ 21,515.26
4414	2000 10YD PUP TRAILER	-	PUP TRAILER	2000	\$ 28,338.66
4415	2000 10YD PUP TRAILER	-	PUP TRAILER	2000	\$ 28,338.66
4416	2004 TRAILKING TK110HDG LOWBOY	TRAILKING	110HDG LOWBOY	2004	\$ 47,972.32
4417	1977 UTILITY TRAILER	-	TRAILER	1977	\$ 722.72
4418	12X6' FLAT BED TRAILER	-	TRAILER	1999	\$ 3,066.00
4419	1993 WALTON RAMP TRAILER	WALTON	RAMP TRAILER	1993	\$ 3,234.00
4420	2000 LAYTON BOX TRAILER PT505	LAYTON	BOX TRAILER PT505	2000	\$ 8,199.30
4421	MRW COLLECTION TRAILER	MRW	COLLECTION TRAILER	1990	\$ 6,971.75
4422	B/M 830 PAINT STRIPER/TRAILER	B/M	PAINT STRIPER/TRLR	1988	\$ 3,839.72
4423	EZLDR BOAT TRAILER	EZLOADER	BOAT TRAILER	2002	\$ 3,861.00
4424	1998 WORK CREW TRAILER	-	WORKCREW TRAILER	1998	\$ 7,317.00
4425	2006 GATOR PAROS UTILITY TRAILER	GATOR PAROS	UTILITY TRAILER	2006	\$ 1,425.00
4426	1966 STDHM HORSE TRAILER	STDHM	HORSE TRAILER	1966	\$ 725.00
4430	1996 DEERE GATOR	JOHN DEERE	GATOR	1996	\$ 13,390.00
4431	1996 CAULKINS BOAT TRAILER	CAULKINS	BOAT TRAILER	1996	\$ 200.00
11129	2008 FORD FOCUS	FORD	FOCUS	2008	\$ 13,125.84
11130	2007 CHEVROLET MALIBU	CHEVROLET	MALIBU	2007	\$ 14,023.80
11131	1995 DODGE VAN	DODGE	VAN	1995	\$ 4,800.00
11132	2008 FORD F250 4X4	FORD	F250	2008	\$ 25,600.25
11133	2008 FORD F20 3/4T 4X2 PICKUP	FORD	F20	2008	\$ 17,453.68

Asset Number	Description	Make	Model	Model Year	Replacement Cost New
11134	2008 FORD F20 3/4T 4X2 PICKUP	FORD	F20	2008	\$ 17,453.68
11135	2009 FORD F150 4X4	FORD	F150	2009	\$ 17,457.12
11136	2008 FORD F350 PICKUP	FPRD	F350	2008	\$ 23,105.32
11137	2008 FORD F450 PICKUP	FORD	F450	2008	\$ 25,484.56
11138	2008 FORD ESCAPE 4X4	FORD	ESCAPE	2008	\$ 16,517.07
11139	2008 FORD ESCAPE	FORD	ESCAPE	2008	\$ 16,111.24
11140	2008 FORD ESCAPE	FORD	ESCAPE	2008	\$ 18,365.40
11141	2008 CHEVROLET TRAILBLAZER	CHEVROLET	TRAILBLAZER	2008	\$ 22,335.48
11150	JD 410J BACKHOE/LOADER	JOHN DEERE	410J BACKHOE	2008	\$ 106,239.93
11151	1999 PB TAR POT	PETERBILT	TAR POT	1999	\$ 7,588.00
11154	2008 FORD F20 3/4T P/U-ANIMALS	FORD	F20	2008	\$ 17,453.68
11155	OLYMPIC TILT TRAILER	OLYMPIC	TILT TRAILER	2007	\$ 19,833.95
12422	2009 INCIDENT CMD TRAILER	-	-	2009	\$ 15,772.00
12423	2009 FORD P71 CRWON VIC	FORD	CROWN VIC P71	2009	\$ 28,923.66
12424	2009 FORD P71 CROWN VIC	FORD	CROWN VIC P71	2009	\$ 25,668.69
12425	2009 CHEVY EXPRESS VAN	CHEVROLET	EXPRESS VAN	2009	\$ 26,899.57
12426	2009 CHEVY EXPRESS PASS VAN	CHEVROLET	EXPRESS PASS VAN	2009	\$ 25,386.28
12427	2009 FORD ESCAPE -SO	FORD	ESCAPE	2009	\$ 19,610.40
12429	2010 FORD F150 4X4 P/U-PAUL	FORD	F150	2010	\$ 25,236.57
12430	2010 FORD EXPEDITION-HOH TRIBE	FORD	EXPEDITION	2010	\$ 37,666.35
12432	2010 CHEV TAHOE 4X4-SO BOYD	CHEVROLET	TAHOE	2010	\$ 32,195.40
12891	2011 FORD ESCAPE 4X4	FORD	ESCAPE	2011	\$ 19,949.00
12892	2011 CHEV COLORADO 4X4 P/U-HEL	CHEV	COLORADO	2011	\$ 20,408.24
12893	2011 250XP BRUSH BANDIT CHIPPER	BRUSH BANDIT	BRUSH BANDIT	2011	\$ 46,001.77
13287	2012 FORD ESCAPE	FORD	ESCAPE 4WD	2012	\$ -
13343	FORD FOCUS- MP/SHOP	FORD	FOCUS	2012	\$ 17,532.90

Asset Number	Description	Make	Model	Model Year	Replacement Cost New
13382	2013 FORD K8A	FORD	K8A UTILITY AWD	2013	\$ -
13383	2013 FORD K8A	FORD	K8A UTILITY AWD	2013	\$ -
13384	2012 FORD F250 RC 4X2	FORD	F250	2012	\$ -
13385	2012 FORD F250 RC 4X2	FORD	F250	2012	\$ -
13386	2012 FORD FOCUS SE	FORD	FOCUS SE	2012	\$ -
13852	2011 FORD CROWN VIC PATROL	FORD	CROWN VIC PATROL	2011	\$ 24,377.63
13853	2011 FORD CROWN VIC PATROL	FORD	CROWN VIC	2011	\$ 24,377.63
13854	2011 FORD CROWN VIC PATROL	FORD	CROWN VIC	2011	\$ 24,377.63
13855	2011 FORD CROWN VIC PATROL	FORD	CROWN VIC	2011	\$ 24,377.63
13856	2011 FORD CROWN VIC PATROL	FORD	CROWN VIC	2011	\$ 24,377.63
13858	2013 FORD INTERCEPTOR-PATROL	FORD	INTERCEPTOR	2013	\$ 28,825.73
13859	2013 FORD INTERCEPTOR-PATROL	FORD	INTERCEPTOR	2013	\$ 28,825.73
13860	2012 FORD F250 4X4 P/U-JNEWMAN	FORD	F250 4X4 P/U	2012	\$ 26,609.00
13861	2011 FORD F450 SIGN TRUCK	FORD	F450	2011	\$ 30,668.38
13865	2004 SPECTRE FLATBED TRAILER	SPECTRE	FLATBED TRAILER	2004	\$ 3,698.00
13866	1992 FORD AMBULANCE	FORD	AMBULANCE	1992	\$ 5,000.00
14374	2008 DIVE UTILITY TRAILER	TNT	CARGO	2008	\$ 1,500.00
14376	2013 LEESHORE 28' BOAT 'VALOR'	-	LEESHORE	2013	\$ 249,531.00
14377	2013 EZLOADER FOR 'VALOR' BOAT	-	EZLOADER	2013	\$ 8,211.00
14407	2014 FORD INTERCEPTR SUV-PATROL	FORD	INTERCEPTER	2014	\$ 33,340.57
14408	2014 FORD INTERCEPTR SUV-PATROL	FORD	INTERCEPTER	2014	\$ 33,340.57
14409	2014 FORD INTERCEPTR SUV-PATROL	FORD	INTERCEPTER	2014	\$ 33,340.57
14410	2015 FORD INTERCEPTR SUV-PATROL	FORD	INTERCEPTER	2015	\$ 30,317.57
14411	2014 CAP TJ6500 TRAILER JOCKEY	-	DOCK JOCKEY	2014	\$ 130,515.51
14412	NEW HOLLAND T6.155 TRACTOR	NEW HOLLAND	TRACTOR	2014	\$ 70,538.84
14593	TOYOTA SIENNA	TOYOTA	SIENNA	2014	\$ 8,250.00

Asset Number	Description	Make	Model	Model Year	Replacement Cost New
14594	2014 FORD F-150 P/U-ANIMAL CTL	FORD	F-150	2014	\$ 29,847.62
14595	2015 CHEV G3500 VAN-SO PRISON	CHEVY	G3500 VAN	2015	\$ 39,680.85
14596	2015 TOYOTA PRIUS C-HEALTH	TOYOTA	PRIUS	2015	\$ 20,667.15
14597	2015 TOYOTA PRIUS C-HEALTH	TOYOTA	PRIUS	2015	\$ 20,667.15
14598	2015 CHEV VAN 250-FACILITIES	CHEVY	VAN	2015	\$ 23,331.94
14599	2015 CHEV VAN 2500-FACILITIES	CHEVY	VAN	2015	\$ 23,331.94
14904	2002 TOYOTA TUNDRA	TOYOTA	TUNDRA	2002	\$ 2,000.00
14905	BOAT TRUCK WESTEND	-	-	-	\$ 5,000.00
14906	1988 FORD 350	FORD	-	1988	\$ 3,000.00
1601	2015 OLYMPIC 30TDT-3SC TRAILER	-	-	2015	\$ 32,862.28
1602	2015 EAGLE EFB712TA2 TRAILER	-	-	2015	\$ 5,453.45
1603	2015 OLYMPIC30TDT-3SC	-	-	2015	\$ 32,771.83
1612	2016 FORD FUSION HYBRID	-	-	2016	\$ 26,130.13
1613	2016 FORD FUSION HYBRID	-	-	2016	\$ 26,130.13
1614	2016 FORD FUSION	-	-	2016	\$ 18,414.00
1615	2015 FORD FUSION HYBRID	-	-	2015	\$ 26,745.01
1616	2016 FORD FUSION	-	-	2016	\$ 18,414.00
1617	2016 FORD EXPLORER BASE	-	-	2016	\$ 28,896.61
1618	2016 FORD EXPLORER BASE	-	-	2016	\$ 29,277.82
1619	2016 FORD EXPLORER BASE	-	-	2016	\$ 28,535.97
1620	2016 FORD ESCAPE	-	-	2016	\$ 24,332.84
1622	2006 JEEP LIBERTY	-	-	2006	\$ 15,000.00
<b>Total Vehicle Assets at Risk:</b>					<b>\$ 5,814,232.21</b>

## Jefferson County Public Assets at Risk

### Jefferson County - 2016 Public Asset Schedule Totals

Asset Type	Asset Schedule Value
<b>Building</b>	<b>\$40,814,916</b>
<b>Movable Equipment</b>	<b>\$ 2,901,136</b>
<b>Vehicle</b>	<b>\$ 5,814,232</b>
<b>Grand Total:</b>	<b>\$49,530,284</b>



**Jefferson County Privately Owned Assets at Risk  
As of 2015<sup>4</sup>**

<b>TAXING DISTRICT</b>	<b>REAL/PERSONAL PROPERTY A.V.</b>	<b>TIMBER A.V.</b>
<b>STATE LEVY (SCHOOL):</b>		
	4,638,002,579	
<b>COUNTY:</b>		
Current Expense	4,639,591,919	
		153,324,329
Mental Health	4,639,591,919	
		153,324,329
Development Disabilities	4,639,591,919	
		153,324,329
Veteran's Relief	4,639,591,919	
		153,324,329
<b>COUNTY:</b>		
Conservation Futures	4,639,591,919	
		153,324,329
<b>JEFFERSON COUNTY ROADS:</b>		
General	3,298,790,528	
		153,316,926
Diversion	3,298,790,528	
		153,316,926
<b>CITY OF PORT TOWNSEND:</b>		
General	1,340,801,391	
		7,403
Library LID Lift	1,340,801,391	
		7,403
Fire LID Lift	1,340,801,391	
		7,403
<b>PORT OF PORT TOWNSEND:</b>		
Mt. View Bond	1,316,515,016	
		7,403
<b>PORT OF PORT TOWNSEND:</b>		
General	4,639,591,919	
		153,324,329
<b>P.U.D. NO. 1:</b>		
General	4,639,591,919	
		153,324,329
<b>LIBRARY DISTRICT #1:</b>		
General	3,298,790,528	
		153,316,926

TAXING DISTRICT	REAL/PERSONAL PROPERTY A.V.	TIMBER A.V.
<b>HOSPITAL DISTRICTS:</b>		
<b>HOSPITAL DISTRICT #1:</b>		
General	29,242,908	84,029,004
<b>HOSPITAL DISTRICT #2:</b>		
General	4,610,106,207	55,033,666
Admin. Bond	4,610,106,207	55,033,666
<b>LOCAL SCHOOLS:</b>		
<b>SCHOOL DISTRICT #20 (Queets-Clearwater):</b>		
M & O	11,696,502	34,039,591
<b>SCHOOL DISTRICT #46 (Brinnon):</b>		
M & O	259,561,850	8,771,389
<b>SCHOOL DISTRICT #48 (Quilcene):</b>		
1998 Bond	332,193,655	18,600,196
M & O	332,193,655	9,300,098
<b>SCHOOL DISTRICT #49 (Chimacum):</b>		
2012 Capital Project	1,706,576,339	13,022,185
M & O	1,706,576,339	6,511,093
<b>SCHOOL DISTRICT #50 (Port Townsend):</b>		
2012 Capital Project	2,189,765,148	5,647,104
M & O	2,189,765,148	2,823,552
<b>SCHOOL DISTRICT #323 (Sequim):</b>		
M & O	55,876,539	233,324
<b>SCHOOL DISTRICT #402 (Quillayute Valley):</b>		
1998 & 2009 Bond	17,726,773	30,211,413
M & O	17,726,773	15,105,707

\* For school M & O levies, only 1/2 of the bond timber A.V. is used.

TAXING DISTRICT	REAL/PERSONAL PROPERTY A.V.	TIMBER A.V.
<b>FIRE DISTRICTS:</b>		
<b>FIRE DISTRICT #1:</b>		
General: Chimacum	1,511,054,153	
Kala Point Cape George		1,327,935
<b>FIRE DISTRICT #2:</b>		
General:	341,755,310	
Quilcene		6,255,947
<b>FIRE DISTRICT #3:</b>		
General:	967,275,244	
Port Ludlow Shine		2,390,991
<b>FIRE DISTRICT #3:</b>		
M & O:	961,035,378	
Port Ludlow Shine		2,390,991
<b>FIRE DISTRICT #4:</b>		
General:	262,349,935	
Brinnon		14,656,929
<b>FIRE DISTRICT #5:</b>		
General:	71,337,705	
Discovery Bay		1,945,395
<b>FIRE DISTRICT #7:</b>		
General:	2,820,216	
Clearwater		4,538
<b>CLALLAM-JEFFERSON FIRE DISTRICT #8:</b>		
General:	61,143,725	
Gardiner		72,911
<b>CLALLAM-JEFFERSON FIRE DISTRICT #9:</b>		
General:	2,656,385	
Forks		338,750
<b>EMERGENCY MEDICAL SERVICES:</b>		
<b>CITY OF P.T. E.M.S.:</b>		
General	1,340,801,391	
Port Townsend		7,403
<b>FIRE DIST #1 E.M.S.:</b>		
General: Chimacum	1,513,365,960	
Kala Point Cape George		3,750,737
<b>FIRE DIST #3 E.M.S.:</b>		
General:	969,528,276	
Port Ludlow Shine		6,686,753
<b>FIRE DIST #4 E.M.S.:</b>		
General:	263,501,383	
Brinnon		17,542,779
<b>FIRE DIST #5 E.M.S.:</b>		
General:	73,166,186	
Discovery Bay		6,111,460
<b>CLALLAM-JEFFERSON FIRE DISTRICT #8 E.M.S.:</b>		
General:	61,429,193	
Gardiner		381,791

<b>TAXING DISTRICT</b>	<b>REAL/PERSONAL PROPERTY A.V.</b>	<b>TIMBER A.V.</b>
<b>CEMETERY DISTRICTS:</b>		
<b>CEMETERY DISTRICT #1:</b>		
General	262,165,894	
Brinnon		4,088,973
<b>CEMETERY DISTRICT #2:</b>		
General	335,083,542	
Quilcene		18,600,196
<b>CEMETERY DISTRICT #3:</b>		
General	61,396,775	
Gardiner		282,632
<b>PARK &amp; RECREATION DISTRICT #1:</b>		
Operating Levy	160,298,749	
		4,040,939
<b>PARK &amp; RECREATION DISTRICT #2:</b>		
Operating Levy	263,501,383	
		17,542,779
<b>FLOOD ZONES:</b>		
<b>FLOOD ZONE #1 (Dosewallips River watershed):</b>		
General	30,399,696	
<b>FLOOD ZONE #2 (Big Quilcene River watershed):</b>		
General	24,819,214	
<b>FLOOD ZONE #3 (Little Quilcene River watershed):</b>		
General	65,154,613	
<b>WATER DISTRICTS:</b>		
<b>WATER DISTRICT #1:</b>		
General	22,614,255	
<b>WATER DISTRICT #2:</b>		
General	3,756,092	
<b>STATE FOREST PROTECTION ASSESSMENT:</b>		
Fire Patrol	<b>F.P. TOTAL =</b>	<b>\$194,738.73</b>

## Critical Facility Categories (Repeated from the Port Townsend Section)

### Critical Facility Categories

Critical facilities are any facility or combination of facilities that if severely damaged or destroyed would cause significant risk to: Public Health and Safety, Economic vitality, or the environment. The facilities listed here are for both the city and the county.

#### Emergency Service Centers (Fire, police, 911 PSAP)

##### Six City/County Fire Districts

JCFD1 - dba East Jefferson Fire & Rescue

JCFD2 - dba Quilcene Volunteer Fire Department

JCFD3 - dba Port Ludlow Fire - Rescue

JCFD4 - dba Brinnon Fire Department

JCFD5 – dba Discovery Bay Volunteer Fire Department

*JCFD6 - Merged into JCFD1; no longer exists as a stand-alone department.*

JCFD7 - Clearwater

*Port Townsend Fire Department has been absorbed by Jefferson County Fire District 1, which is doing business as East Jefferson Fire & Rescue.*

JCFD8 – contracted to Clallam County Fire District 3 for service to Gardner area.

Three Sheriff's Office Facilities: Port Hadlock, Quilcene, Clearwater.

One Police Department Headquarters Station: Port Townsend

Primary 911 PSAP - 81 Elkins Road, Port Hadlock

Back-up 911 PSAP - 701 Harrison St, Port Townsend

#### Emergency Operations Center

Primary EOC - 81 Elkins Road, Port Hadlock

Alternate EOC - 701 Harrison St, Port Townsend

City Command Center - 701 Harrison St, Port Townsend

Back-up City Command Center - Port Townsend Library

Public Works Facility

County Road Maintenance - Port Hadlock

County Road Shops - Quilcene Shop; Brinnon Shop; Clearwater Shop.

Hazardous Materials Facility - See SARA Title III List Hospital

Jefferson General Hospital, 834 Sheridan, Port Townsend

Nursing Home / Rehabilitation Center

Life Care Center of Port Townsend, 751 Kearney St, Port Townsend

Critical Community Employer

Port Townsend Paper Company

Naval Magazine Indian Island

County Government (Courthouse)

City Government (City Hall)

Port of Port Townsend

Library

Jefferson County Library System

Port Townsend Library

School

- Chimacum School District
- Quilcene School District
- Brinnon School District
- Port Townsend School District
- Queets / Clearwater School District
- Quillayute Valley School District

Transportation Facility

- Jefferson Transit Authority
- Washington Ferry System

Key Transportation/Evacuation Routes

- Hood Canal Bridge (Highway 104 E)
- Discovery Bay (Highway 101 W)
- Duckabush River Bridger (Highway 101 S)

Utilities Facilities

- Kearney St Substation (JPUD)
- Discovery Bay Substation (JPUD)
- City Water Distribution System (Lords Lake Dam Complex)
- City Wastewater Treatment Facility (China Lake)

## Jefferson County Sheriff Department

**Critical Facilities (Owned by District):**

1. Sheriff’s Admin Building, 78 Elkins Rd      approximate value: \$3,055,000

**Equipment:**

Apparatus	\$550,000
Contents	\$251,000

**Value of Area Served:** \$5,105,510,157

**Outline of Area Served:** The Jefferson County Sheriff’s Office serves all of Jefferson County, serving a permanent population of more than 29,542. The City of Port Townsend is the County Seat, located on the most northern tip of East Jefferson County.

**Current and Anticipated Service Trends:** The response rate of the Sheriff’s Department continues to grow at moderate levels with crime rates escalating. Serving an aging population base and a high tourist area the calls for service have increased dramatically and will continue to do so.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>	
<i>Type of Event</i>	<i>Date - Total Public Damage</i>
Earthquake	02/28/2001 – Minor Damage

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1.      Earthquake
2.      Local Severe Storms (Wind)
3.      Flood

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Not Applicable

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
OG-MH-3	Public Education through the Citizen’s Academy Program	PTPD & Sheriff	Budget/Grant	Annual
<del>ST-MH-8*</del>	Improve interoperability through coordinated purchase and use of communications equipment, and OPSCAN Program.	DEM, JeffCom 911, PTPD, JCSO, and all Fire Districts including PTFD.	Completed 2007 - 2009	Short-Term

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. Refer to Jefferson County Codes and Comprehensive Plans.



## Jefferson County Corrections and Emergency Operations Center

**Critical Facilities (Owned by District):**

1. Corrections Facility approximate value: \$2,955,929

2 JeffCom 9-1-1 and Emergency Operations Center approximate value: \$413,718

**Equipment:**

Apparatus (See Jefferson County Vehicle Schedule.) \$0

Contents \$386,833

**Value of Area Served:** **\$5,105,510,157**

**Outline of Area Served:** JeffCom **911** and the Emergency Operations Center are to be co-housed in a new building at **81** Elkins road in the Sheriffs complex. The physical boundary of the County remains the current service area.

**Current and Anticipated Service Trends:** The aging of the county population, increased build out in unincorporated areas of the county, increasing incidence of illegal drug labs, and the heightened risk of terrorism all combine to increase the call rate for JeffCom **911**, and the need for increased involvement of Emergency Management Services.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>	
<i>Type of Event</i>	<i>Date - Total Public Damage</i>
Earthquake	02/28/2001 – Minor Damage

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Local Severe Storms (Wind)
3. Flood

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Not Applicable

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-MH-5*	Build new dispatch and EOC center.	JeffCom 911 & Jefferson DEM	Completed 2005	Summer 2004
ST-MH-8*	Improve interoperability through coordinated purchase and use of communications equipment, and OPSCAN Program.	DEM, JeffCom 911, PTPD, JCISO, and all Fire Districts including PTFD.	Completed 2007 - 2009	Short-Term

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. Refer to Jefferson County Codes and Comprehensive Plans.

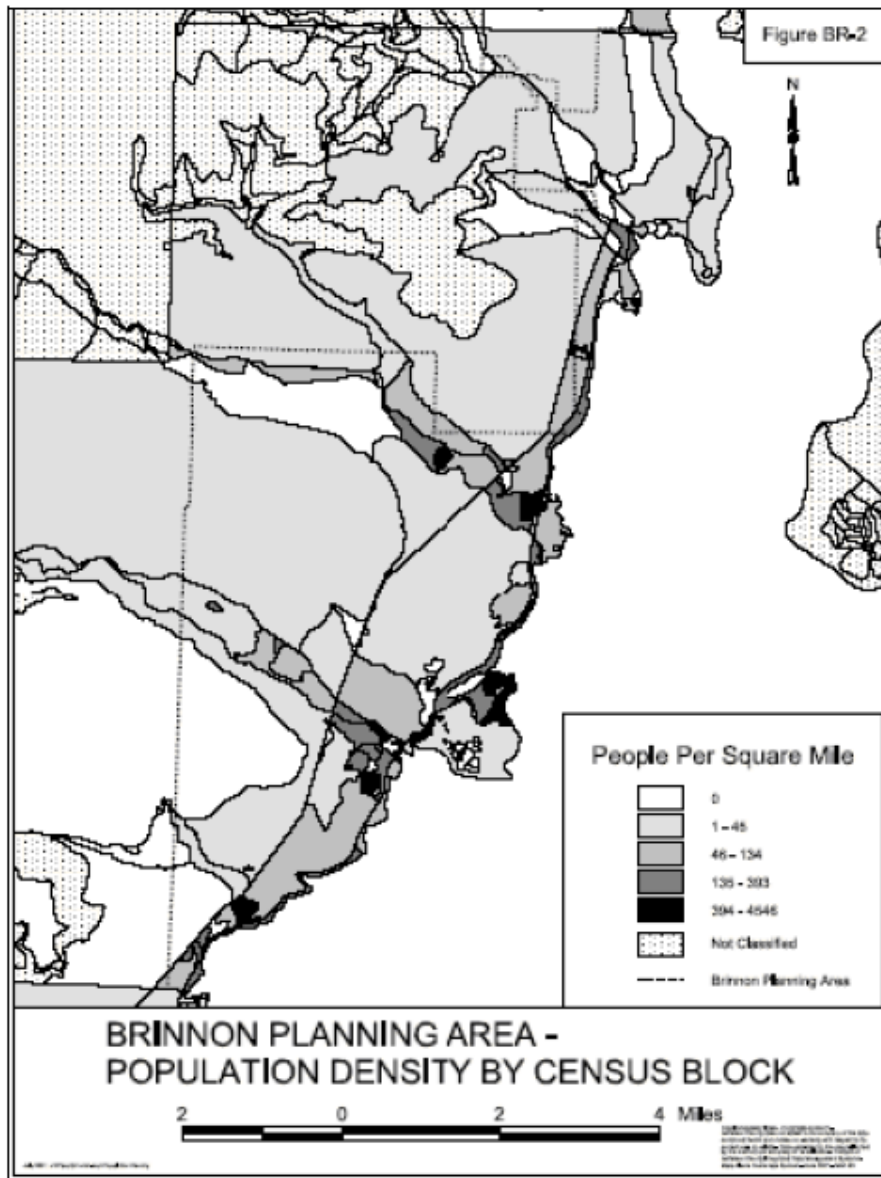
### **Jefferson County Local Hazard Assessment (Maps)**

The following maps are intended to portray the local hazard assessments for Jefferson County graphically. “Critical Area” maps have already been shown in Section II. These are new maps which address natural hazard issues in unincorporated population centers within the County. The Land Use maps are for representational use only since the originals may have been amended since these were created.

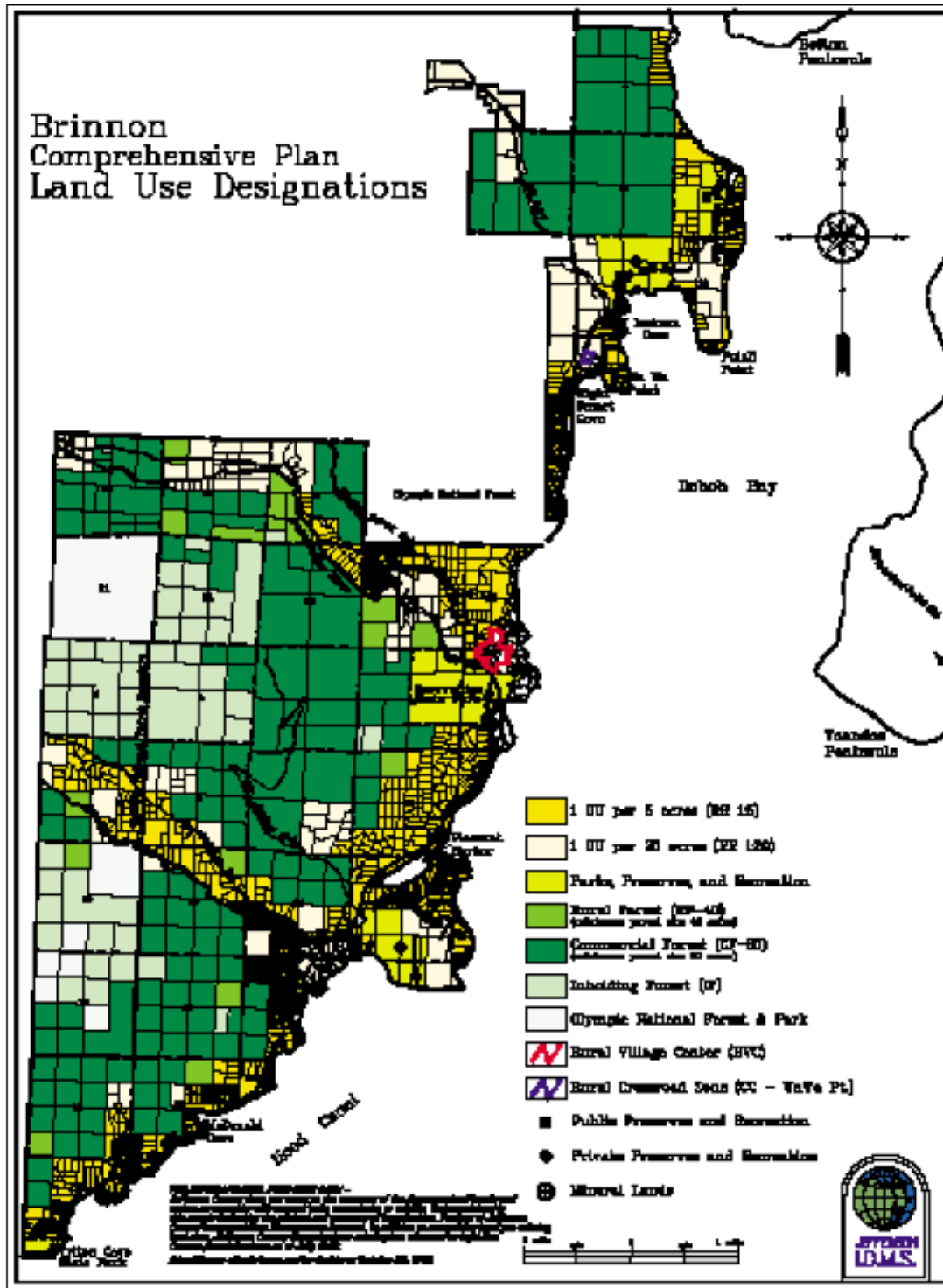
1. Comprehensive Plan / Zoning - Jefferson County
2. Brinnon Population Density
3. Brinnon Land Use
4. Brinnon Landslide, Erosion, and Seismic Hazards
5. Brinnon Frequently Flooded
6. Marrowstone Island Salt Water Intrusion
7. Seawater Intrusion Protection Zones
8. Wawa Point - Environmentally Sensitive & Frequently Flooded



## 2. BRINNON POPULATION DENSITY

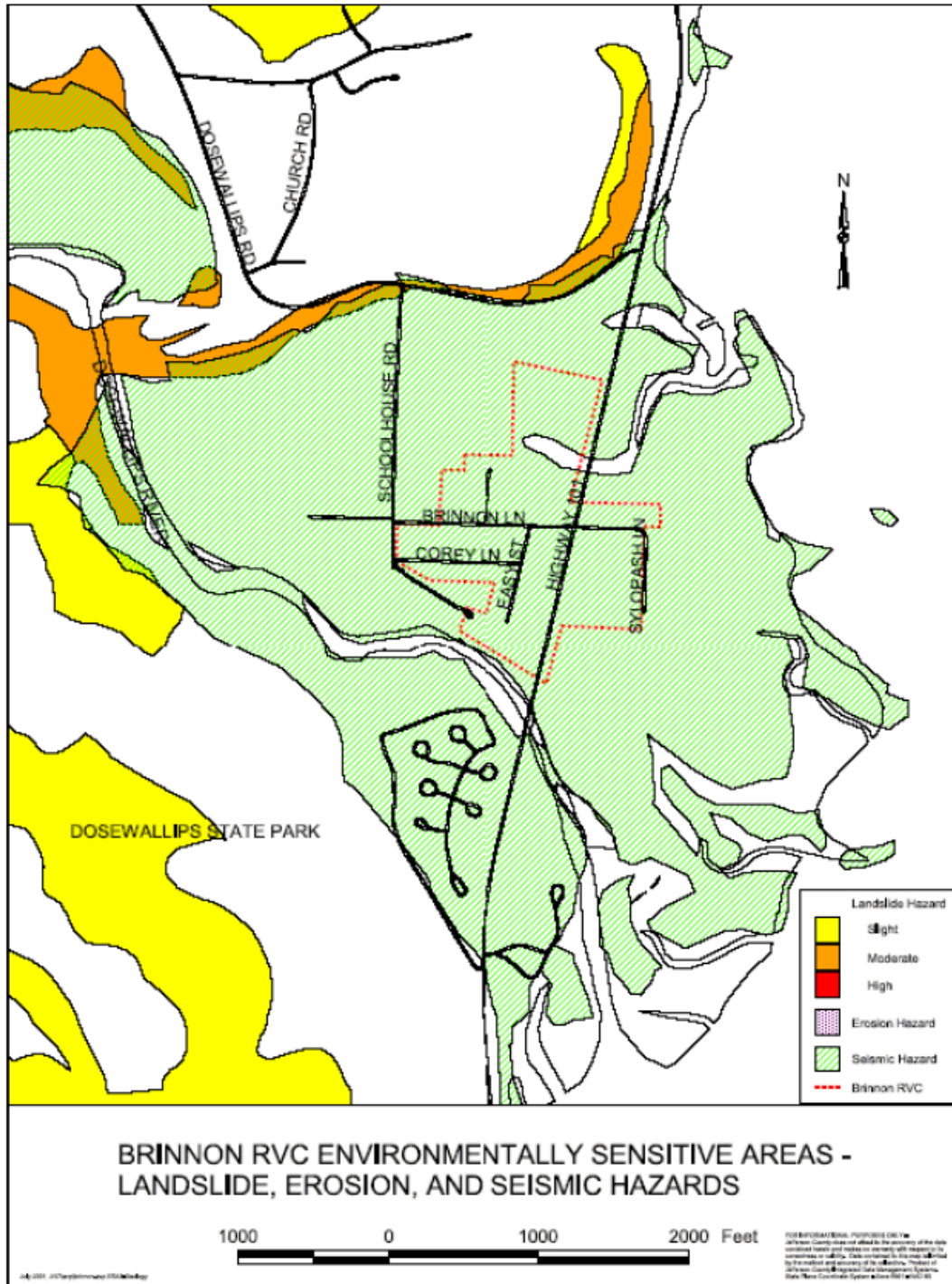


### 3. Brinnon Comprehensive Plan

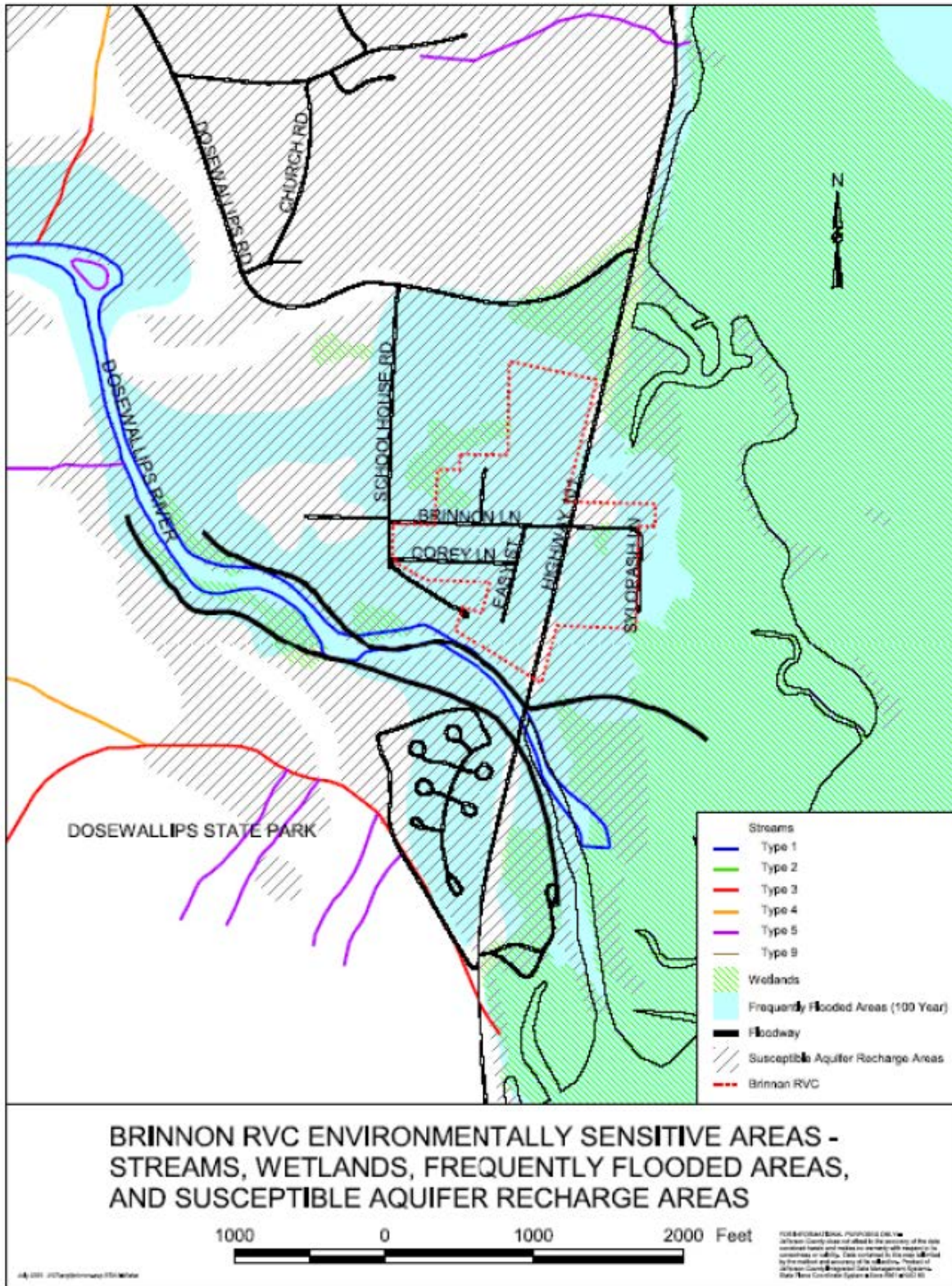




**4. Brinnon Landslide, Erosion, and Seismic Hazards**

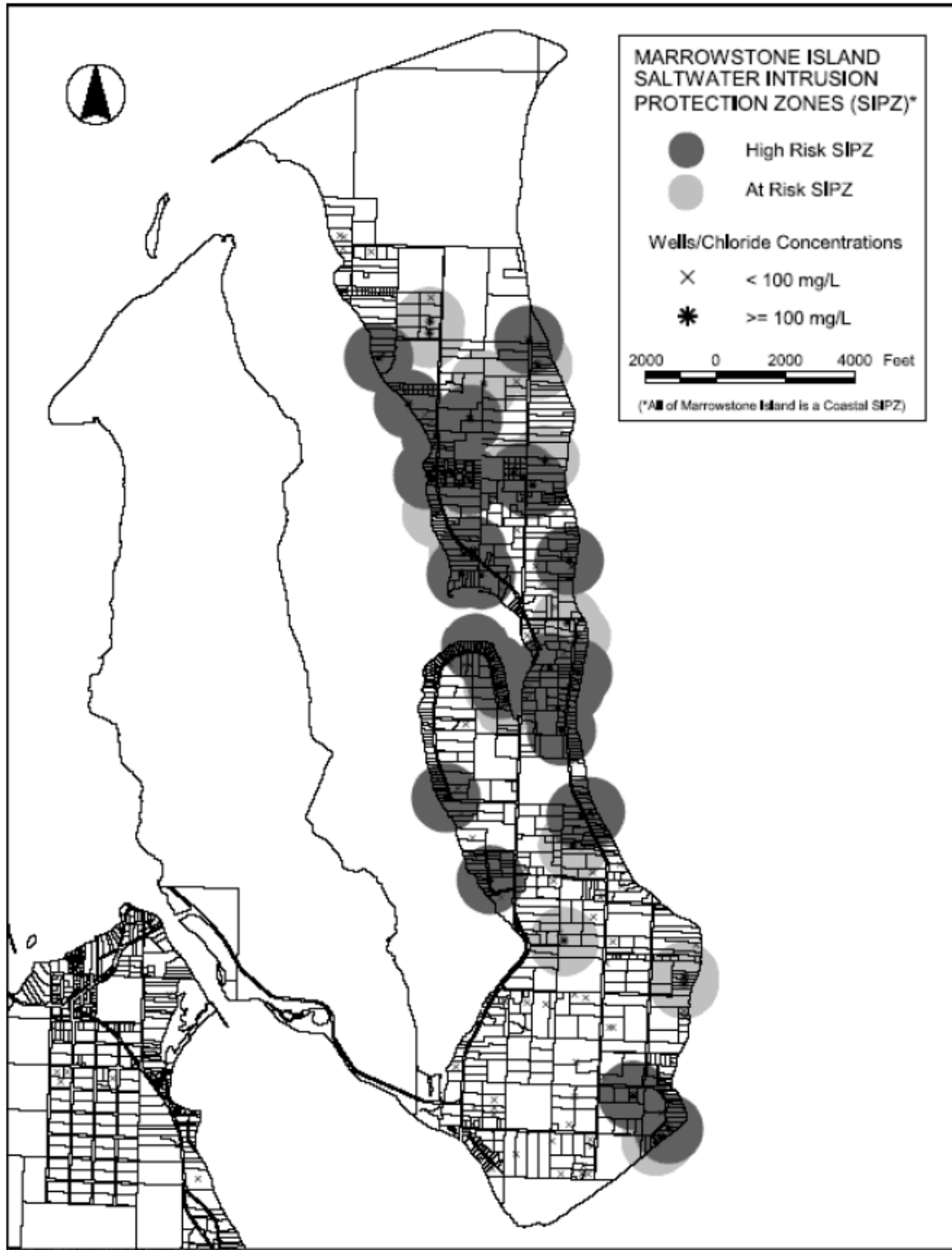


### 5. Brinnon Frequently Flooded Areas

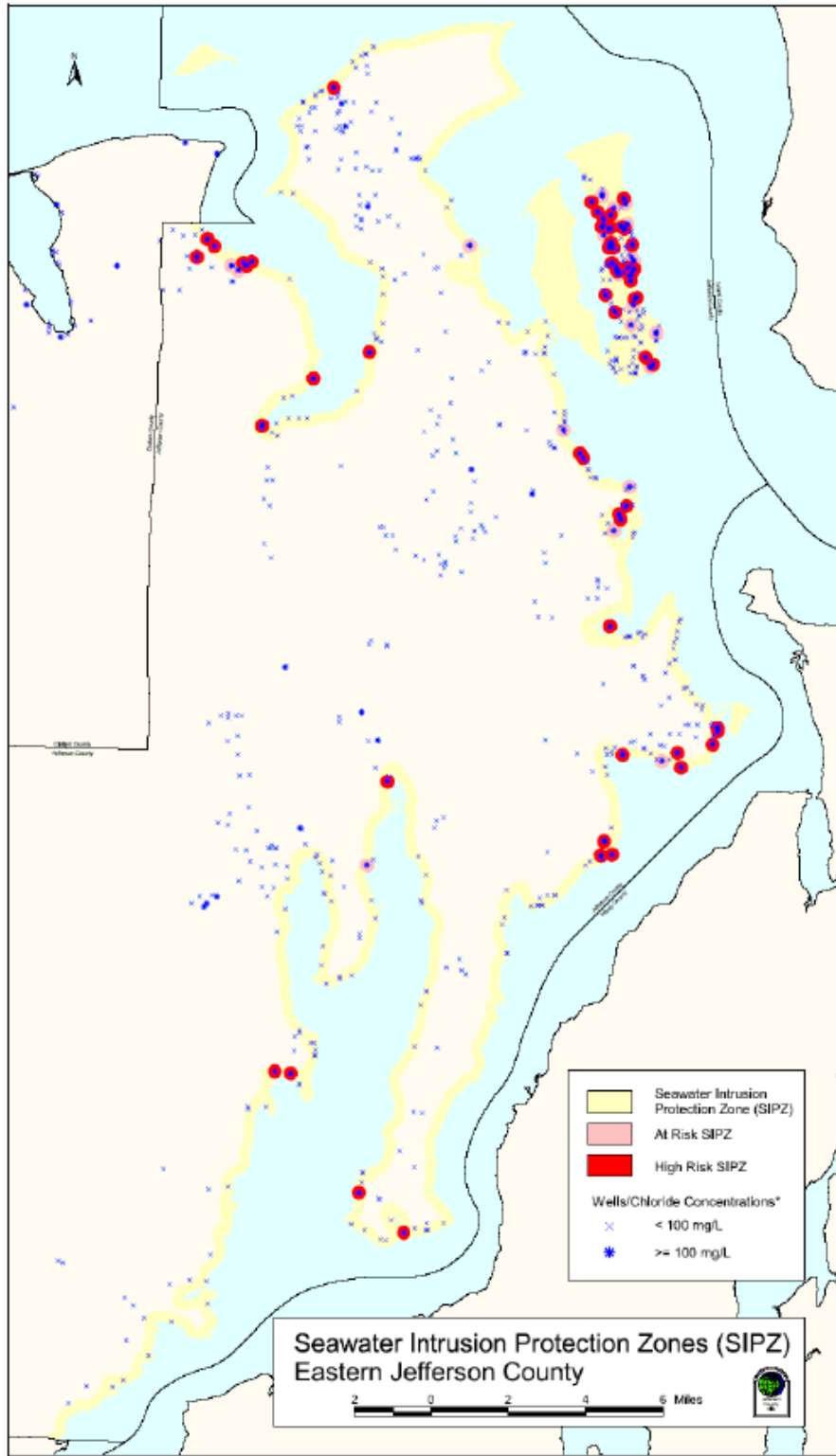




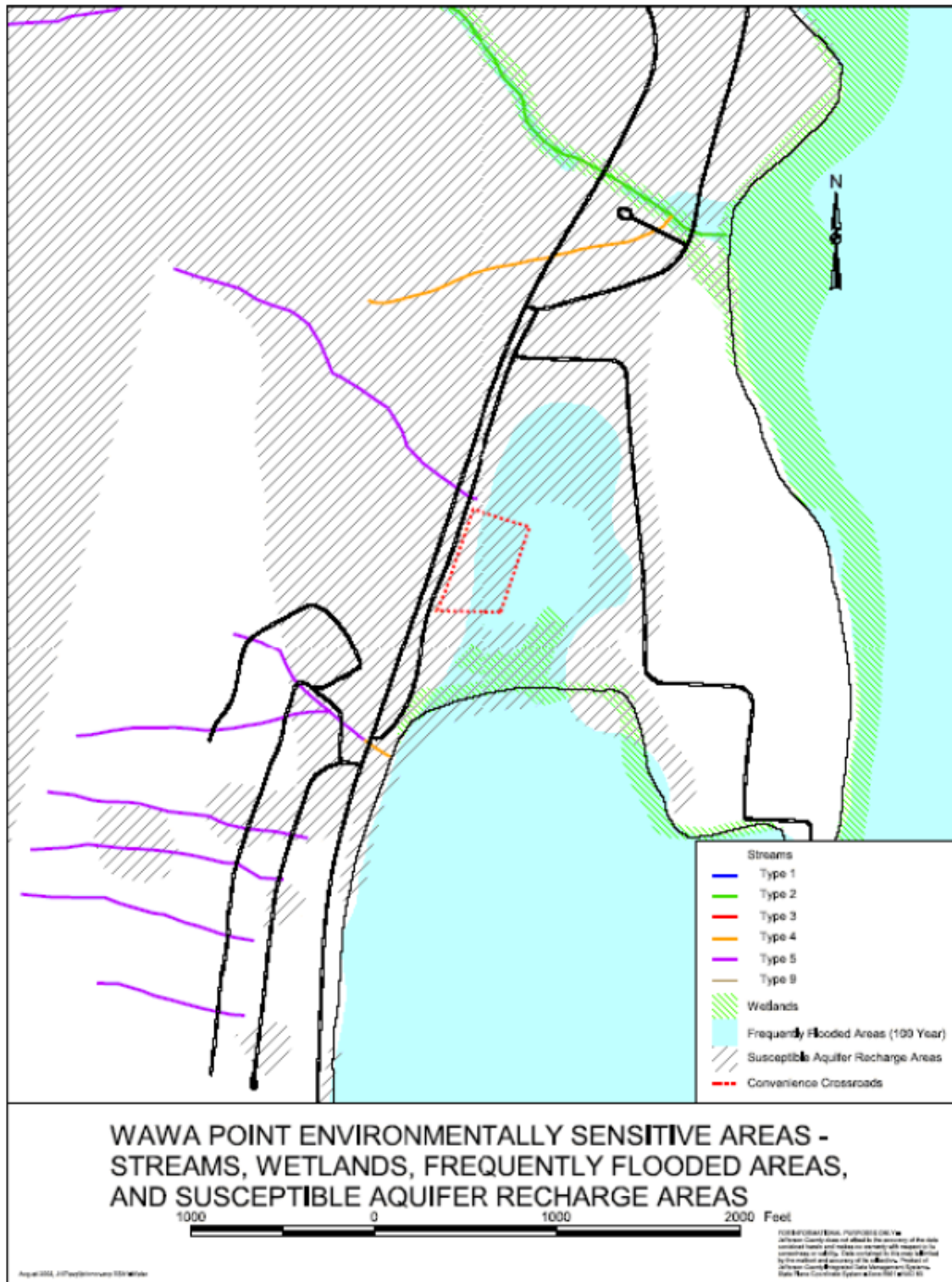
### 6. Marrowstone Island Salt Water Intrusion



### 7. Seawater Intrusion Protection Zones



### 8. Wawa Point -Frequently Flooded



<b>Jefferson County - Mitigation Strategies</b>				
<b>Activity ID</b>	<b>Mitigation Activity Description</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
OG-MH-O*	Adopt and Participate in the 2016 Jefferson County - City of Port Townsend Hazard Mitigation Plan as official plan.	Jefferson County Dept of Emergency Management	2014 PDM	Sept 2016
OG-MH-1	Identify and pursue funding opportunities to develop and implement local and county mitigation activities.	Jefferson County, City of Port Townsend and all Special Districts	City of Port Townsend and Jefferson County	Ongoing
OG-MH-2	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.	Team Jefferson, Jefferson County Realtor Association	Jefferson County	Ongoing
OG-MH-3	Educate the citizenry in the role of the 1 <sup>st</sup> Responder through Citizen's Police Academy.	PTPD / JCSO	Departmental Budgets	Annually from Feb to April
OG-MH-4*	Train personnel on how to react in a natural disaster.	JCDDEM	Departmental Budget / Ad hoc grants.	Ongoing
ST-MH-1	Establish a formal role for the Jefferson County Natural Hazards Mitigation Advisory Committee to develop a sustainable process for implementing, monitoring, and evaluating countywide mitigation activities.	Hazard Mitigation Advisory Committee	Jefferson County	
ST-MH-2	Integrate goals and action items from the Jefferson County Natural Hazard Mitigation Plan into existing regulatory documents and programs where appropriate.	Jefferson County Board of County Commissioners, Planning Commission and DCD	Jefferson County departmental budgets	Ongoing
ST-MH-3	Develop public and private partnerships to foster natural hazard mitigation program coordination in Jefferson County	DEM	Departmental budget	Ongoing
ST-MH-5*	Build new 911 Dispatch Center and new Emergency Operation Center	<b>Completed</b>		

<b>Jefferson County - Mitigation Strategies</b>				
<b>Activity ID</b>	<b>Mitigation Activity Description</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
ST-MH-6	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	DEM, DSD, DCD and GIS		
ST-MH-7	Evaluate and integrate citizen ideas into planning and implementation efforts.	Jefferson County, City of Port Townsend, DSD and DCD	Jefferson County and City of Port Townsend	Ongoing
<del>ST-MH-8</del> *	Improve interoperability through coordinated purchase, development of procedures and use of communications equipment, and OPSCAN 1 <sup>st</sup> -Responder back bone.	JeffCom 911, DEM, PTPD, JCSO, All Fire Districts	Jefferson County	Short-term <b>Completed</b>
LT-MH-1*	Strengthen emergency services preparedness and Long-Term response by linking emergency services with natural Multi-Hazard hazard mitigation programs, and enhancing public education on a regional scale.	DEM, DSD, DCD	City and County departmental budgets	<del>Short-term</del> Ongoing
LT-MH-2	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses and schools.	DEM, DSD, DCD	City and County departmental budgets	Long-term
LT-MH-3	Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.	DCD, DSD	City and County departmental budgets	Long-term
ST-EQ-1	Integrate new earthquake mapping data and improve technical analysis of earthquake hazards.	USGS, GIS	USGS and County departmental budget	Short-term
LT-EQ-1	Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.	DEM	Jefferson County	Ongoing
LT-EQ-2*	Participate in Cascadia Rising Exercise (CRX) – Multi-state, Multi-jurisdictional earthquake response exercise predicated on the Cascadia Subduction Zone producing a 9.0+ magnitude event.	Federal, State, County and City are all part of CRX. JCDEM is lead agency for Jefferson County.	NONE! At the County level.	2014 – 2016; CRX 6/6 – 6/10; AAR by 9/30/2016

<b>Jefferson County - Mitigation Strategies</b>				
<b>Activity ID</b>	<b>Mitigation Activity Description</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
LT-EQ-3	Encourage seismic strength evaluations of critical facilities in the County to identify vulnerabilities for mitigation.	Jefferson County Facilities	Jefferson County	Ongoing
LT-EQ-4	Encourage reduction of nonstructural and structural hazards in homes, schools, business, and government offices.	City and County government	City and County	Long-term
ST-FL-1	Analyze each repetitive flood property within Jefferson County and identify feasible mitigation options.	FEMA, DCD, DSD	City and County	Ongoing
ST-FL-2	Recommend revisions to standards required for development occurring within the floodplain, where appropriate.	FEMA, DCD, DSD	City and County	Ongoing
ST-FL-3*	Develop better flood warning systems.	DEM	Jefferson County	Short-term; <b>Adapted AHAB system for flood in addition to tsunami. 2007.</b>
LT-FL-1*	Enhance data and mapping for floodplain information within the County, and identify and map flood-prone areas outside of designated floodplains.	FEMA, GIS	FEMA, Jefferson County	Long-term; FEMA updated FIRMS draft released Feb. 2016. Due 2017.
LT-FL-2	Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in the floodplain.	City of Port Townsend, Jefferson County, Jefferson County Land Trust, Salmon Recovery Office	Jefferson County government, Washington State	Ongoing
LT-FL-3	Identify surface water drainage obstructions for all parts of unincorporated Jefferson County.	Jefferson County Public Works	Jefferson County	Long-term
LT-FL-4	Establish a framework to compile and coordinate surface water management plans and data throughout the county.	Jefferson County Public Works	Jefferson County	Long-term

<b>Jefferson County - Mitigation Strategies</b>				
<b>Activity ID</b>	<b>Mitigation Activity Description</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
LT-FL-6	Coordinate with Fish & Wildlife to develop Hoh River mitigation plan.	Jefferson County Public Works	Jefferson County	Long-term; Mitigation efforts underway. 2008-2009.
ST-LS-1	Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas.	DCD	Jefferson County departmental budget	Ongoing
ST-LS-2	Identify safe evacuation routes in high-risk debris flow and landslide areas.	DEM	Jefferson County	Short-term
LT-LS-1	Evaluate current landslide warning systems to ensure effectiveness and efficiency and increase coordination between local jurisdictions.	DEM	Jefferson County	Long-term
LT-LS-2	Limit activities in identified potential and historical landslide areas through regulation and public outreach.	DCD	Jefferson County departmental budget	Ongoing
LT-LS-3*	Relocate Undie Road to prevent further destruction of the road by landslides.	County Public Works	<b>Long-Term – Seeking Funding Help from FEMA &amp; Highway Dept.</b>	Long-Term – contingent on funding help.
ST-WS-1	Enhance strategies for debris management for severe winter storm events.	DEM, Jefferson County Public Works	Jefferson County	Ongoing
ST-WS-2	Develop and implement programs to identify and remove hazard trees located in public right-of-way to reduce potential danger to lives, property, and public infrastructure during windstorms events.	Puget Sound Energy	Budget	
ST-WS-3	Map and publicize locations around the county that have the highest incidence of extreme storms.	DEM	Jefferson County	Short-term
LT-WS-1*	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.	Public Works	Jefferson County	Long-term



<b>Jefferson County - Mitigation Strategies</b>				
<b>Activity ID</b>	<b>Mitigation Activity Description</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
LT-WS-2	Increase public awareness of severe winter storm mitigation activities.	DEM	Jefferson County	Long-term
LT-WS-3*	Enhance Courthouse clock tower to be able to withstand 70-knot winds.	Completed		Complete 2007.
LT-WS-4*	Support/encourage electrical utilities in mitigation activities to reduce power outages from storms.	DEM, PUD#1	PUD#1	Long-term; PUD has volunteer agency rep on the Incident Management Team.
ST-VO-1	Find ash fall models that are specific to Jefferson County.	DEM	Jefferson County	
ST-WF-1	Enhance Emergency Services to increase efficiency of wildfire response and recovery activities.	DEM, JC Fire Districts	Jefferson County	
ST-WF-2	Educate district personnel on federal cost-share and grant programs, Fire Protection agreements, etc. so that full array of assistance to local agencies is understood.	DEM, JC Fire Districts	Jefferson County, Jefferson County Fire Districts	
LT-WF-1	Encourage development and dissemination of maps relating to the fire hazard to help educate and assist builders and homeowners in being engaged in wildfire mitigation activities, and to help guide emergency services during response.	East Jefferson Fire & Rescue	Budget	
LT-WF-2	Enhance outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards.	JC Fire Districts	JC Fire Districts	Long-term

<b>Jefferson County - Mitigation Strategies</b>				
<b>Activity ID</b>	<b>Mitigation Activity Description</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
LT-WF-3	Increase communication, coordination, and collaboration between wildland/urban interface property owners, local and county planners, and fire prevention crews and officials to address risks, existing mitigation measures, and federal assistance.	City and County	City and County	Long-term

**Completed Mitigation:**

Jefferson County mapped the Channel Migration Zones (CMZ) for the Hoh River, Big Quilcene River, Dosewallips River and Duckabush River and adopted protection standards in JCC 18.22 to reduce the risk of property damage.

Jefferson County adopted the Duckabush and Dosewallips Comprehensive Flood Hazard Management Plan on August 10, 2009 for the purpose of evaluating and reducing flooding risks from the two river systems.

Jefferson County is giving the Hoh River Road to the Olympic National Park. This road is a repetitive damage structure and the county does not have the resources to continuously repair or find a permanent solution to the damages. 2009.

Hoh Tribe of Indians has acquired land through swaps with the Olympic National Forest and through purchases from private entities to allow them to move their public facilities out of a frequently flooded area. Relocation is underway in 2009.

Project to relocate the Dowans Creek road. 2008 event that to time to acquire permits and rights of way. Completed in 2015 due to the length of time to get permits and acquire rights-of-way.

Seismic retrofit of Courthouse Clock Tower.

# Special Purpose Districts

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## Port Ludlow Drainage District (Opt Out – 2015)

### District Profile (as of 2009)

Miles of Ditches:	15 Miles
Value of Ditches:	\$1,600,000
Number of Catch Basins:	65
Value of Catch Basins:	\$130,000
Number of Detention Systems:	1
Value of Detention Systems:	\$100,000
Value of Area Served: *includes facilities in Jefferson County Public rights-of-way.	\$1,820,000

### Critical Facilities (Owned by District):

1. N/A	Approximate Value:
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### Outline of Area Served:

North Bay development of Port Ludlow. Comprises the area north and west of Port Ludlow Bay.	
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**Current and Anticipated Service Trends:** Upgrading of the existing facilities.

### Natural Hazard Event History

NATURAL HAZARD EVENTS (1975 – PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public Damage</i>
Rain on snow / runoff	1996	No Value Documented

### Natural Hazard Vulnerability Analysis Rating

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earth Movement - quake or slides, especially at coastal bluffs.
2. Large Precipitation / runoff events; localized flooding and erosion.

### Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes

1. Earthquake Mitigation Procedure (District Facilities) Jefferson County/City of PT Disaster Plan (2009)
2. Jefferson County Unified Development Code

### Proposed Natural Hazard Mitigation Measures


Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
<del>LT-EQ-13*</del>	Upgrade existing drainage facilities to withstand earthquakes.	PLDD – Opted Out in 2015.	DHS Grants	Long-term
<del>LT-FL-7*</del>	Upgrade drainage conveyance to handle 100-year flood event.	Port Ludlow Drainage District <b>(Opted Out – 2016)</b>	Grants	Long-Term

### Existing Applicable Hazard Mitigation Associated Plans and/or Documents

1. Same as above

## Jefferson County Fire District No 1 (dba East Jefferson Fire Rescue)

### District Profile

<p><b>East Jefferson Fire Rescue</b> in Washington State is the product of the 2005 merger between Jefferson County Fire Districts 1 and 6 and the Port Townsend Fire Department. It is located on the eastern side of the Olympic Peninsula in western Washington state.</p> <p>East Jefferson Fire Rescue employs 30 career firefighters with 14 of those certified as Paramedics. Additionally, 10 Resident Volunteers and 16 Volunteers supplement the career staff. Equipped with six engines, two tenders, seven ambulances, two utility vehicles, two brush trucks and five staff vehicles, the department responded to 3,616 calls in 2013.</p>	<div style="text-align: center;">  </div> <p>Contact:                  East Jefferson Fire Rescue                  24 Seton Rd.                  Port Townsend, WA 98368                  (360) 385-2626</p> <p>Chief Pomeroy: <a href="mailto:gpomeroy@ejfr.org">gpomeroy@ejfr.org</a></p>
<p><b>Source:</b> <a href="http://www.ejfr.org">www.ejfr.org</a></p>	<p><b>Website:</b> <a href="http://www.ejfr.org">www.ejfr.org</a></p>



**Critical Facilities (Owned by District):**

<b>Station Designation</b>	<b>Station Location</b>	<b>Value</b>
<b>Station 1-1</b>	<b>Wally Westergaard Station 9193 Rhody Drive Chimacum, WA 98325</b>	<b>\$3,000,000</b>
<b>Station 1-2 Volunteer Response</b>	<b>Marrowstone Island 6693 Flagler Rd Nordland, WA 98358</b>	<b>\$350,000</b>
<b>Station 1-3 Volunteer Response</b>	<b>Airport Station 50 Airport Rd Port Townsend, WA 98368</b>	<b>\$300,000</b>
<b>Station 1-4 Volunteer Response</b>	<b>Cape George Station 3850 Cape George Rd Port Townsend, WA 98368</b>	<b>\$800,00</b>
<b>Station 1-5</b>	<b>Henry Miller Station 35 Critter Lane Port Townsend, WA 98368</b>	<b>\$2,350,000</b>
<b>Station 1-6</b>	<b>Uptown Station 701 Harrison St Port Townsend, WA 98368</b>	<b>\$2,759,000</b>

**Equipment:**

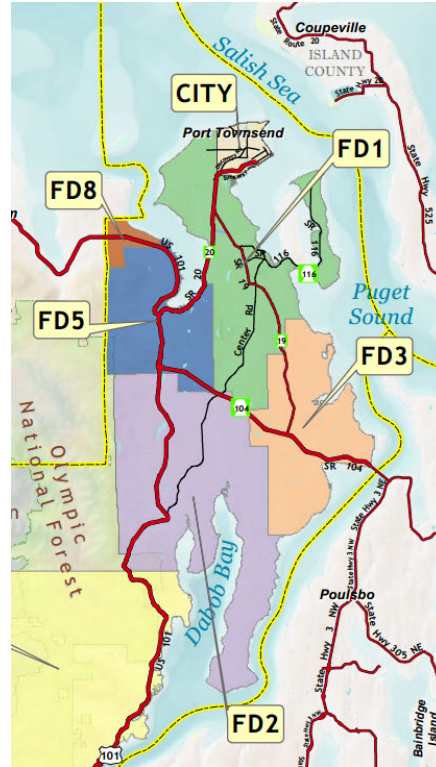
<b>Apparatus</b>	<b>4,500,000</b>
<b>Contents</b>	<b>3,000,000</b>
<b>Value of Area Served:</b>	<b>\$4,521,354,129</b>

**Outline of Area Served:**

District 1 provides service coverage for unincorporated Jefferson County communities of Cape George, Chimacum, Irondale, Kala Point, Marrowstone Island and Port Hadlock. It also provides service to the City of Port Townsend.

Its boundaries are MP 6 on SR19 thru the City of Port Townsend; from MP 4 on Oak Bay Road; from SR104 and Center Road; and from Anderson Lake Road on SR20.

The District 1 Service Area is shown at right in green and is labeled “FD1.” The District also includes the tan area labeled “CITY.”



**Current and Anticipated Service Trends:** Rapid population growth has caused alarm totals to increase from under 3,000 in 2008 to an anticipated 4200 alarms in 2014, requiring additional personnel and apparatus.

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>
Windstorm	1992	\$1,000,000.00 +
Snowstorm/Flood	1996	unknown
Nisqually Earthquake	02/28/2001	minor damage
Drought	2001/2004	unknown
Drought	2009	unknown

### Natural Hazard Vulnerability Analysis Rating

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Windstorm
3. Wildland Fire
4. Tsunami

### Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes

1. Earthquake Mitigation Procedure (District Facilities) Jefferson County Disaster Plan
2. Jefferson County Comprehensive Emergency Management Plan

### Proposed Natural Hazard Mitigation Measures

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
<del>ST-MH-8*</del>	Improve interoperability through coordinated purchase and use of communications equipment, and OPS-CAN program.	DEM, JeffCom 911, PTPD, JCSO, and all Fire Districts including EJFR.	DHS Grants	Short-Term
<del>LT-EQ-15*</del>	Replace Station 1-1 with seismically sound station.	JCFD1		<b>COMPLETED 2014</b>
LT-WF-2*	Firewise Program to educate public in wildfire mitigation.	JCFD1, WSU	Grants	Long-Term Continuous
<del>LT-WF-4*</del>	Consolidate Fire Districts to improve equipment availability on wildfires.	JCFD1	Tax Levy	<b>COMPLETED</b>


Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
<del>LT-WF-5*</del>	Implement a Battalion response policy to put more resources on wildfires.	All Jefferson County Fire Agencies	Budget	<b>COMPLETED</b>

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above.
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Jefferson County Fire District No 2 (dba Quilcene Fire Rescue)

### District Profile

<p><b>Quilcene Fire Rescue</b> serves numerous neighborhoods from three different stations over 72 square miles. In 2014 we responded to 389 requests for service. We serve a population of 2,500 residents and many visitors on the Olympic Peninsula in Jefferson County, WA. In addition to our historic village core, our service area includes famous oyster-rich bays, salmon-bearing rivers, forested canyons, farms and rural neighborhoods, all set in our world-class scenic recreation area. An estimated 1.6 million cars use HWY 101 annually through Quilcene. (<i>WSDOT 2008</i>)</p>	
	<p>Station 21</p> <p><b>Contact:</b> 70 Herbert Street Quilcene, WA 98376 (360) 765-3333</p> <p>Email: <a href="mailto:quilcenefire@qvfd.org">quilcenefire@qvfd.org</a> Chief Karp: <a href="mailto:chief@qvfd.org">chief@qvfd.org</a></p>
<p><b>Source:</b> www.qvfd.org</p>	<p><b>Website:</b> www.qvfd.org</p>

### Critical Facilities (Owned by District):

Station Designation	Station Location	Value
Station 2-1	70 Herbert Street Quilcene, WA 98376 (360) 765-3333	\$840,000

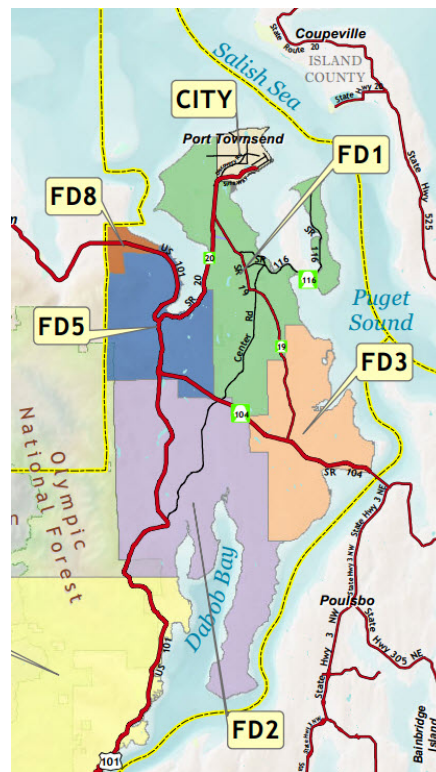
<b>Station 2-2</b>	<b>30 Whitney Road Quilcene, WA 98376</b>	<b>\$100,000</b>
<b>Station 2-3</b>	<b>3281 Dabob Road Quilcene, WA 98376</b>	<b>\$100,000</b>
<b>Equipment:</b>		
Apparatus		\$1,720,000
Contents		\$650,000
<b>Value of Area Served: (72 square miles)</b>		<b>\$342,485,352</b>

**Outline of Area Served:**

Our service area includes 72 square miles, covered by three stations. This includes remote beaches, high wooded ridges and everything in between. We serve a population of 2,500. We provide services to the communities of Quilcene, Dabob, and Coyle.

This covers from the 299-mile marker on US Hwy 101 (near Falls View Campground headed for Brinnon on the slope of Mount Walker) through Quilcene and out to Snow Creek Ranch Road, and from Center Road up to and including part of Hwy 104. We cover the Boulton Peninsula, (AKA East Quilcene) and the Toandos Peninsula, minus the Thorndyke area.

The District Two Service Area is shown at right in light purple.



**Current and Anticipated Service Trends:** Response to a bedroom community, motor vehicle traffic collisions and wildland interface events – along with the day-to-day EMS events.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public Damage</i>
Earthquake	2001	Unknown
Wildland Fires	Minor events over the years.	Unknown
Flooding – Little Quilcene River	2014	

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Flooding
3. Severe Storm

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

3. Earthquake Mitigation Procedure (District Facilities) Jefferson County Disaster Plan
4. Jefferson County Comprehensive Emergency Management Plan

**Proposed Natural Hazard Mitigation Measures**

<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
ST-EQ-8*	Retrofit fire station for earthquake protection.	JCFD2 (QVFD)	DHS Grants / Budget	Short-Term – Not Done Yet
ST-MH-8*	Improve interoperability through coordinated purchase and use of communications equipment & OPSCAN program.	DEM, JeffCom 911, PTPD, JCSO, and all fire districts.	DHS Grants / Budget	<b>COMPLETED 2007-2009</b>

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
LT-WF-2	Firewise Program to educate public in wildfire mitigation.	JCFD2	Grants	Long-Term Annual
OG-WF-2	Public Education	JCFD2 Commissioners.	Grants	Yearly Classes - Ongoing


**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Firewise education – we are holding town meetings on the urban interface / Firewise issues within our area along with encouraging citizens to be ready for an earthquake.
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan



## Jefferson County Fire District No 3 (dba Port Ludlow Fire & Rescue)

### District Profile

<p><b>Port Ludlow Fire &amp; Rescue</b> is a dedicated group of fire service professionals who care deeply about the community and citizens they protect. Serving a community of approximately 5000 residents, we currently operate out of three facilities. Two of the stations (Fire Station No. 31 and No. 33) have full-time firefighters and emergency medical technicians and all of our facilities are supplemented with volunteer staff.</p> <p>Port Ludlow Fire &amp; Rescue (PLFR) is proud to provide the following high quality fire, rescue and EMS services:</p> <ul style="list-style-type: none"> <li>• Fire Protection &amp; Suppression</li> <li>• Emergency Medical Aid (Basic and Paramedic)</li> <li>• Basic Hazardous Materials Response</li> <li>• Specialized Technical Rescue</li> <li>• Fire and Life Safety Inspections</li> <li>• Public Fire Safety and Prevention Education</li> <li>• Community Relations and Events</li> <li>• Marine Rescue</li> </ul>	
<p><b>Contact:</b></p> <p><b>Fire Chief Brad Martin</b>                  Headquarters                  Station No. 31                  7650 Oak Bay Road                  Port Ludlow, WA 98365</p> <p>Business Hours:                  8am-4:30pm, Mon-Fri                  360-437-2236 phone                  866-367-2291 fax</p> <p>Email: Chief Martin: <a href="mailto:brad.martin@plffr.org">brad.martin@plffr.org</a></p>	
<p><b>Source: <a href="http://www.plfr.org">www.plfr.org</a></b></p>	

**Critical Facilities (Owned by District):**

Station Designation	Station Location	Value
Station 3-1	7650 Oak Bay Road Port Ludlow, WA 98365 (360) 437-2236	\$2,500,000
Station 3-2	121 West Alder Street Port Ludlow, WA 98365	\$80,000
Station 3-3	101 South Point Road Port Ludlow, WA 98365 (360) 437-2899	\$500,000

**Equipment:**

<b>Station 3-1:</b>		
Apparatus		\$1,000,000
Contents		\$200,000
<b>Station 3-2:</b>		
Apparatus		\$20,000
Contents		\$15,000
<b>Station 3-3:</b>		
Apparatus		\$400,000
Contents		\$150,000
<b>Total Equipment:</b>		
Apparatus		\$1,420,000
Contents		\$370,000

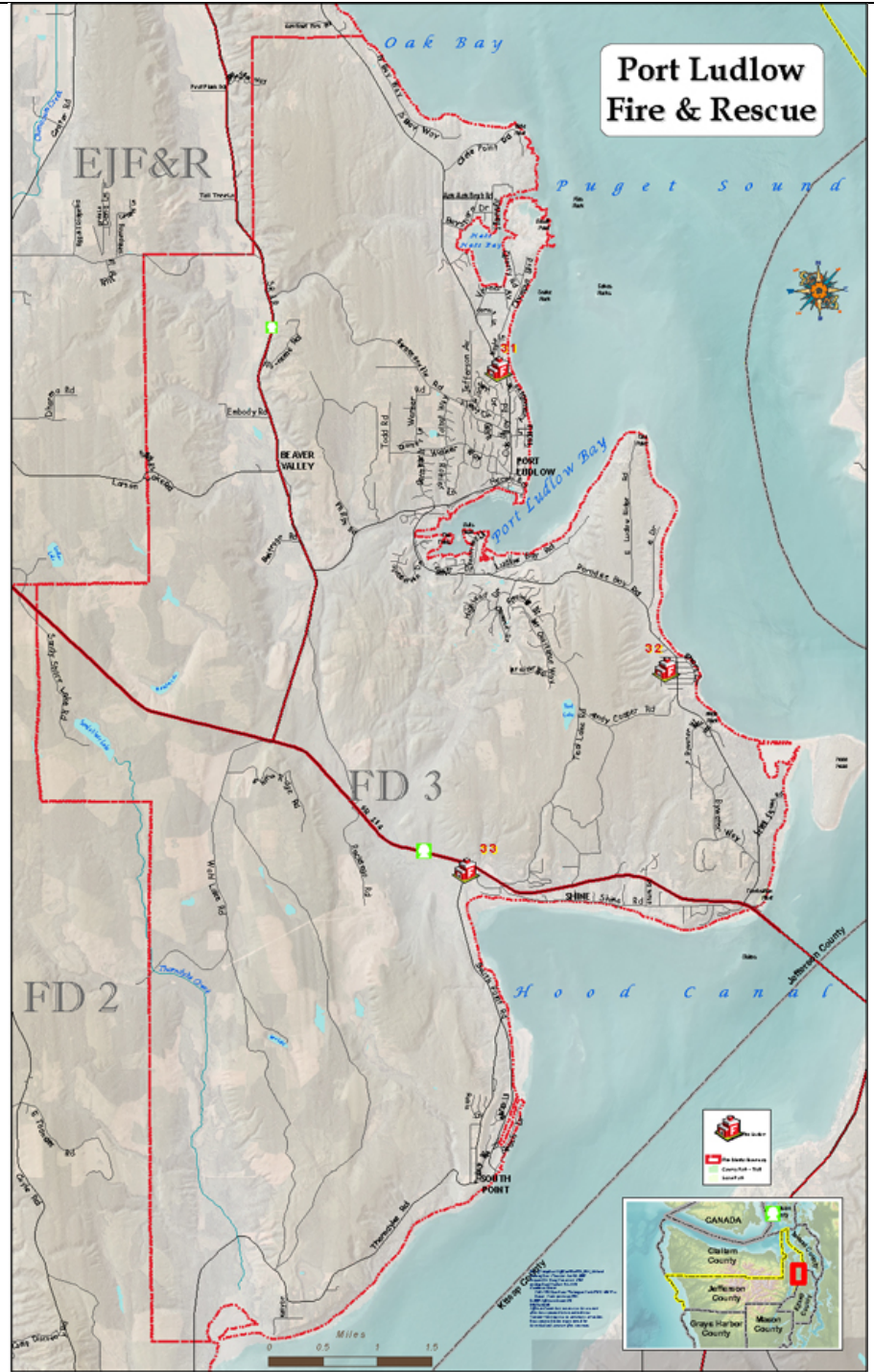
**Value of Area Served:**

Source: Jefferson County Assessor

**\$969,398,266**

**Outline of Area Served:**

The District serves the areas known as the Port Ludlow Master Planned Resort (North Bay and South Bay), Mats Mats, Olele Point, Swansonville, Beaver Valley, Paradise Bay, Bywater Way, South Point, Bridgehaven, Thorndyke, Shine, Squamish Harbor, and the surrounding areas, for fire protection and emergency medical services (EMS).



**Current and Anticipated Service Trends:** Station 3-1 sees exploding housing growth; limited commercial growth. Possible planned resort (MPR). In the Station 3-2 coverage area, the growth is limited by the Jefferson County Comprehensive Plan. Station 3-3 is in a rural residential area of slow growth. Mineral extraction (quarry) operations are at Shine gravel pit.

### Natural Hazard Event History

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public Damage</i>
Flood	1996	\$10,000
Earthquake	2001	Value unknown – cracked the wall in Station 3-1.
Flooding – Little Quilcene River	2014	Unknown

### Natural Hazard Vulnerability Analysis Rating

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Wind
3. Flood

### Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes

1. Earthquake Mitigation Procedure (District Facilities) Jefferson County Disaster Plan
2. Jefferson County Comprehensive Emergency Management Plan

### Proposed Natural Hazard Mitigation Measures


<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
ST-EQ-8*	Retrofit fire station 3-1 for earthquake protection.	JCFD3 (PLFR)	DHS Grants / Budget	<b>Complete</b>
ST-MH-8*	Improve interoperability through coordinated purchase and use of communications equipment.	DEM, JeffCom 911, PTPD, JCSO, and all fire districts.	DHS Grants / Budget	<b>Completed 2007 - 2009</b>
LT-WF-2	Firewise Program to educate public in wildfire mitigation.	JCFD2	Grants	Long-Term Continuous

### **Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Jefferson County Fire District No 4 (dba Brinnon Fire Department)

### District Profile

<p>The <b>Brinnon Fire Department</b> protects approximately 132 square miles of rural Jefferson County, Washington. The district contains vast wilderness including the Olympic National Forest and land managed by the US Forest Service and Department of Natural Resources.</p> <p>Brinnon is small rural town with a Post Office, Marina, State Parks, and abundant recreational opportunities from hiking and camping to water activities. We are located along US Highway 101 between Olympia and Port Angeles.</p> <p>Brinnon Fire employees six full-time positions: 1 Fire Chief, 4 Fire Fighter/EMTs, and one administrative assistant/office manager.</p> <p>The department also relies on a very dedicated and talented volunteer staff. Fire and EMS services are provided 24/7 from our headquarters stations, and two other outlying stations are staffed by volunteers.</p>	
	<p><b>Contact:</b></p> <p>Fire Headquarters                  Station No. 4-1                  272 Schoolhouse Road                  Brinnon, WA 98320</p> <p>360-796-4450 phone                  360-796-3999 fax</p> <p>Chief: Tim Manly                  Email: <a href="mailto:tmanly@brinnonfire.org">tmanly@brinnonfire.org</a>                  District Secretary: Peggy Ware                  Email: <a href="mailto:peggyw@brinnonfire.org">peggyw@brinnonfire.org</a></p>
	<p><b>Source:</b> <a href="http://www.brinnonfire.org">www.brinnonfire.org</a></p>

**Critical Facilities (Owned by District):**

Station Designation	Station Location	Value
Station 4-1	272 Schoolhouse Road Brinnon, WA 98320 (360) 796-4450	\$1,300,000
Station 4-2*	51 Shorewood Road Brinnon, WA 98320	\$75,000
Station 4-3**	350 Bee Mill Road Brinnon, WA 98320	\$80,000

\* Station 4-2 is currently closed due to disrepair and insufficient budget to repair.

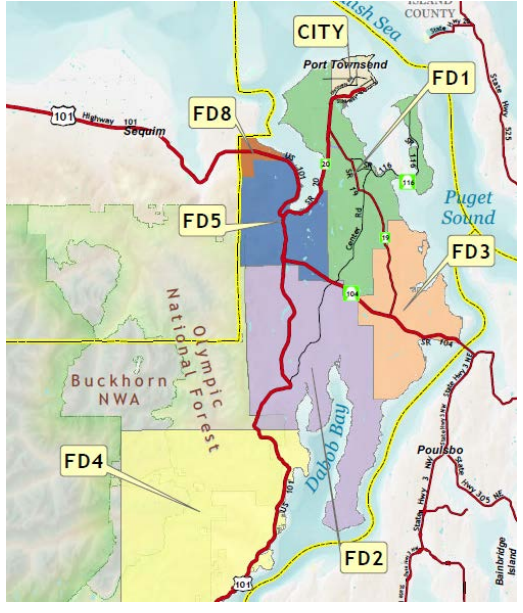
\*\*Station 4-3 was severely damaged in 12/2014 flooding and is closed.

**Equipment:**

<b>Station 4-1:</b>		
Apparatus		\$848,700
Contents		\$500,000
<b>Station 4-2:</b>		
Apparatus		\$450,000
Contents		\$50,000
<b>Station 4-3:</b>		
Apparatus		\$300,000
Contents		\$25,000
<b>Total Equipment:</b>		
Apparatus		\$1,598,700
Contents		\$575,000

**Value of Area Served:** **\$263,778,675**  
 Source: Jefferson County Assessor



<p><b>Outline of Area Served:</b></p> <p>On the North end from MP299 on Highway 101 to the Jefferson/Mason county line on the south end, to the Olympic National Forrest on the west side to the middle of the Hood Canal on the east side.</p> <p>With first due fire and EMS service to the US Forrest and the Olympic National Park.</p> <p>District 4 service area is shown in yellow at the right.</p>	
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**Current and Anticipated Service Trends:** Currently the Brinnon area is growing in both population and area covered. The demographics of the population have increased to where the average age is over 65, this equates to more medical calls rather than fire calls. This is not to say that there is no fire danger. With DNR losing funding on a yearly basis the need for more localized wildland firefighting capabilities is paramount. Especially given that a majority of the properties purchased over the last 15 years were for vacation homes and now that those individuals are retiring and converting those vacation homes to full time residents. There is also the approval and development of the Black Point Resort. This development will create more demand for services especially during an event. There are some plans in the FEIS for the resort that will assist with reducing but not eliminating the impact that the population growth will have on both fire and EMS services.

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public Damage</i>
Earthquake	2000	Unknown
River Flooding	2007/2008	\$12,000
Wildland Fire	2009	None
Wildland Fire	2012	None
Wildland Fire x 3	2013	None
River Flooding	2014	\$1.8 million; \$150,000 Fire Dept. Loss
River Flooding	2015	Not Available



**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Wildland Urban Interface Fires
2. River Flooding
3. Landslides

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Earthquake Mitigation Procedure (District Facilities) Jefferson County Disaster Plan
2. Jefferson County Comprehensive Emergency Management Plan

**Proposed Natural Hazard Mitigation Measures**


Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
<del>LT-FL-5*</del>	Move Station 42 out of Flood Zone	Brinnon FD, JC Environmental Health	FEMA Flood Mitigation, Salmon Recovery Board	Completed
<del>ST-MH-8*</del>	Improve interoperability through coordinated purchase and use of communications equipment.	DEM, JeffCom 911, PTPD, JCSO, and all fire districts.	DHS Grants / Budget	Completed 2009

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Brinnon Area Disaster Response Plan – Updated 2008
2. Brinnon School Emergency Preparedness Plan – Updated 2009
3. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan
4. In process of re-locating Fire Station 42 and making application for USDA Funding assistance.

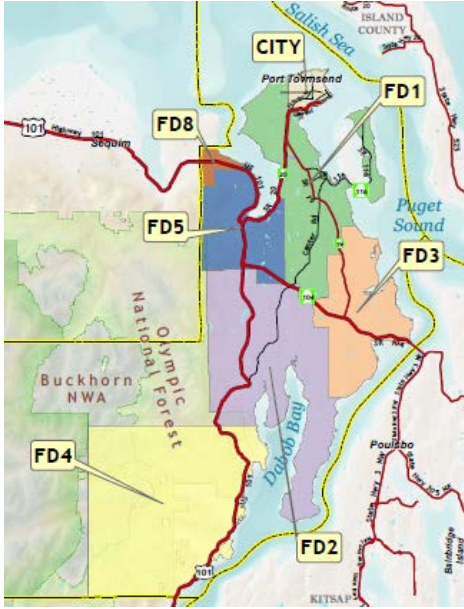
## Jefferson County Fire District No 5 (dba Discovery Bay Volunteer Fire Department)

### District Profile

<p>Discovery Bay Volunteer Fire &amp; Rescue is a dedicated volunteer fire service serving about 75 square miles with a population of 500 full-time residents and additional 500 temporary residents, centered at the head of Discovery Bay. District boundaries: Highway 101 from milepost 276.2, east of Gardiner to milepost 286 at Snow Creek Ranch Road, south of Discovery Bay. This includes State Route 104 from Highway 101 to milepost 4 just west of Center Valley Road and SR 20 from Highway 101 to Anderson Lake Road, and Eaglemount Road from SR 20 just west of Brothers Road, including all secondary routes inside this area.</p> <p>Source: Discovery Bay Volunteer Firefighter's Association (<a href="http://www.dbvffa.org">www.dbvffa.org</a>)</p>	<div style="text-align: center;">  </div> <p><b>Contact:</b></p> <p>Chief Willie Knoepfle Discovery Bay Volunteer Fire Department 12 Bentley Pl Port Townsend, WA 98368</p> <p>360-379-6839 phone</p> <p>Email: Chief Willie Knoepfle: <a href="mailto:wkoepfle@dbvfr.org">wkoepfle@dbvfr.org</a></p>
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Critical Facilities (Owned by District)		
Station	Location	Approximate Value
Discovery Bay – Station 5-1	12 Bentley Place Port Townsend, Wa 98368	\$62,625
Gardiner - Station 5-2	2000 Old Gardiner Rd Sequim, Wa 98382-8750	\$643,000
Value of Apparatus / Contents		
Station		Apparatus / Content Value
Discovery Bay – Station 5-1		\$120,000
Gardiner - Station 5-2		\$240,000

<b>Value of Area Served:</b>	<b>\$73,135,652</b>
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<p><b>Outline of Area Served:</b>                  District boundaries: Highway 101 from milepost 276.2, east of Gardiner to milepost 286 at Snow Creek Ranch Road, south of Discovery Bay. This includes State Route 104 from Highway 101 to milepost 4 just west of Center Valley Road and SR 20 from Highway 101 to Anderson Lake Road, and Eaglemount Road from SR 20 just west of Brothers Road, including all secondary routes inside this area.</p> <p>The service area is labeled “FD5” in the map at the right.</p>	
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**Current and Anticipated Service Trends:** N/A

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Severe Storm
2. Earthquake
3. Wildland Fire

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Earthquake Mitigation Procedure (District Facilities) Jefferson County Disaster Plan
2. Jefferson County Comprehensive Emergency Management Plan

**Proposed Natural Hazard Mitigation Measures**


Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-MH-8*	Improve interoperability through coordinated purchase and use of communications equipment, and OPSCAN program.	DEM, JeffCom 911, PTPD, JCSO, and all Fire Districts including PTFD.	DHS Grants	Completed 2009

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

3. Same as above
4. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

# Jefferson County – JeffCom 911 (NEW)

## District Profile

<p><b>JeffCom911</b> Communications provides dispatching services for first responders in Jefferson County, WA.</p>	 <p><b>Contact:</b>  JeffCom 911 81 Elkins Road Port Hadlock, WA 98339  360-344-9779 phone  Email: Director Karl Hatton: <a href="mailto:khatton@jcpsn.us">khatton@jcpsn.us</a></p>
	<p>Source: JeffCom 911</p>

**Critical Facilities (Owned by District):**

**Equipment:**

Facility Location	Value
<b>Radio Tower, Lawrence St.</b>	
Building	\$800,000
Contents	\$200,000
<b>Radio Tower, 20<sup>th</sup> St</b>	
Building	\$800,000
Contents	\$200,000
<b>Dispatch Center</b>	
Building	\$0
Contents	\$1,000,000
<b>Radio Tower, Elkins Road</b>	
Building	\$0
Contents	\$200,000
<b>Radio Tower, Coyle Road</b>	
Building	\$800,000
Contents	\$200,000
<b>Radio Equipment / Shelter</b> 47.33' 41.0" N 122.48' 30.3" W	
Building	\$300,000
Contents	\$200,000
<b>Radio Equipment / Shelter</b> 47.00' 57.0" N 122.55' 35.3" W	
Building	\$800,000
Contents	\$200,000
<b>Radio Equipment / Shelter</b> 47.54' 10.3" N 122.40' 01.1" W	
Building	\$300,000
Contents	\$200,000
<b>IT Office, Elkins Road</b>	
Building	\$50,000
Contents	\$100,000
<b>Radio Tower, Morgan Hill</b>	
Building	\$50,000
Contents	\$10,000
<b>Radio Tower, Teal Lake</b>	
Building	\$0
Contents	\$200,000

**Total Value:**

Building	\$3,900,000
Contents	\$2,910,000

**Value of Area Served:**

Source: Jefferson County Assessor

**\$4,639,984,525**

**Outline of Area Served:**

JeffCom 911 and the Emergency Operations Center are co-housed in a new building at 81 Elkins road in the Sheriff’s complex. The physical boundary of the County remains the current service area. Jefferson County is shown in **red** in the map to the right.



Source: Generic map from Internet

**Current and Anticipated Service Trends:** The aging of the county population, increased build out in unincorporated areas of the county, increasing incidence of illegal drug labs, and the heightened risk of terrorism all combine to increase the call rate for JeffCom 911, and the need for increased involvement of Emergency Management Services.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public Damage</i>
Earthquake	02/28/2001	Minor Damage

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Local Severe Storms (Wind)
3. Flood

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Jefferson County Comprehensive Emergency Management Plan

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
LT-EQ-16*	Continue hardening and upgrading infrastructure at tower sites	JeffCom 911	DHS Grants / Budget	Short-Term
ST-MH-8*	Improve interoperability through coordinated purchase and use of communications equipment	DEM, JeffCom 911, PTPD, JCSO, and all fire districts.	DHS Grants / Budget	Completed 2009

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Refer to Jefferson County Codes and Comprehensive Plans.
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan



## Jefferson County Hospital District No 1 (Opt Out - 2009)

**Hospital District No. 1 is not participating due to its small size. While geographically large, it has no significant assets of its own to which to apply mitigation activities.**

### District Profile (as of 2009)

<p><b>Jefferson County Hospital District No 1 (Forks)</b> is served by Clallam Public Hospital District No.1 Forks Community Hospital Member Western Washington Rural Health Care Collaborative (WWRHCC)<sup>3</sup></p>	
<p>Source:www.mrsc.org</p>	

Critical Facility	Address	
None Owned; Contract arrangement with Forks Hospital.		\$000,000,000
		\$0
<b>Business Personal Property</b>	Included in Building Values	\$0
	<b>Total</b>	<b>\$000,000,000</b>

Facility	Address	
		\$0
		\$0
		\$0
		\$0
		\$0
		\$0
		\$0
		\$0
		\$0
<b>Business Personal Property</b>	Included in Building Values	\$ -
	<b>Total</b>	<b>\$000,000,000</b>
	<b>Grand Total -</b>	<b>\$000,000,000</b>

## Jefferson County Hospital District No 2 (dba Jefferson Healthcare Medical Center)

### District Profile

Jefferson Healthcare is a DNV accredited, fully integrated health care system. The hospital is a 25-bed, critical access care hospital that has complete coverage by 24 hour hospitalists, has top rated surgical services and includes an emergency room, lab services, swing bed unit, the latest in digital imaging and comprehensive array of physical, speech and occupational rehabilitation therapies.



Source: [www.jeffersonhealthcare.org](http://www.jeffersonhealthcare.org)

Jefferson Health Services  
Jefferson General Hospital  
834 Sheridan Street  
Port Townsend, WA 98368

**Critical Facilities (Owned by District):**

Name	Location	Value
Jefferson General Hospital Complex	834 Sheridan Street Port Townsend, Wa 98368	\$34,540,000
Jefferson Healthcare Internal, Pediatrics and Primary Care	915 Sheridan Street Port Townsend, Wa 98368	\$3,352,600


**Equipment:**

Apparatus\*      Included in building values.

Contents\*      Included in building values.

**Grand Total:** **\$37,892,60**

**Value of Area Served:** **\$4,610,454  
,953**

<p><b>Outline of Area Served:</b></p> <p><b>The physical boundary of the County remains the current service area. Jefferson County is shown in red in the map to the right.</b></p> <p>Source: Generic map from Internet</p>	
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**Current and Anticipated Service Trends:**

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**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Fire
3. Local Severe Storms

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Jefferson County Comprehensive Emergency Management Plan

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-WS-5*	Replace windows on Jefferson General Hospital to withstand severe storm.	Commissioners	Grants / Budget	Summer 2005 <b>Done</b>
LT-EQ-10*	Increase Emergency Food Supply for staff and patients to at least 72 hours.	Commissioners	Grants / Budget	Summer 2005 <b>Done</b>
LT-EQ-11*	Increase Emergency Water Supply capacity to meet 72 hr standard for emergency operations.	Commissioners	Grants / Budget	<b>Not Yet Completed</b>


Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-MH-9*	Increase our fuel supply for our generators to 72 hours and improve storage accessibility.	Commissioners	Grants / Budget	December 31, 2016
ST-MH-10*	Plan for Emergency Specialty Services Building power generation and generator fuel supply.	Commissioners	Grants / Budget	December 31, 2016

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Jefferson County Library District (dba Jefferson County Library)

### District Profile

<p><b>Mission Statement</b></p> <p>To provide all residents of the District with free and equal access to the diversity of publicly available ideas and information.</p> <p>The library will accomplish this mission by effectively providing open and non-judgmental access to its resources and services without regard to race, citizenship, age, sex, handicap, creed, educational level, economic status or any other qualifying condition. The library will strive to identify the current and future needs and interests of the District and the individuals within it.</p>	
<p>Source: <a href="http://www.jclibrary.info">www.jclibrary.info</a></p>	<p><a href="#">Meredith Wagner</a>                  Director, Public Records Officer                  Jefferson County Library                  620 Cedar Avenue                  Port Hadlock, WA 98339                  Phone: (360) 385-6544</p>

### Critical Facilities (Owned by District):


Facility Designation	Facility Location	Value
<b>Library Building</b>	620 Cedar Ave Port Hadlock, WA (360) 385-6544	<b>\$3,700,000</b>

### Non-Critical Facilities (Owned by District):

<b>Library Garage</b>	620 Cedar Ave Port Hadlock, WA	<b>\$83,600</b>
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**Equipment:**

Volumes	\$1,500,000
Library Contents	\$750,000
Garage Contents	\$8,000
<b>Value of Area Served:</b>	<b>\$3,299,734,810</b>

<p><b>Outline of Area Served:</b></p> <p>The physical boundary of the County remains the current service area. Jefferson County is shown in red in the map to the right.</p> <p>Source: Generic map from Internet</p>	
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**Current and Anticipated Service Trends:**

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**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>
Severe Local Storm	Periodic	None
Nisqually Earthquake	2001	Unknown

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Severe Local Storm
2. Earthquake
3. Volcanic Activity

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. The participation and adoption of the Jefferson County Multi-Jurisdictional Natural Hazards Mitigation Plan.
2. Emergency Planning Manual (rev 2002) that provides guidance to staff on how to react during a variety of hazardous occurrences

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-EQ-2	Structural bracing of shelving	Library Staff, Board of Trustees	Grant funding; Annual Budget; other sources as available	Short Term
LT-EQ-17*	Expansion of the Library will allow the opportunity to seismically retrofit existing facilities.	Jefferson County Library	Grants – both federal and commercial	Long Term – No immediate date


**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan



## Port of Port Townsend

### District Profile

<p>Our mission: to serve the citizens of Jefferson County by responsibly maintaining and developing property and facilities to promote sustainable economic growth, to provide community access to Port facilities and services, and to protect and maintain our community resources and maritime heritage.</p>	 <p>Source: enjoypt.com</p>
<p>Source: www.portofpt.com</p>	<p>Executive Director: Sam Gibboney</p> <p>Port of Port Townsend Mailing Address:  <b>P.O. Box 1180, Port Townsend, WA 98368</b></p> <p>Administration/Finance Office/Lost &amp; Found:  <b>2701 Jefferson Street, Port Townsend, WA 98368</b>  <b>(360) 385-0656</b></p>

### Critical Facilities (Owned by District):

Facility Designation	Facility Location	Value
<b>Administrative / Finance Offices</b>	<b>2701 Jefferson Street Port Townsend, WA 98368 (360) 385-0656</b>	<b>\$3,000,000</b>
<b>Jefferson County International Airport</b>	<b>Airport Cutoff Road Port Townsend, WA 98368 (360) 385-0656</b>	<b>\$9,600,000</b>
<b>Port Townsend Boat Haven</b>	<b>2601 Washington Street Port Townsend, WA 98368 (360) 385-2355</b>	<b>\$30 million</b>
<b>Herb Beck Marina / Quilcene Boat Haven</b>	<b>1731 Linger Longer Road Quilcene, WA 98376 (360) 765-3131</b>	<b>\$5,000,000</b>

<b>Point Hudson Marina &amp; RV Park</b>	103 Hudson Street Port Townsend, WA 98368 (360) 385-2828	<b>\$5,000,000</b>
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**Equipment:**

Apparatus


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Contents

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**Value of Area Served:** **\$4,639,984,525**

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<p><b>Outline of Area Served:</b></p> <p>The physical boundary of the County remains the current service area. Jefferson County is shown in red in the map to the right.</p> <p>Source: Generic map from Internet</p>	
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**Current and Anticipated Service Trends:**

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**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>
Natural Hazard Events will be listed by facility, which have been separately profiled.		

**Natural Hazard Vulnerability Analysis Rating**

Natural Hazard Vulnerabilities will be listed with the facility to which they pertain.

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Port of Port Townsend Capital Improvement Plan (CIP) .[WSDOT SLIP, FAA CIP](#)
2. Routine mowing & clearing reduce fuel to reduce risk of fire spreading from nearby forest.

**Proposed Natural Hazard Mitigation Measures**


Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
<i>Proposed Natural Hazard Mitigation Measures will be presented with the facility to which they pertain.</i>				

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Port of Port Townsend (Jefferson County International Airport)

### District Profile

<p>The <b>Jefferson County International Airport</b> consists of 361 acres zoned, zoned as an “Essential Public Facility.” Critical components of the facility include:</p> <ul style="list-style-type: none"> <li>• Runway and Taxiway &amp; associated infrastructure;</li> <li>• Fuel Facility; and</li> <li>• All Weather Observation System (AWOS).</li> </ul> <p>Jefferson County International Airport is located approximately four miles southwest of Port Townsend, between State Routes 19 and 20, with the driving entrance from Route 19. This general aviation airport has a single 3,000 foot east-west runway.</p>	 <p>Source: <a href="http://portofpt.com/air-services/jefferson-county-international-airport/">http://portofpt.com/air-services/jefferson-county-international-airport/</a></p>
<p>Source: <a href="http://www.portofpt.com">www.portofpt.com</a></p>	<p>Executive Director: Sam Gibboney</p> <p>Port of Port Townsend Mailing Address: <b>P.O. Box 1180, Port Townsend, WA 98368</b></p> <p>Administration/Finance Office/Lost &amp; Found: <b>2701 Jefferson Street, Port Townsend, WA 98368</b> <b>(360) 385-0656</b></p>

### Critical Facilities (Owned by District):

Facility Designation	Facility Location	Value
<b>Jefferson County International Airport</b>	<b>Airport Cutoff Road Port Townsend, WA 98368 (360) 385-0656</b>	<b>\$9,600,000</b>


**Equipment:**

Apparatus

Contents

**Value of Area Served:**

**\$4,639,984,525**

<p><b>Outline of Area Served:</b></p> <p>The physical boundary of the County is the current service area. Jefferson County is shown in red in the map to the right.</p> <p>Source: Generic map from Internet</p>	

**Current and Anticipated Service Trends:**

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>
None		

**Natural Hazard Vulnerability Analysis Rating**

1. Earthquake
2. Severe Storm
3. Fire

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Port of Port Townsend Capital Improvement Plan (CIP). [WSDOT SLIP](#), [FAA CIP](#)
2. Routine mowing & clearing reduce fuel to reduce risk of fire spreading from nearby forest.

**Proposed Natural Hazard Mitigation Measures**

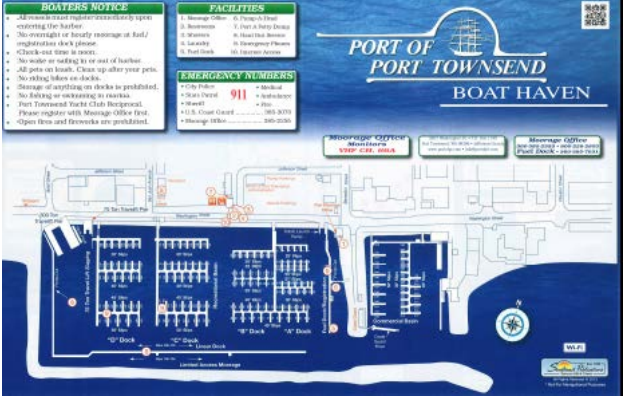
Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
OG-MH-5	Educate employees about potential hazards and develop Emergency Response Plan.	Port Staff	Port General Fund	Ongoing
OG-MH-6*	Regularly review CIP to include newly identified mitigation projects.	Port Management	N/A	Annual – Latest revision 2015; Prioritization in January 2016.
LT-EQ-18*	Enhance fire station 6-2 seismically.	Port Management	Port CIP	New CIP being developed.

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

# Port of Port Townsend (Port Townsend Boat Haven)

## District Profile

<p>Located on the northeast corner of the <a href="#">Olympic Peninsula</a> in <a href="#">historic Port Townsend</a>, on the primary route to the <a href="#">San Juan Islands</a>, this modern full service marina has an abundant supply of guest moorage. Home to 475 commercial and recreational vessels and more than sixty marine trades businesses, the Boat Haven provides more than 6,000 overnight guest moorage accommodations for visiting boats every year. (Maximum vessel length is 100'.)</p> <p>The Port Townsend Boat Haven is 62 acres, zoned as MII(A). It contains the following critical components:</p> <ul style="list-style-type: none"> <li>• Breakwater;</li> <li>• Travel-Lift Piers;</li> <li>• Marina Offices;</li> <li>• U.S.C.G. Facility; and</li> <li>• Fueling System.</li> </ul> <p>Utilities / Improvements include: electricity, water, sanitary sewer, storm sewer, communications, fueling, floats, breakwater, washdown system, launch ramp, paving, and hazardous waste collection facility.</p>	 <p>Source: <a href="http://portofpt.com/marine-services/marinas/">http://portofpt.com/marine-services/marinas/</a></p>
<p>Source: <a href="http://www.portofpt.com">www.portofpt.com</a></p>	<p>Port Townsend Boat Haven: 2601 Washington Street Port Townsend, WA 98368 (360) 385-2355</p> <p>48° 6.389' N, 122° 46.257' W</p>

### Critical Facilities (Owned by District):

Facility Designation	Facility Location	Value
<b>Port Townsend Boat Haven</b>	<b>2601 Washington Street Port Townsend, WA 98368 (360) 385-2355</b>	<b>\$30 million</b>





**Natural Hazard Vulnerability Analysis Rating**

1. Severe Storm
2. Earthquake
3. Tsunami / Seiche

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Port of Port Townsend Capital Improvement Plan (CIP)

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
OG-MH-5	Educate employees about potential hazards and develop Emergency Response Plans	Senior Management	Operating & Capital Budget	Ongoing
OG-MH-6*	Regularly review CIP to include newly identified mitigation projects	Senior Management	Operating & Capital Budget	Annual
ST-TS-1*	Breakwater/Jetty and Wingwall improvements and/or replacement	Senior Management	Capital Budget	Long Term  (Planning –Short Term)
LT-EQ-12	Marina Upland redevelopment Storm	Senior Management	Capital Budget	Long Term (planning – short term)
ST-EQ-3	Water system upgrade improvements	Senior Management	Capital Budget *	Short Term


**\*Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan  
Vs. 5

## Port of Port Townsend (Herb Beck Marina & Quilcene Boat Haven)

### District Profile

<p>The Herb Beck Marina / Quilcene Boat Haven consists of 50 acres zoned as Rural Residential 1:5 &amp; 1:20. Utilities / improvements consist of:</p> <ul style="list-style-type: none"> <li>• Electricity,</li> <li>• Water system,</li> <li>• Septic system,</li> <li>• Communications,</li> <li>• floats,</li> <li>• Jetties,</li> <li>• Fueling, and</li> <li>• Launch ramp.</li> </ul> <p>It contains the following components that are critical to its operation:</p> <ul style="list-style-type: none"> <li>• Breakwater jetty and wingwall</li> <li>• Marina Office</li> <li>• Well and water distribution system</li> </ul>	 <p>Source: <a href="http://portofpt.com/wp-content/uploads/quilcene_500.jpg">http://portofpt.com/wp-content/uploads/quilcene_500.jpg</a></p>
<p>Source: <a href="http://www.portofpt.com">www.portofpt.com</a></p>	<p>Herb Beck Marina, Quilcene Boat Haven                  1731 Linger Longer Road                  Quilcene, WA 98376                  (360) 765-3131</p> <p>47° 48.06' N, 122° 51.92' W</p>

### Critical Facilities (Owned by District):

Facility Designation	Facility Location	Value
<b>Herb Beck Marina / Quilcene Boat Haven</b>	<b>1731 Linger Longer Road Quilcene, WA 98376 (360) 765-3131</b>	<b>\$5,000,000</b>

**Equipment:**

Apparatus

Contents

**Value of Area Served:**

**\$4,639,984,525**

<p><b>Outline of Area Served:</b></p> <p>The Herb Beck Marina is located on the west side of Quilcene Bay, opening to the Hood Canal, south of Port Townsend and the Hood Canal Bridge.</p> <p>Source: Generic map from Internet</p>	

**Current and Anticipated Service Trends:**

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>
Severe winter storm	December 1990	\$18,000
Severe winter storm	November 2008	\$89,000

**Natural Hazard Vulnerability Analysis Rating**

1. Severe Storm
2. Earthquake
3. Tsunami / Seiche
4. Fire

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Port of Port Townsend Capital Improvement Plan (CIP).
2. City of Port Townsend Municipal Code / Ordinances
3. Routine mowing & clearing reduce fuel to reduce risk of fire spreading from nearby forest.

### Proposed Natural Hazard Mitigation Measures

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-TS-1*	Jetty/wingwall improvements	Senior Management	Capital Budget	Long Term
LT-EQ-12*	Upland development will meet new building codes	Senior Management	Capital Budget	Long Term
ST-EQ-3	Water system upgrade, improvements to reservoir and distribution lines.	Senior Management	Operating Budget	Short Term
OG-MH-5	Educate employees about potential hazards and develop emergency response plans.	Senior Management	Operating Budget	Ongoing
OG-MH-6*	Regularly review CIP to include newly identified mitigation projects.	Senior Management	Operating/Capital Budget	Annual – Latest revision 2015; Prioritization in January 2016.

### Existing Applicable District Hazard Mitigation Associated Plans and Documents

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Port of Port Townsend (Point Hudson Marina.)

### District Profile

**Point Hudson** consists of 32 acres zoned as M II (B). Its critical facilities consist of breakwater jetties and the marine office. Its utilities and improvements are:

- Electricity,
- Water,
- Sanitary Sewer,
- Storm Sewer,
- Communications,
- Floats, piers, jetties, and paving.

Point Hudson has 32 slips, 800' of linear docks, an RV park with 48 spots, and several marine trades businesses. Point Hudson's slips can accommodate boats up to 70' LOA. Rafting of boats up to four deep is permitted on linear docks and may be required when the marina is busy.



Source: <http://portofpt.com/marine-services/marinas/>

Source: [www.portofpt.com](http://www.portofpt.com)

Point Hudson Marina & RV Park  
103 Hudson Street  
Port Townsend, WA 98368  
(360) 385-2828

48° 6.96' N, 122° 44.88' W

### Critical Facilities (Owned by District):

Facility Designation	Facility Location	Value
Point Hudson Marina & RV Park	103 Hudson Street Port Townsend, WA 98368 (360) 385-2828	\$5,000,000

**Equipment:**

Apparatus

Contents

**Value of Area Served:**

**\$4,639,984,525**

<p><b>Outline of Area Served:</b></p> <p>Point Hudson is located just beyond the end of Water Street at the northeast corner of Port Townsend’s commercial district.</p> <p>Source: Generic map from Internet</p>	

**Current and Anticipated Service Trends:**

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
<i>Type of Event</i>	<i>Date</i>	<i>Total Public</i>
None		

**Natural Hazard Vulnerability Analysis Rating**

1. Severe Storm
2. Earthquake
3. Tsunami / Seiche

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Port of Port Townsend Capital Improvement Plan (CIP)
2. City of Port Townsend Municipal Code / Ordinances

**Proposed Natural Hazard Mitigation Measures**

<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
ST-TS-1	Breakwater improvements and/or replacement	Senior Staff	Capital Budget	Short Term
LT-EQ-12	Upland development will meet new building codes	Senior Staff	Operating/Capital Budget	Ongoing
OG-MH-5	Educate employees about potential hazards and develop emergency response plans.	Senior Staff	Operating Budget	Ongoing
OG-MH-6*	Regularly review CIP to include newly identified mitigation projects.	Senior Staff	Operating/Capital Budget	Annual – Latest revision 2015; Prioritization in January 2016.

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Port Townsend School District No. 50

### School District Profile

<p><b>Motto:</b> “Learning through a sense of place”</p> <p><b>Mission:</b> Through community focused maritime place-based projects, students develop effective thinking, effective action and effective relationships. As a result, our students demonstrate meaningful accomplishments as engaged citizens.</p> <p><b>Core Principles:</b></p> <ul style="list-style-type: none"> <li>• Innovation impacts real community needs</li> <li>• Empowered learners own their learning</li> <li>• Learning is connected day-to-day and year-to-year</li> <li>• Learning is embedded in authentic activities and projects</li> <li>• Meaningful relationships develop while learning</li> <li>• Our maritime community, in all its facets, provides rich resources for place-based learning</li> </ul> <p style="text-align: right;"><i>Adopted June 27, 2016</i></p> <p>The District had an annual average enrollment for the 2015-2016 school year of 1,116.</p>	<p style="text-align: center;"><b>Fast Facts – Port Townsend School District 2015-2016 School Year:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="padding-right: 20px;">Budgeted Enrollment:</td> <td>1,169</td> </tr> <tr> <td>Certified Staff:</td> <td>70.9</td> </tr> <tr> <td>Certificated Administrative:</td> <td>6.3</td> </tr> <tr> <td>Classified Staff:</td> <td>55.895</td> </tr> <tr> <td>Operating Budget for (2015-2016):</td> <td>\$14,715,441</td> </tr> </table> <p>Location: Port Townsend, Wa Website: <a href="http://www.ptschools.org">www.ptschools.org</a></p> <p>Schools:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-right: 20px;">Port Townsend High School</td> <td>Grades 9-12</td> </tr> <tr> <td>Blue Heron Middle School</td> <td>Grades 4-8</td> </tr> <tr> <td>Grant Street Elementary</td> <td>Grades Pre-K-3</td> </tr> <tr> <td></td> <td>OPEPO</td> </tr> <tr> <td>OCEAN*</td> <td>Grades K-12</td> </tr> </table> <p>*OCEAN stands for Opportunity, Community, Experience, Academics, Navigation, an alternative program.</p>	Budgeted Enrollment:	1,169	Certified Staff:	70.9	Certificated Administrative:	6.3	Classified Staff:	55.895	Operating Budget for (2015-2016):	\$14,715,441	Port Townsend High School	Grades 9-12	Blue Heron Middle School	Grades 4-8	Grant Street Elementary	Grades Pre-K-3		OPEPO	OCEAN*	Grades K-12
Budgeted Enrollment:	1,169																				
Certified Staff:	70.9																				
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Classified Staff:	55.895																				
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Port Townsend High School	Grades 9-12																				
Blue Heron Middle School	Grades 4-8																				
Grant Street Elementary	Grades Pre-K-3																				
	OPEPO																				
OCEAN*	Grades K-12																				
<p>Dr. John Polm, Superintendent 360 379-4501 <a href="mailto:jpolm@ptschools.org">jpolm@ptschools.org</a></p> <p><b>Direct Requests for Public Records to:</b> Mary Colton, Administrative Assistant to the Superintendent 360 379-4501 <a href="mailto:mcolton@ptschools.org">mcolton@ptschools.org</a></p> <p>Source: Dr. John Polm</p>	<p>Name: Port Townsend School District #50 Address: 1610 Blaine St Port Townsend, Washington 98368 Phone: (360) 379-4501</p>																				



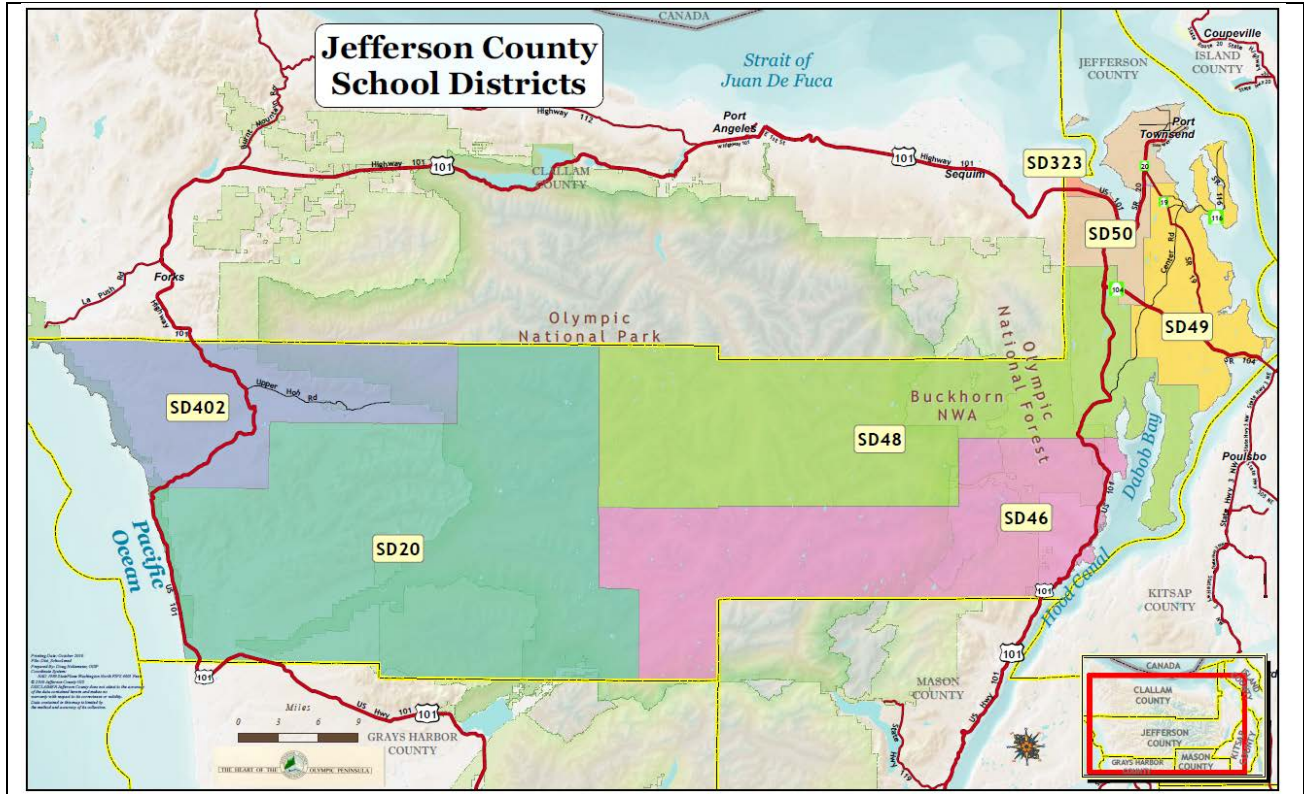
### Properties Owned by the School District

<i>Port Townsend School District Properties Owned</i>					
<i>School Facility</i>	<i>Address</i>	<i>Critical</i>	<i>Bldg Value</i>	<i>Equip Value</i>	<i>Total Values</i>
Port Townsend High School	1500 Van Ness	Yes	\$17,945,940	\$1,631,708	\$19,577,650
Blue Heron Middle School	3939 San Juan	Yes	\$8,159,993	\$987,446	\$9,147,459
Mountain View	1919 Blaine				
Grant Street	1637 Grant St	Yes	\$3,938,096	\$881,846	\$4,819,942
Lincoln Building	450 Fir St		\$2,350,219	\$500,000	\$2,850,219
Maintenance Shop	1101 Harrison		\$378,144	\$177,969	\$556,113
<b>Total Value:</b>					\$36,951,383

**Value of Area Served: \$2,190,503,593**

**Outline of Area Served:**

The Port Townsend School District No. 50 serves the City of Port Townsend and north County west to the Clallam County border. The area is colored beige in the map below, and is labeled “SD50.” Source: Jefferson County



**Current and Anticipated Service Trends:**

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**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>

**Natural Hazard Vulnerability Analysis Rating**

This property is most vulnerable to the following natural hazards ranked in order:

1. Earthquake
2. Volcano
3. Severe Storm

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. \_\_\_\_\_
2. \_\_\_\_\_

**Hazard Mitigation Initiatives**

1. See Table Below. \_\_\_\_\_
2. \_\_\_\_\_

**Proposed Natural Hazard Mitigation Initiatives:**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-WS-6*	Replace roof on High School Annex	Port Townsend School District	Grants or Budget	Complete - 2013
OG-MH-0*	Participate in Jefferson County Natural Hazard Mitigation Plan	Jefferson County Hazard Mitigation	Grants or Budget	Annual Update; 2016 Revision for 2016 adoption.

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	School Dist; DEM	Grants or Budget	Ongoing Education; PTSD developed core Emergency Response Plan in June 2009.
LT-EQ-14	Nonstructural retrofitting of structures that are identified as seismically	School Districts	Ongoing – Long-term	1. Protect Life & Property,

**Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Brinnon School District No. 46

### School District Profile

Brinnon is a small, rural town with a constant population of about 3500 in the winter and approximately 5000 in the summer. We also have a four legged population of elk. You'll frequently see the elk walking through town and our community members are used to sharing the road with them

The school is one of the major employers in the area. The majority of the businesses in the area cater to the tourist industry.

Many of our teachers and classified staff have been in the community for many years; some have spent their own elementary years attending the Brinnon School. They are well connected with the community and provide the foundation for our community school.

The school is a member of the Cooperative Library Association Network (C.L.A.N.) Students have access to the Jefferson County Rural Library, Port Townsend City and Quilcene School Library. Materials are delivered weekly via the Jefferson County Rural Library's Bookmobile, enhancing our students' access to educational materials.



**Brinnon School**

**Contact:**

Name: Brinnon School District No. 46  
 Address: 46 Schoolhouse Road  
 Brinnon, Wa 98320  
 Phone: (360) 796-4646  
 Email:  
 Website: [bsd46.org](http://bsd46.org)

District Superintendent: **Patricia Beathard**  
 Email: [pbeathard@bsd46.org](mailto:pbeathard@bsd46.org)

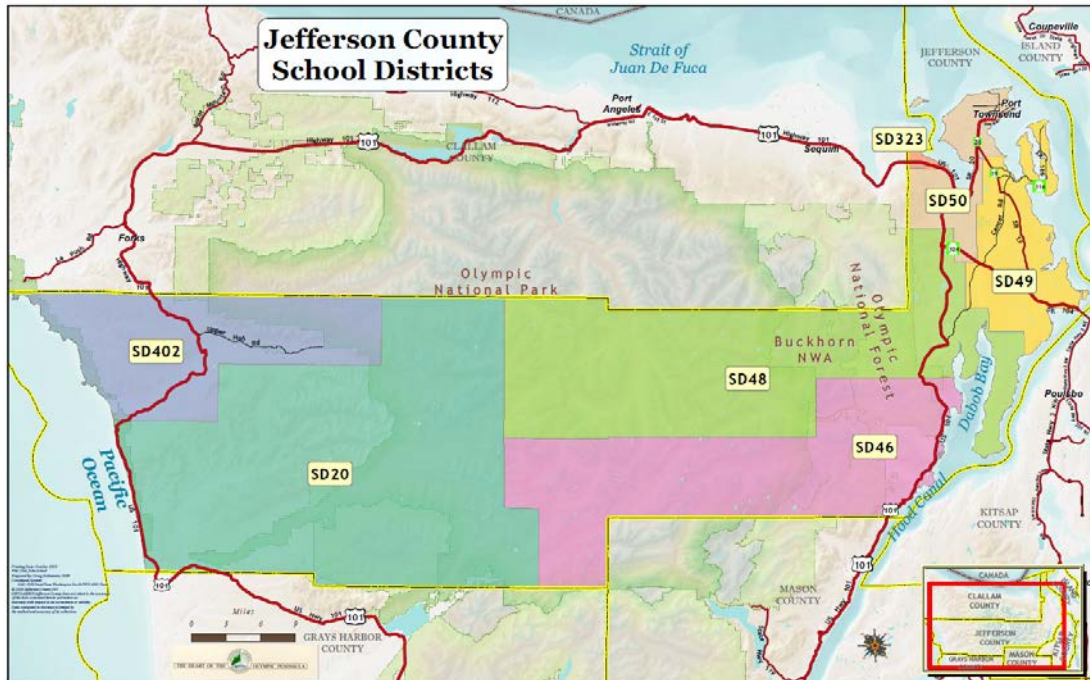
Source: <http://bsd46.org/>

### Properties Owned by the School District

<i>Brinnon School District Properties Owned</i>					
<b>School Facility</b>	<b>Address</b>	<b>Critical</b>	<b>Bldg Value</b>	<b>Equip Value</b>	<b>Total Values</b>
Brinnon School K-8	46 Schoolhouse Road	Yes	\$3.5 million	\$500,000	\$4 million
<b>Total Value:</b>			\$3.5 million	\$500,000	\$4 million

**Value of Area Served: \$26,057,703**

**Outline of Area Served:** The community of Brinnon is located on the beautiful shores of Hood Canal, and borders the majestic Olympic National Forest and Park on the west. The Brinnon School District No. 46 is shown as pink in the map below, and is labeled “SD46.”



Source: Jefferson County Map Database

**Current and Anticipated Service Trends:**

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>

**Natural Hazard Vulnerability Analysis Rating**

This property is most vulnerable to the following natural hazards ranked in order:

1. Flood
2. Earthquake
3. Severe Storm

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Jefferson County Comprehensive Plan
2. Brinnon Comprehensive Plan

**Proposed Natural Hazard Mitigation Initiatives:**

<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
LT-EQ-14	Nonstructural retrofitting of structures that are identified as seismically vulnerable.	Brinnon School District	Ongoing – Long-term	1. Protect Life & Property,

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
OG-MH-0	Participate in Jefferson County Natural Hazard Mitigation Plan	Jefferson County Hazard Mitigation	Grants or Budget	Annual
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	School Dist; DEM	Grants or Budget	Short-Term

**Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan



## Chimacum School District No. 49

### School District Profile

The Chimacum School District employs approximately 6 administrative; 85 certificated; and 90 classified staff. The total district general fund budget is approximately \$10.5 million, with about 19% of that total raised through local levies. Personnel costs account for approximately 80% of all expenditures. We serve 1,150 students in grades K-12. The schools within the District are:

- Chimacum High School**
- Chimacum Middle School**
- Chimacum Elementary**
- Chimacum Creek Primary**
- Pi Program**



**Chimacum School District: Main Campus**  
Source: PTLeader.com

**Contact:**

Name: Chimacum School District #49  
 Mailing Address: P.O. Box 278  
 Chimacum, Wa 98325-0278  
 Phone: (360) 385-3922  
 Email:

Location: 91 West Valley Rd  
 Chimacum, WA 98325  
 Phone: (360) 385-3922

Website: <http://csd49.org/>

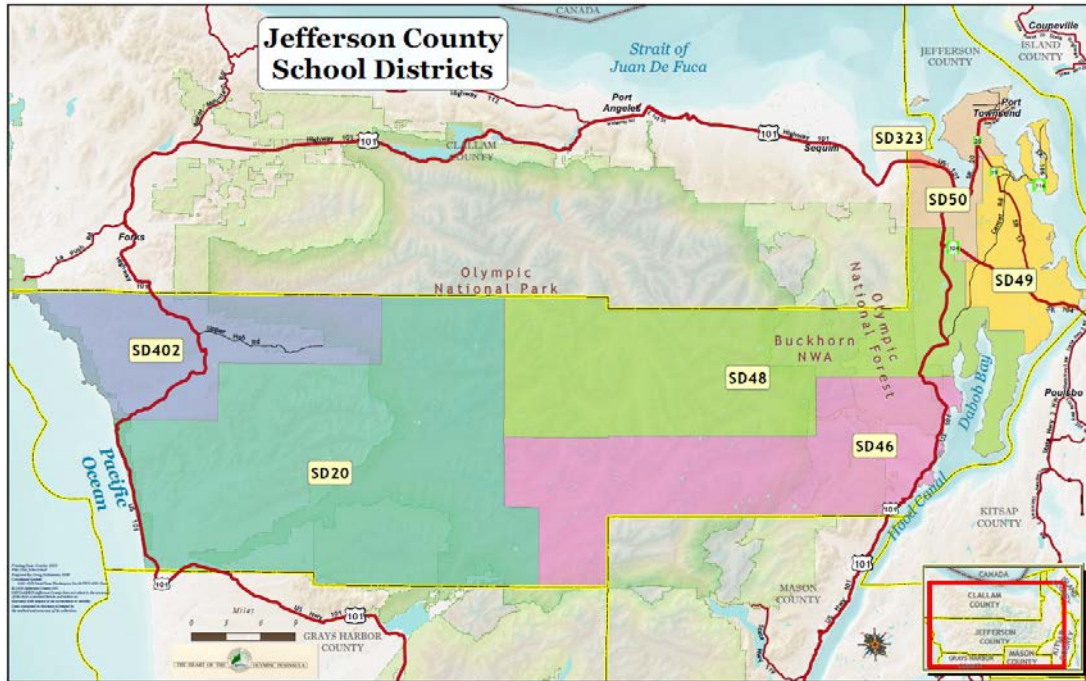
Source: <http://csd49.org/>

## Properties Owned by the School District

<b>Chimacum School District Properties Owned</b>					
<b>School Facility</b>	<b>Address</b>	<b>Critical</b>	<b>Bldg Value</b>	<b>Equip Value</b>	<b>Total Values</b>
Chimacum High School	91 West Valley Rd. Chimacum WA, 98325	Yes	\$19,611,041	\$1,476,485	\$21,085,526
Chimacum Middle School	91 West Valley Rd. Chimacum WA, 98325	Yes	\$13,811,538	\$862,397	\$14,673,935
Chimacum Elementary School	91 West Valley Rd. Chimacum WA, 98325	Yes	\$20,709,586	\$2,033,738	\$22,743,324
Chimacum Creek Primary School	313 Ness Corner Road Chimacum WA, 98325	Yes	\$9,961,099	\$310,702	\$10,271,801
Chimacum Transportation Dept	91 West Valley Rd. Chimacum WA, 98325	Yes	\$1,825,616	\$86,897	\$1,912,513
Chimacum Maintenance Dept	91 West Valley Rd. Chimacum WA, 98325	Yes	\$1,399,280	\$107,495	\$1,506,775
Chimacum High School Greenhouse	91 West Valley Rd. Chimacum WA, 98325		\$104,795	\$7,405	\$112,200
Chimacum High School Concession Stand	91 West Valley Rd. Chimacum WA, 98325		\$38,149	\$0	\$38,149
Chimacum School District Uniforms and Instruments	91 West Valley Rd. Chimacum WA, 98325		\$0	\$104,675	\$104,675
<b>Total Value:</b>			<b>\$67,461,104</b>	<b>\$4,989,794</b>	<b>\$72,450,897</b>

**Value of Area Served: \$1,707,150,581**

**Outline of Area Served:** The Chimacum School District covers a 100 square mile area, which includes the communities of Port Ludlow, Port Hadlock, Irondale, Chimacum, Shine, Paradise Bay and Marrowstone Island. It is shown as the goldenrod colored area on the map below, and is labeled “SD49.”



Source: Jefferson County Map Database

**Current and Anticipated Service Trends:**

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)			
Type of Event	Facility Affected	Date	Total Public Damage

**Natural Hazard Vulnerability Analysis Rating**

This property is most vulnerable to the following natural hazards ranked in order:

1. Earthquake
2. Severe Storm
3. Fire

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Chimacum School District “All Hazards Plan”

**Proposed Natural Hazard Mitigation Initiatives:**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
LT-EQ-14	Nonstructural retrofitting of structures that are identified as seismically vulnerable.	Chimacum School District	Budget	Ongoing – Long Term
OG-MH-0	Participate in Jefferson County Natural Hazard Mitigation Plan	Jefferson County Hazard Mitigation	Grants or Budget	Annual
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	School Dist; DEM	Grants or Budget	Short-Term

**Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. Same as above.
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Queets - Clearwater School District No. 20

### School District Profile

Queets-Clearwater School District is located in west Washington. Queets-Clearwater School District has 640.35 square miles of land area and 76.29 square miles of water area. As of 2010-2014, the total Queets-Clearwater School District population is 789. Queets-Clearwater School District median household income is \$34,063 in 2010-2014. Queets-Clearwater School District median house value is \$77,500 in 2010-2014. On average, Queets-Clearwater School District is much better than the state average in quality. Source: <http://www.usa.com/school-district-5301380.htm>



**Queets School**

**Contact:**

Name: Queets – Clearwater School District No. 20  
 Mailing Address: 146000 Hwy 101  
 Forks, WA 98331  
 Phone: (360) 962-2395  
 Email: [scarter@qcsd.wednet.edu](mailto:scarter@qcsd.wednet.edu)  
 Website: <http://www.qcsd.wednet.edu/>  
 Superintendent: Scott M. Carter

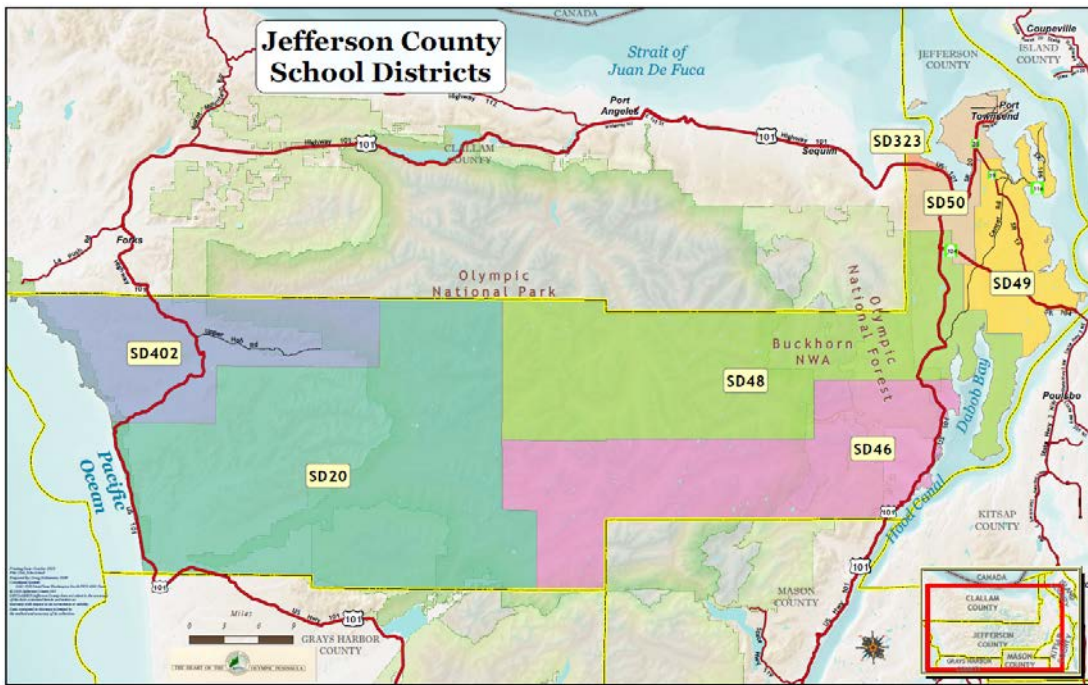
Source: <http://www.qcsd.wednet.edu/>

### Properties Owned by the School District

<b>Queets – Clearwater School District Properties Owned</b>					
<b>School Facility</b>	<b>Address</b>	<b>Critical</b>	<b>Bldg Value</b>	<b>Equip Value</b>	<b>Total Values</b>
Queets – Clearwater School	146000 Hwy 101 Forks, WA 98331	Yes	\$370,000	\$0	\$370,000
<b>Total Value:</b>			<b>\$370,000</b>	<b>\$0</b>	<b>\$370,000</b>

**Value of Area Served: \$11,669,305**

**Outline of Area Served:** The area served by the Queets – Clearwater School District is shown below in the “aqua” color, and is labeled as “SD20.”



Source: Jefferson County Map Database

**Current and Anticipated Service Trends:**

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>

**Natural Hazard Vulnerability Analysis Rating**

This property is most vulnerable to the following natural hazards ranked in order:

1. Severe Storm
2. Earthquake
3. Fire

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

- 1.

**Proposed Natural Hazard Mitigation Initiatives:**

<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
ST-WF-4	Install fire doors and fire suppression system.	Queets / Clearwater Commissioners	Grant	Short-Term
ST-WS-7	Acquire generator to provide emergency power to school buildings.	Queets / Clearwater Commissioners	Grant	Short-Term
OG-MH-0*	Participate in Jefferson County Natural Hazard Mitigation Plan	Jefferson County Dept of Emergency Management	Grants or Budget	Ongoing – Participation in update – 2016; Adoption – after FEMA review

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	School Dist; DEM	Grants or Budget	Short-Term

**Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan



## Quilcene School District No. 48

### School District Profile

The Quilcene School District serves approximately 500 students from pre-school through 12<sup>th</sup> grade on one main campus that is divided into Elementary (K-6), Middle School (7-8), High School (9-12), Crossroads Alternative High School (9-12), and our P.E.A.R.L. Program (K-8). We also serve neighboring Brinnon's high school students. The district has 20+ certificated staff and 24 classified staff and an operating budget of approximately \$3 million. We have numerous educational, athletic, and extra-curricular programs and dedicated staff to carry them out.



QUILCENE SCHOOL DISTRICT

Source: QSD48 Emergency Procedures Handbook

**Contact:**

Name: Quilcene School District No. 48  
 Address: 294715 US Highway 101  
 P.O. Box 40  
 Quilcene, Wa 98376  
 Phone: (360) 765-3363  
 Email: [wlis@qsd48.org](mailto:wlis@qsd48.org)

Website: <http://www.quilcene.wednet.edu/>

Superintendent: Wally F. Lis

Source: <http://www.quilcene.wednet.edu/>

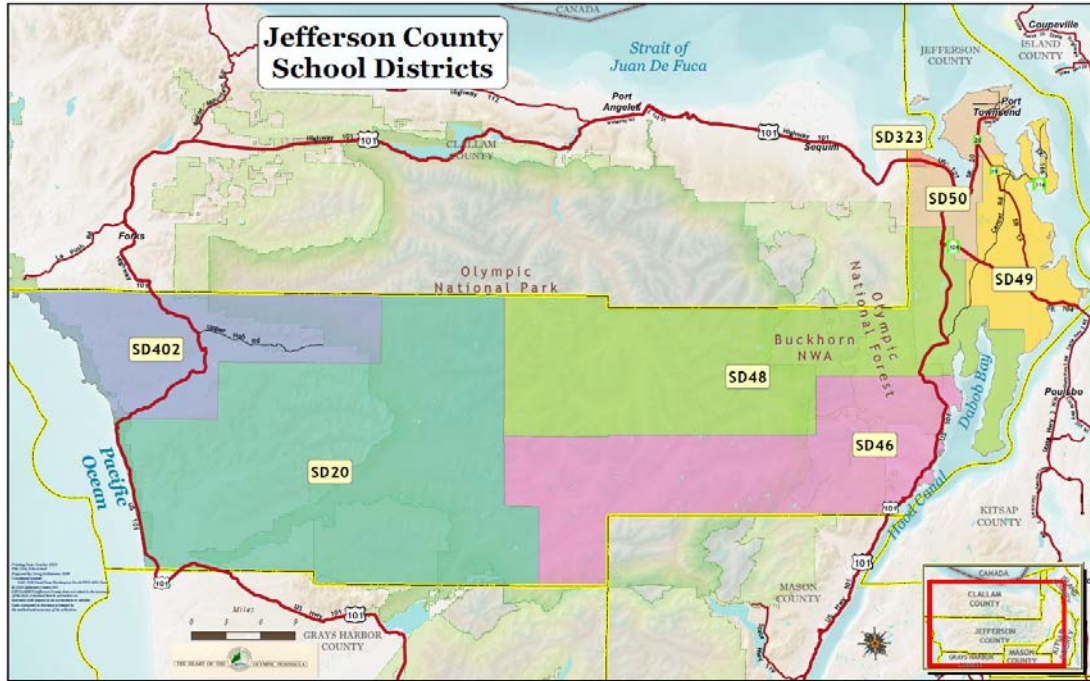
## Properties Owned by the School District

<i>Quilcene School District Properties Owned</i>					
<b>School Facility</b>	<b>Address</b>	<b>Critical</b>	<b>Bldg Value</b>	<b>Equip Value</b>	<b>Total Values</b>
Quilcene High School	294715 Highway 101	YES	\$2,793,000	\$2,547,000	\$5,340,000
Quilcene Middle School & District Office	294715 Highway 101	YES	\$2,581,000	\$1,347,700	\$3,928,000
Quilcene Elementary	294715 Highway 101	YES	\$2,861,000	\$1,347,700	\$4,208,000
Maintenance Building	294715 Highway 101	YES	\$1,166,000	\$80,000	\$1,296,000
Multi-Purpose Building	294715 Highway 101	YES	\$8,672,000	\$3,538,000	\$12,210,000
Bus Garage	294715 Highway 101	YES	Included in Maintenance Building	\$50,000	\$50,000
Portable Classrooms	294715 Highway 101	YES	\$375,000	\$300,000	\$675,000
Football Field	294715 Highway 101		\$500,000		\$500,000
Baseball Field	294715 Highway 101		\$500,000		\$500,000
<b>Total Value:</b>			<b>\$19,448,000</b>	<b>\$9,210,400</b>	<b>\$28,658,000</b>

**Value of Area Served: \$333,197,223**

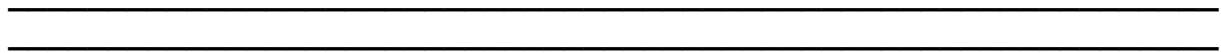
**Outline of Area Served:**

The Quilcene School District is colored green in the map below, and is labeled “SD48.”



Source: Jefferson County Map Database

**Current and Anticipated Service Trends:**



**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>
Earthquake	Entire District	2001	Unknown

**Natural Hazard Vulnerability Analysis Rating**

This property is most vulnerable to the following natural hazards ranked in order:

1. Fire
2. Earthquake
3. Severe Storm

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Jefferson County Comprehensive Plan

**Proposed Natural Hazard Mitigation Initiatives:**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
<del>ST-WS-8</del> *	Replace roofs in Shop, Bus Barn, and Admin Bldg to handle weather. Severe snow would put most roofs in jeopardy of collapse.	Quilcene School District	Budget	<b>Short Term COMPLETED</b>
OG-MH-0	Participate in Jefferson County Natural Hazard Mitigation Plan	Jefferson County Hazard Mitigation	Grants or Budget	Annual
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	School Dist; DEM	Grants or Budget	On-going


**Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

1. Same as above.
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Quillayute Valley School District No. 402

### School District Profile

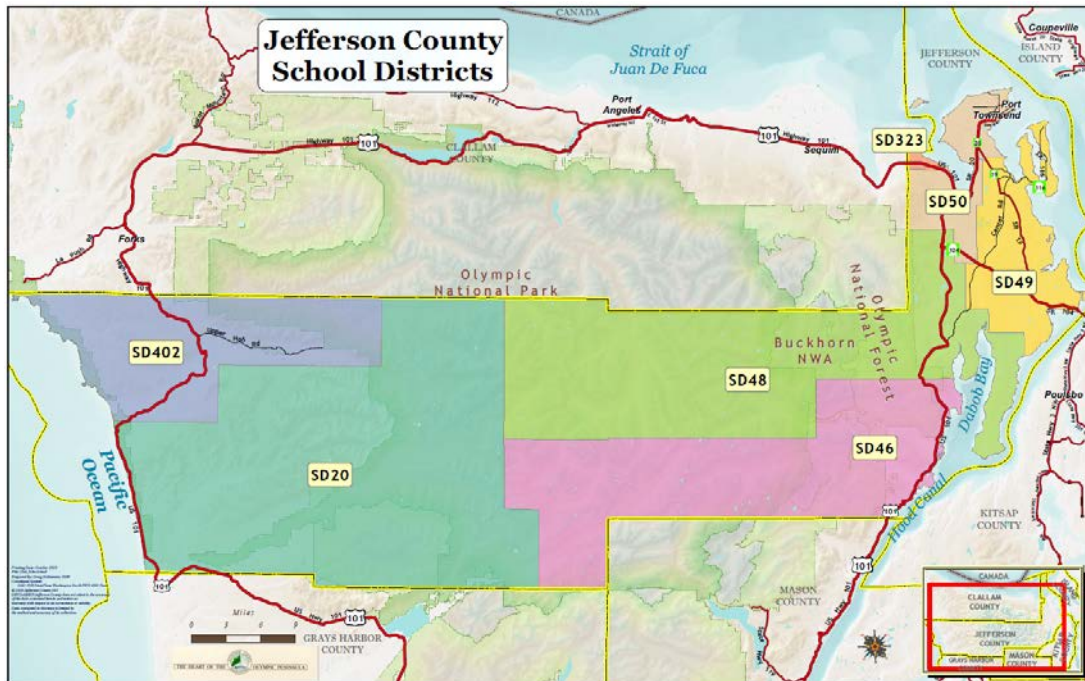
<p>Quillayute Valley School District is located in Forks, Washington on the Olympic Peninsula. The Olympic National Park, Pacific Ocean, and Hoh Rain Forest surround our schools with natural beauty. Our district serves approximately 3500 students with 1100 in our brick and mortar schools on 50 acres of land that was once known as the Forks Prairie. Our virtual program, Insight School of Washington, also serves approximately 2500 high school students across the state.</p> <p>QVSD has its own district hazard mitigation plan.</p>	<div style="text-align: center;">  </div> <p style="text-align: center;"><b>Quillayute Valley School District No. 402</b></p> <p><b>Contact:</b></p> <p>Name: Quillayute Valley School District No. 402          Address: P.O. Box 60          411 S Spartan Ave          Forks, Wa 98331          Phone: (360) 374-6262          Email: Diana.reaume@qvschools.org</p> <p>Website: <a href="http://www.qvschools.org">www.qvschools.org</a></p> <p>Superintendent: Diana Reaume</p> <p>QVSD Hazard Mitigation Plan Mission Statement is to: Proactively facilitate and support district-wide policies, practices and programs that make the Quillayute Valley School District more disaster resistant and disaster resilient.<sup>1</sup></p> <p><sup>1</sup>Quillayute Valley School District No 402 Hazard Mitigation Plan, p.3          Source: <a href="http://www.qvschools.org">http:// www.qvschools.org</a></p>
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Properties Owned by the School District

<b>Quillayute Valley School District Properties Owned</b>					
<b>School Facility</b>	<b>Address</b>	<b>Critical</b>	<b>Bldg Value</b>	<b>Equip Value</b>	<b>Total Value</b>
Forks Elementary School	301 S. Elderberry, Forks	Yes	\$7,504,579.00	\$789,805.00	\$8,294,384.00
Forks Middle School	121 South Spartan Avenue, Forks	Yes	\$6,593,009.00	\$1,320,857.00	\$7,913,866.00
Forks High School	261 South Spartan Avenue, Forks	Yes	\$15,113,248.00	\$2,226,993.00	\$17,340,241.00
Forks Alternative School	161 East 'E' Street, Forks	Yes	\$166,385.00	\$164,715.00	\$331,550.00
<b>Total Value:</b>					\$33,880,041.00

**Value of Area Served: \$17,797,830**

**Outline of Area Served:** The Quillayute Valley School District is shown in purple on the map below. It is labeled as “SD402.”



Source: Jefferson County Map Database

**Current and Anticipated Service Trends:**

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## Natural Hazard Event History

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>
Wildfire	Transportation	8/22/1991	\$6,035.20
Water Damage	HS Library	12/27/1995	\$28,210.05
Severe Winds	High School Gym Roof	12/26/1998	\$362,825.88
Flood Damage	Alternative School	10/09/2000	\$1,160.00
Lightning Damage	Elementary School	01/01/2003	\$15,428.94
Total Damage			\$413,660.07

### Natural Hazard Vulnerability Analysis Rating

This property is most vulnerable to the following natural hazards ranked in order:

1. Severe Wind
2. Flooding
3. Wildfire

### Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes

1. Quillayute Valley Schools Emergency Response Plan
2. Washington State Prepared Response Plan

**Funding sources for Capital Budget come from retained earnings, bonding, grants, and taxes.**

### Existing Applicable Hazard Mitigation Associated Plans and/or Documents

1. Same as Above.
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan
3. Quillayute Valley School District Hazard Mitigation Plan (June 23, 2015)



### Quillayute Valley School District Mitigation Action Items\*

Hazard	Action Item	Timeline	Source of Funds	Lead Agency	Plan Goals Addressed			
					Life Safety	Protect Facilities	Enhance Emergency Planning	Enhance Awareness and Education
<b>Multi-Hazard Mitigation Action Items</b>								
Short-Term #1	Investigate designating Forks High School as a community Emergency Shelter. Install a back-up power system (generator).	1-5 Years	Local, Grant	QVSD, Clallam County, City of Forks	X	X	X	X
Long-Term #1	Integrate the findings and action items in the mitigation plan into ongoing programs and practices for the district.	Ongoing	Local, Grant	QVSD M&O Dept.	X	X	X	X
Long-Term #2	Review emergency and evacuation planning to incorporate hazard and risk information from the mitigation plan.	Ongoing	Local	QVSD M&O Dept.	X	X	X	X
Long-Term #3	Consider natural hazards whenever siting new facilities and locate new facilities outside of high hazard areas.	Ongoing	Local, Grant Bond, Levy	QVSD, City of Forks	X	X	X	X
Long-Term #4	Ensure that new facilities are adequately designed to minimize risk from natural hazards.	Ongoing	Local, Grant Bond, Levy	QVSD M&O Dept.	X	X	X	X
Long-Term #5	Maintain, update and enhance facility data and natural hazards data in the ICOS database.	Ongoing	Local	QVSD M&O Dept.	X	X	X	X
Long-Term #6	Develop and distribute educational materials regarding natural hazards, vulnerability and risk for K-12 facilities.	Ongoing	Local, Grant	QVSD, Clallam County	X		X	X
Long-Term #7	Seek FEMA funding for repairs if district facilities suffer damage in a FEMA declared disaster.	Ongoing	Local, Grant	QVSD, FEMA, Clallam County	X	X		X
Long-Term #8	Pursue pre- and post-disaster mitigation grants from FEMA and other sources.	Ongoing	Local, Grant	QVSD M&O Dept.	X	X		X
Long-Term #9	Post the district's mitigation plan on the website and encourage comments from stakeholders for the ongoing review and periodic update of the mitigation plan.	Ongoing	Local	QVSD M&O Dept.	X			X

**Quillayute Valley School District Mitigation Action Items Continued**

Hazard	Action Item	Timeline	Source of Funds	Lead Agency	Plan Goals Addressed			
					Life Safety	Protect Facilities	Enhance Emergency Planning	Enhance Awareness and Education
<b>Earthquake Mitigation Action Items</b>								
Short-Term #1	Identify district buildings that do not meet the ASCE 41-13 criteria for being post-benchmark year and thus do not meet the screening criteria for life safety.	1 Year	Local	QVSD M&O Dept.	X	X		X
Short-Term #2	Complete ASCE 41-13 Tier 1 evaluations for the above buildings. If funding is limited, prioritize based on discussions with a structural engineer, building structural types, year built and a quick inspection of each building.	1-5 Years	Local, Grants Bond, Levy	QVSD M&O Dept.	X	X		X
Short-Term #3	Assess the ASCE 41-13 results and select buildings that have the greatest vulnerability for more detailed evaluations.	1-5 Years	Local, Grant	QVSD M&O Dept.	X	X		X
Short-Term #4	Seek OSPI and FEMA funding for replacement of Forks Intermediate School with a new building that meets or exceeds the seismic provisions in the current building code.	3-5 Years	Local, Grants, Bond, Levy	QVSD M&O Dept.	X	X	X	X
Long-Term #1	Prioritize and implement seismic retrofits or replacements based on the results of the detailed evaluations, as funding becomes available.	Ongoing	Local, Grants, Bond, Levy	QVSD M&O Dept.	X	X		X
Long-Term #2	Maintain and update building data for seismic risk assessments in the OSPI ICOS PDM database.	Ongoing	Local	QVSD M&O Dept.	X		X	X
Long-Term #3	Enhance emergency planning for earthquakes including Drop, Cover & Hold On and evacuation drills.	Ongoing	Local	QVSD M&O Dept.	X		X	X

**Quillayute Valley School District Mitigation Action Items Continued**

Hazard	Action Item	Timeline	Source of Funds	Lead Agency	Plan Goals Addressed			
					Life Safety	Protect Facilities	Enhance Emergency Planning	Enhance Awareness and Education
<b>Flood Mitigation Action Items</b>								
Short-Term #1	Complete building-level flood risk assessments for campuses for which this is recommended by the OSPI ICOS PDM database campus-level flood report.	1-2 Years	Local, Grant	QVSD, FEMA, City of Forks	X	X	X	X
Short-Term #2	Enhance emergency planning, including flood response measures, for all campuses that have or may have significant flood risk.	1-2 Years	Local, Grant	QVSD M&O Dept.	X	X	X	X
Short-Term #3	Complete at least a preliminary flood risk study for campuses not within FEMA-mapped floodplain that meet any of the "opt-in" criteria for completing the flood data inputs in the OSPI ICOS PDM database.	3 Years	Local, Grant	QVSD M&O Dept.	X	X	X	X
Short-Term #4	Seek OSPI and FEMA funding for replacement of Forks Intermediate School with a new building that meets or exceeds current building code and is engineered to stand up to Forks weather patterns (pitched roof, leak-resistant windows, etc.)	3-5 Years	Local, Grant, Bond, Levy	QVSD M&O Dept.	X	X	X	X
Long-Term #1	Evaluate and implement flood mitigation measures for campuses or buildings that have been determined to have high flood risk based on the campus-level flood report and/or local flood studies that have been completed, as funding becomes available.	Ongoing	Local, Grant	QVSD M&O Dept.	X	X	X	X
Long-Term #2	Locate new campuses outside of FEMA-mapped floodplains or other flood-prone areas whenever possible or construct new buildings in flood-prone areas at elevations as high as possible to minimize flood risk.	Ongoing	Local, Grant, Bond, Levy	QVSD M&O Dept.	X	X	X	X
Long-Term #3	Annually ensure that all district-owned storm water drains are cleaned out prior to the fall/winter rainy season.	Ongoing/ Annually	Local	QVSD M&O Dept.	X	X		

### Quillayute Valley School District Mitigation Action Items Continued

Hazard	Action Item	Timeline	Source of Funds	Lead Agency	Plan Goals Addressed			
					Life Safety	Protect Facilities	Enhance Emergency Planning	Enhance Awareness and Education
<b>Other Natural Hazards Mitigation Action Items</b>								
Short-Term #1	Evaluate portable buildings to make sure that they are adequately tied down to resist high winds and implement mitigation measures, if necessary.	1-3 Years	Local	QVSD M&O Dept.	X	X	X	X
Short-Term #2	Annually inspect and trim trees near above ground electric power lines feeding the schools or large trees near school buildings.	1-3 Years	Local	QVSD M&O Dept.	X	X	X	X
Short-Term #3	Install wind-resistant roofing materials for buildings prone to high-wind damage.	1-5 Years	Local, Grant, Bond, Levy	QVSD M&O Dept.		X	X	X
Short-Term #4	Seek OSPI and FEMA funding for replacement of Forks Intermediate School with a new building that meets or exceeds current building code and is engineered to stand up to Forks weather patterns (pitched roof, leak-resistant windows, etc.)	3-5 Years	Local, Grant, Bond, Levy	QVSD M&O Dept.	X	X	X	X
Long-Term #1	Maintain heating and cooling systems in good working order and replace systems near the end of their useful life.	Ongoing	Local, Grant, Bond, Levy	QVSD M&O Dept.		X		
Long-Term #2	Insulate water pipes with a history of freezing or with poor insulation.	Ongoing	Local	QVSD M&O Dept.		X		


- Quillayute Valley School District is unique among the special districts participating in the revision of the *Jefferson County – City of Port Townsend Hazard Mitigation Plan (rev. 2016)* in that they were simultaneously participating in developing their own complete plan in cooperation with the Washington Superintendent of Schools.

The QVSD plan has been incorporated into the Jefferson County – City of Port Townsend (JC-PT) Plan. Since the QVSD plan was completed and adopted in 2015, and the JC-PT Plan will likely be approved by FEMA in the 1<sup>st</sup> Quarter of 2017, they get to extend their eligibility to apply for hazard mitigation grants for two years.



# Jefferson Transit Authority (2017)

## District Profile

<p><b>Our Mission</b></p> <p>To provide reliable, safe, comfortable public transportation service in Jefferson County which is cost effective, reduces energy consumption and contributes to the cultural and economic betterment of the residents of Jefferson County.</p>	<p><b>Name:</b> Jefferson Transit Authority</p> <p><b>Address:</b> 63 Four Corners Road Port Townsend, WA 98368</p> <p><b>Phone:</b> (360) 385-4777 <b>Toll Free:</b> (800) 371-0497</p> <p><b>Email: Tammi Rubert, General Manager</b> <a href="mailto:trubert@jeffersontransit.com">trubert@jeffersontransit.com</a></p> <p><b>Information / Cust Svc:</b> <a href="mailto:info@jeffersontransit.com">info@jeffersontransit.com</a></p>
	



**Jefferson Transit Authority Site Plan**

Jeffersontransit.com

**Our Core Values**

Jefferson Transit’s Core Values are the operating principles that govern how Jefferson Transit employees act towards one another and their customers. Jefferson Transit employees value:

- **Acknowledgment and Support**  
We recognize Jefferson Transit to be the product of the concerted efforts of many well-intended people. We take time to commend the accomplishments of individuals and acknowledge their contributions toward the organizational goals of the agency.
- **Accountability**  
We take responsibility to uphold the mission statement and core values of Jefferson Transit. When challenged, we display fairness, trust and good judgment. Individually, we are sincerely interested in self-evaluation and personal growth.
- **Shared Responsibility**  
Collectively, we are responsible for the direction and image of the agency. This requires us to be flexible enough in our thinking to establish goals. We show a willingness to get involved and direct our efforts toward achieving positive outcomes and setting progressive objectives.
- **Communication**  
We express our thoughts and ideas appropriately. We are willing to listen to ideas contrary to our own. We recognize that good communication, compromise and diversity of opinion will strengthen Jefferson Transit.
- **Professionalism**  
We take pride in our skills and abilities to provide the community safe, friendly and reliable transportation. We place principles above personalities. We strive for a positive impact through our demeanor and appearance.

Source: jeffersontransit.com

**Critical Facilities (Owned by District):**

1. Transit Administration Offices, Maintenance Facility and Fueling System 63 Four Corners Road Port Townsend, WA, 98368	approximate value: \$7,045,817
2. Haines Place Park and Ride Haines Place Port Townsend, WA	\$475,000

**Equipment:**

Apparatus – Transit and support vehicles, Radio Repeater Station (Mt Walker) \$9,210,000

Contents – Office and shop equipment \$750,000

**Value of Area Served:**

**\$17,480,817**

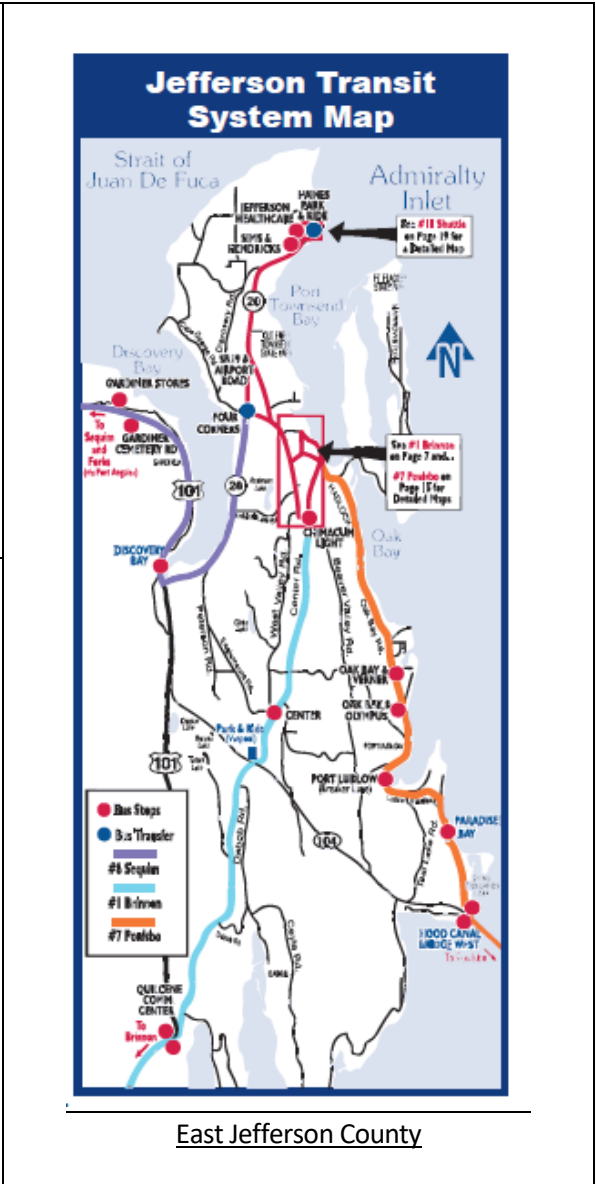
**Outline of Area Served:** Jefferson Transit Authority operates in Jefferson County, Washington. The county encompasses just under 1804 square miles of land area and is divided by the Olympic Mountain range. The Olympic National Park, Olympic National Forest, and State Land covers 75 percent of Jefferson County. Jefferson Transit Service Area covers 259 square miles.



Location of Jefferson County in Washington



West Jefferson County



East Jefferson County



**Current and Anticipated Service Trends:** Jefferson Transit is a rural transit system that provides a variety of public transportation services. Services include fixed-routes, ADA paratransit service, Job Access Reverse Commute (JARC), vanpool and community vans. Regional and intercity transit connections are provided to Clallam, Grays Harbor, Kitsap and Mason Counties. Jefferson Transit operates service between Forks and Amanda Park in western Jefferson County.

In Port Townsend, service is used by tourists and residents to travel between the park and ride facility and the downtown Historic District. There is also service between neighborhoods and communities within the County, including Port Ludlow, Port Hadlock, Chimacum, Irondale, Brinnon, and Quilcene. Jefferson Transit carried more than 274,000 passengers in 2015. It is expected that ridership will continue to grow along with population growth in Jefferson County.

<b>Public Transportation Management System Owned Facility Inventory</b>							
		<b>Agency/Organization:</b> Jefferson Transit					
		<b>Date:</b> January 9, 2016					
	Facility Code	Facility Name	Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost (\$)	Comments <i>(If more than two lines, please attach a separate comment page)</i>
1	9	Haines Place Park & Ride	85	15	16	\$475,000	
2	24	New Administrative and Maintenance Center at	100	N/A	N/A	\$7,045,817	

<b>Public Transportation Management System Owned Equipment Inventory</b>							
		<b>Agency/Organization:</b> Jefferson Transit					
		<b>Date:</b> January 9, 2016					
	Equipment Code and Description		Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost (\$)	Comments <i>(If more than two lines, please attach a separate comment page)</i>
1.	20,0000 Gal Fuel Tank		0	1	N/A	\$276,231	Included in Facility Cost
2.	Eco Lift		0	1	N/A	\$120,000	Included in Facility Cost

East-End Fixed Route Fleet (Port Townsend)														
No.	Year	Make/Model	Vehicle Code	Vehicle Identification Number (VIN)	Agency Vehicle Number	Actual Life Odometer	Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost \$	ADA Access (yes/no)	Seating Capacity	Fuel Type	WSDOT Title (yes/no)
1	1982	ORION 01.502/BIA (30') (11/82)	3	2B119470C6015519	96	484,743	0	34	0	\$483,000	Yes	31+1	BD	No
2	2004	GILLIG/PHANTOM (30') (10/04)	3	15GCA211641111741	501	653,084	60	12	0	\$483,000	Yes	29+2	BD	No
3	2004	GILLIG/PHANTOM (30') (10/04)	3	15GCA211841111742	502	639,994	60	12	0	\$483,000	Yes	29+2	BD	No
4	2004	GILLIG/PHANTOM (30') (10/04)	3	15GCA211X41111743	503	640,733	60	12	0	\$483,000	Yes	29+2	BD	No
5	2006	GILLIG/PHANTOM (30') (3/06)	3	15GCA211X61111731	504	516,858	60	10	0	\$483,000	Yes	29+2	BD	No
6	1992	ORION V/BIA (35') (8/95)	2	2B1529773N6030903	908	538,907	40	24	0	\$483,000	Yes	33+2	BD	No
7	1996	THOMAS/TRANSIT LINER (33')	2	1T75L2B29V1145470	965	466,723	0	20	0	\$483,000	Yes	30+2	BD	No
8	1997	THOMAS/TRANSIT LINER (33')	2	1T75L2B22V1145469	967	511,661	0	19	0	\$483,000	Yes	30+2	BD	No
9	2001	GILLIG/PHANTOM (35') (12/01)	2	15GCB211911111144	971	671,254	50	15	0	\$483,000	Yes	32+2	BD	No
10	2002	GILLIG/PHANTOM (35') (2/02)	2	15GCB211221111732	972	605,725	50	14	0	\$483,000	Yes	32+2	BD	No
11	1967	GMC/BABY OLD LOOK (30') (02)	3	TDH35011041	1967	3,125	50	49	0	\$483,000	No	34	BD	No
12	2011	GILLIG/LOW FLOOR (29') (7/11)	3	15GGE2719B1092208	505	296,158	100	5	5	\$483,000	Yes	26+2	BD	Yes
13	2011	GILLIG/LOW FLOOR (29') (7/11)	3	15GGE2710B1092209	506	285,648	100	5	5	\$483,000	Yes	26+2	BD	Yes
14	2011	GILLIG/LOW FLOOR (35') (7/11)	2	15GGB271XB1176479	507	249,859	100	5	5	\$483,000	Yes	32+2	BD	Yes
15	2011	GILLIG/LOW FLOOR (35') (7/11)	2	15GGB2716B1176480	508	257,929	100	5	5	\$483,000	Yes	32+2	BD	Yes

West-End Fleet (Forks)														
No.	Year	Make/Model	Vehicle Code	Vehicle Identification Number (VIN)	Agency Vehicle Number	Actual Life Odometer	Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost \$	ADA Access (yes/no)	Seating Capacity	Fuel Type	WSDOT Title (yes/no)
16	2008	FORD/AIStar VAN (21') (4/08)	11	1FD4E45S58DA96387	403	339,939	70	8	0	\$136,000	Yes	12+2	G	No
17	2011	IC CHAMPION MAX (29') (12/10)	11	4DRASSKK7BH335314	404	214,275	90	5	2	\$150,000	Yes	21+2	D	Yes
18	2011	IC CHAMPION MAX (29') (12/10)	11	4DRASSKK9BH335315	405	255,722	90	5	2	\$150,000	Yes	21+2	D	Yes
19	2013	FORD/F550 (31') (8/13)	11	1FDGF5GT3DEA51975	406	170,280	95	3	4	\$124,000	Yes	24+2	D	Yes
East-End Paratransit Fleet (Port Townsend)														
No.	Year	Make/Model	Vehicle Code	Vehicle Identification Number (VIN)	Agency Vehicle Number	Actual Life Odometer	Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost \$	ADA Access (yes/no)	Seating Capacity	Fuel Type	WSDOT Title (yes/no)
20	2006	FORD/E450/VAN (21') (10/05)	11	1FDXE45P76HA32642	301	116,452	60	10	0	\$136,000	Yes	12+2	BD	No
21	2006	FORD/E450/VAN (21') (10/05)	11	1FDXE45P96HA32643	302	123,667	60	10	0	\$136,000	Yes	12+2	BD	No
22	2007	CHEV/AMERIVAN (18') (10/06)	11	1GBDV13127D122329	304	91,066	70	9	0	\$57,000	Yes	4+1	G	No
23	2010	CHEV/CHALLENGER (25') (5/10)	11	1GB9G5A66A1122428	307	86,306	80	6	0	\$103,000	Yes	12+2	BD	No
24	2010	CHEV/CHALLENGER (25') (5/10)	11	1GB9G5A64A1122914	308	90,324	80	6	0	\$103,000	Yes	12+2	BD	No
25	2013	DODGE CARAVAN (18') (8/13)	11	2C4RDGCG0DR731813	309	28,024	90	3	1	\$57,000	Yes	4+1	G	Yes
26	2013	DODGE CARAVAN (18') (8/13)	11	2C4RDGCG2DR731814	310	29,051	90	3	1	\$57,000	Yes	4+1	G	Yes
27	2013	DODGE CARAVAN (18') (8/13)	11	2C4RDGCG4DR731815	311	28,524	90	3	1	\$57,000	Yes	4+1	G	Yes
28	2013	DODGE CARAVAN (18') (8/13)	11	2C4RDGCG6DR731816	312	29,995	90	3	1	\$57,000	Yes	4+1	G	Yes

East-End Vanpool (Port Townsend)														
No.	Year	Make/Model	Vehicle Code	Vehicle Identification Number (VIN)	Agency Vehicle Number	Actual Life Odometer	Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost \$	ADA Access (yes/no)	Seating Capacity	Fuel Type	WSDOT Title (yes/no)
29	2000	FORD/E350 VAN (20') (5/00)	13	1FBSS31F5YHB35824	26	163,484	50	16	0	\$30,000	No	15	BD	No
30	2006	FORD/E350 XLT VAN (20') (7/06)	13	1FBSS31L46DA95763	201	194,491	50	10	0	\$30,000	No	15	G	No
31	2006	FORD/E350 XLT VAN (20') (7/06)	13	1FBSS31L26DA95762	202	173,792	50	10	0	\$30,000	No	15	G	No
32	2006	FORD/E350 XLT VAN (20') (8/06)	13	1FBSS31L86DA95765	203	151,006	50	10	0	\$30,000	No	15	G	No
33	2006	FORD/E350 XLT VAN (20') (8/06)	13	1FBSS31L66DA95764	204	108,152	50	10	0	\$30,000	No	15	G	No
34	2009	DODGE/GR. CARAVAN (18') (3/09)	13	2D8HN44E19R628591	205	100,815	90	7	0	\$28,000	No	7	G	No
35	2009	DODGE/GR. CARAVAN (18') (3/09)	13	2D8HN44E39R628592	206	60,914	90	7	0	\$28,000	No	7	G	No
36	2013	DODGE/GR. CARAVAN (18') (2/13)	13	2C4RDGBG0DR609745	208	37,044	90	3	1	\$28,000	No	7	G	Yes
37	2013	DODGE/GR. CARAVAN (18') (2/13)	13	2C4RDGBG2DR609746	209	58,017	90	3	1	\$28,000	No	7	G	Yes
38	2013	DODGE/GR. CARAVAN (18') (2/13)	13	2C4RDGBG4DR609747	210	48,894	90	3	1	\$28,000	No	7	G	Yes

Facility Vehicles (Port Townsend)														
No.	Year	Make/Model	Vehicle Code	Vehicle Identification Number (VIN)	Agency Vehicle Number	Actual Life Odometer	Condition (points)	Age (years)	Remaining Useful Life (years)	Replacement Cost \$	ADA Access (yes/no)	Seating Capacity	Fuel Type	WSDOT Title (yes/no)
30	1984	CHEVY/FLATBED TRUCK (N/A)	28	1GBH34W6EV134603	1	86,119		32	0	N/A	No	2	CNG	No
31	1996	COLLINS/GRAND COMUTR (21')	14	1FDKE30FXSHB80703	13	222,088		20	0	N/A	Yes	2	D	No
32	2007	CHEVY/AMERIVAN (14')	14	1GBDV13127D120239	303	93,429		9	0	\$25,000	Yes	5	G	No
33	2007	CHEVY/AMERIVAN (14')	14	1GBDV13157D122955	305	89,729		9	0	\$25,000	Yes	4	G	No
34	2007	CHEVY/AMERIVAN (14')	14	4M2ZU54E4XUJ25112	306	89,065		9	0	\$30,000	Yes	4	G	No
35	1999	MERCURY/MOUNTAINEER (N/A)	28	4M2ZU54E4XUJ25112	57	87,410		17	0	N/A	No	4	G	No
36	1998	FORD/E450 VAN (21')	14	1FDXE40F6XHA11104	801	247,503		18	0	\$53,000	No	N/A	D	No
37	2010	FORD/ESCAPE XLS (14')	14	1FMCU9C79AKC90108	802	42,759		6	0	\$25,000	N/A	5	G	No
38	2000	FORD/E450 VAN (21')	14	1FBSS31F7YHB35825	803	141,722		16	0	\$53,000	No	15	D	No
39	2013	FORD/F250 XL 4X4 (20')	14	1FT7X2BT5DEB58839	805	31,540		3	1	\$53,000	N/A	6	D	N/A
40	1995	DODGE/BRAUN VAN (18')	14	2B7KB1Z35SK546410	9	151,790		21	0	\$53,000	Yes	2	G	No
41	1999	HYDRO/PRES. WASHER	28	1H9BST162W1120210	52	N/A		17	N/A	\$20,000	N/A	N/A	G	No
42	2010	TOYOTA/FORK LIFT	28	8FGU30-30067	800	N/A		6	N/A	\$15,000	N/A	N/A	CNG	No
43	2007	INTERSTATE/CARGOTRL	28	4RACS08107N049102	804	N/A		9	N/A	N/A	N/A	N/A	N/A	No
<b>Comments</b>														

**Natural Hazard Event History**

NATURAL HAZARD EVENTS (1975-PRESENT)		
Type of Event	Date	Total Public Damage
earthquake	2/28/01	none

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Earthquake
2. Severe local storm
3. Wildfire

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Unknown

**Proposed Natural Hazard Mitigation Measures**

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-EQ-4	Build new transit facility to current earthquake codes.	Jefferson Transit	Grant Funding / Other sources as available	Completed 2015
OG-MH-5	Develop training materials and train staff on how to react during various hazard occurrences	Jefferson Transit	Grant Funding / Other sources as available	On-going
OG-MH-0	Participating on the Jefferson County Hazard Mitigation Advisory Council	Jefferson Transit	Budget	On-going

**Existing Applicable Hazard Mitigation Associated Plans and/or Documents**

N/A

## Public Utility District No. 1 of Jefferson County (Electricity)

### District Profile

<p>In November 2008, Jefferson County citizens approved Proposition 1 authorizing Jefferson County PUD#1 to pursue the acquisition of power service for Jefferson County.</p> <p>On May 3, 2010, the PUD accepted the terms of a non-binding letter of intent to purchase Puget Sound Energy’s Jefferson County assets and services. The PUD’s intent was to become the local power provider by May 2013 (actual date was April 1, 2013).</p> <p>The resulting electrical utility consists of:</p> <p><b>Land Area:</b> Eastern Jefferson County, N. of Mount Walker</p> <p><b>Nbr of Customers:</b> 18,500 meters</p> <p><b>Elec Lines O/H:</b> 379 Miles</p> <p><b>Elec Lines U/G:</b> 379 Miles</p> <p><b>Substations:</b> 7</p>	<p><b>Name:</b> Public Utility District No. 1 of Jefferson County</p> <p><b>Address:</b> 310 Four Corners Road Port Townsend, WA 98368</p> <p><b>Phone:</b> (360) 385-5800</p> <p><b>Email:</b> <b>Jim Parker, District Manager</b> <a href="mailto:jparker@jeffpud.org">jparker@jeffpud.org</a></p> <p><b>Kevin Streett, Electrical Superintendent</b></p>
Source: jeffpud.org	

Critical Facilities (Owned by District):		
Station Designation	Station Location	Value
Electric Utility	310 Four Corners Road Port Townsend, WA 98368 (360) 385-5800	\$93,000,000 Present Value less depreciation.



<b>Value of Area Served:</b>	<b>\$4,639,984,525</b>
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<i>Public Utility District No. 1 of Jefferson County - Properties Owned (Electrical System)</i>					
<i>Facility</i>	<i>Address</i>	<i>Critical</i>	<i>Bldg Value</i>	<i>Equip Value</i>	<i>Total Values</i>
PUD #1 Operations Facility	310 Four Corners Road	Yes	\$0	\$0	\$ 1,000,000
Irondale Substation		Yes			\$ 2,807,000
Discover Bay Substation		Yes			\$ 1,513,000
Quilcene Substation		Yes			\$ 868,000
Hastings Substation		Yes			\$ 260,000
Kearney Substation		Yes			\$ 2,080,000
Chimacum Substation		Yes			\$ 3,500,000
Port Ludlow Substation		Yes			\$ 453,000
Distribution	System	Yes			\$ 76,066,528
Transmission	System	Yes			\$ 4,733,609
<b>Electrical System Total Value:</b>					<b>\$ 93,281,137</b>

**Outline of Area Served:**

PUD #1 of Jefferson County services all of Eastern Jefferson County less the portion South of Mount Walker, which is serviced by PUD#1 of Mason County. The West End of Jefferson County is served by Clallam and Grays Harbor PUDs.



Source: PUD SW2 Presentation

**Current and Anticipated Service Trends:** The current service area is unlikely to change in the near or distant future. An anticipated transfer of transmission lines from PUD#1 of Clallam County should happen in early 2015.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>
Severe Storms	O/H Conductor	Feb 2014	\$ 100,000
Severe Storms	O/H Conductor	Dec 2014	\$500,000
Severe Storms	O/H Conductor	Jan 2015	\$150,000

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Severe local storms
2. Earthquake
3. Landslide

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Robust system with SCADA and looping/ switching capabilities
2. Backup/ Redundant Transformers (Substations)
3. Tree trimming policies and plans
4. Coordination and planning with adjacent utilities and contractors

**Proposed Natural Hazard Mitigation Measures**

<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
LT-MH-4*	Expand SCADA Controls	PUD #1 Operations	Operating Budget	Short-Term Long-Term
LT-MH-5*	Backup Transformer For Substation	PUD #1 Operations	Operating Budget	Long-Term

Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-WS-10*	Establish Tree Trimming Protocols	PUD #1 Operations	Operating Budget	Short-Term
LT-MH-6*	Underground Conductor where possible	PUD #1 Operations	Operating Budget	Short-Term Long-Term
OG-MH-4*	Train staff on how to react during various hazard occurrences	PUD #1 Operations	Operating Budget	Short-Term

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. Same as above
2. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

## Public Utility District No. 1 of Jefferson County (Water & Sewer)

### District Profile

<p>The water utility portion of the PUD consists of:</p> <p><b>Land Area:</b> Jefferson County  <b>Nbr of Customers:</b> 4,100 meters  <b>Water Pipeline:</b> 17 sq. miles  <b>Pipeline Value:</b> \$16.4 million (554,000 L.F. @ \$20/ft)  <b>Storm Sewer Value:</b> \$3,302,317 (includes community drain fields.)</p>	<p><b>Name:</b> Public Utility District No. 1 of Jefferson County</p> <p><b>Address:</b> 310 Four Corners Road Port Townsend, WA 98368</p> <p><b>Phone:</b> (360) 385-5800</p> <p><b>Email:</b> <b>Jim Parker, District Manager</b> <a href="mailto:jparker@jeffpud.org">jparker@jeffpud.org</a></p>
<p>Source: jeffpud.org</p>	

### Critical Facilities (Owned by District):

Station Designation	Station Location	Value
Water Utility	310 Four Corners Road Port Townsend, WA 98368 (360) 385-5800	\$16,400,000

**Value of Area Served:** **\$4,639,984,525**

<i>Public Utility District No.1 of Jefferson County - Properties Owned (Water System)</i>					
<i>Facility</i>	<i>Address</i>	<i>Critical</i>	<i>Bldg Value</i>	<i>Equip Value</i>	<i>Total Values</i>
PUD #1 Office Building		Yes	\$185,732		\$185,732
LUD #1 - Gardiner	System	Yes			\$432,985
LUD #3 – Cape George Rd So.	System	Yes			\$932,343
Coyle	System	Yes			\$100,000
Triton Cove LUD #6	System	Yes			\$315,692
Lazy-C LUD #8	System	Yes			\$623,834
By-water Bay	System	Yes			\$1,463,130
Quimper (Kala Pt., Olympic Mobile, GCS, MI)	System	Yes			\$11,827,809
Snow Creek	System	Yes			\$131,147
Vandecar	System	Yes			\$60,252
Valioni	System	Yes			\$3,728
Hadlock #32 Eagle Ridge	System	Yes			\$57,416
Sky Water	System	Yes			\$68,948
Mats View Terrace Water & Septic	System	Yes			\$330,982
Bishop Heights	System	Yes			\$41,614
Quilcene Water	System	Yes			\$67,498
<b>Water System Total Value:</b>					<b>\$17,253,110</b>

<i>Public Utility District No.1 of Jefferson County - Properties Owned (Sewer Systems and Community Drain Fields)</i>					
<i>Facility</i>	<i>Address</i>	<i>Critical</i>	<i>Bldg Value</i>	<i>Equip Value</i>	<i>Total Values</i>
Coyle Peninsula					\$105,333
DBR#2 – Ocean Grove					\$62,173
DBR#3 – Ocean Grove					\$18,289
House / Roose					\$26,667
Levine					\$7,333
LUD #5					\$361,806
Portage Bay					\$14,278
Squamish View					\$13,333
Trails End					\$189,776
Beckett Point					\$2,498,329
<b>Sewer System Total Value:</b>					<b>\$3,302,317</b>

**Outline of Area Served:**

PUD#1 of Jefferson County has been designated as lead in satellite management through the Jefferson County Water Management Plan.	

**Current and Anticipated Service Trends:** Water: in the past 3 years, acquired Kala Point and WD#3 Water Systems. PUD will continue to acquire and consolidate water systems in East Jefferson County. Possible sewer systems operator for Port Hadlock Urban Growth Area if the County proceeds with construction.

**Natural Hazard Event History**

<b>NATURAL HAZARD EVENTS (1975-PRESENT)</b>			
<i>Type of Event</i>	<i>Facility Affected</i>	<i>Date</i>	<i>Total Public Damage</i>

**Natural Hazard Vulnerability Analysis Rating**

This District is most vulnerable to the following natural hazards - ranked in order:

1. Drought
2. Earthquake
3. Severe Storm

**Existing Applicable Natural Hazard Mitigation Policies, Ordinances, and Codes**

1. Educate employees about potential hazards.
2. Backup power with on-site generators to operate wells / pressure zones.
3. Intertie all the systems to allow flexibility in providing water.
4. Increase storage to carry over during power outages, well failure.

**Proposed Natural Hazard Mitigation Measures**

<b>Mitigation Activity ID</b>	<b>Mitigation Measure</b>	<b>Lead Agency</b>	<b>Funding Source</b>	<b>Timeline</b>
ST-EQ-5	Purchase specialized equipment for water shortage emergencies.	JCPUD1 Operations	Operating Budget	Short-Term



Mitigation Activity ID	Mitigation Measure	Lead Agency	Funding Source	Timeline
ST-EQ-6	Secure equipment to floors and walls.	JCPUD1 Operations	Operating Budget	Short-Term
ST-EQ-7	Put automatic shut-off valves on critical reservoirs.	JCPUD1 Operations	Operating Budget	Short-Term
ST-WS-4	Intertie water systems as much as possible.	JCPUD1 Operations	Operating Budget	Short-Term
OG-MH-4	Train staff on how to react during various hazard occurrences	JCPUD1 Operations	Operating Budget	Short-Term

**Existing Applicable District Hazard Mitigation Associated Plans and Documents**

1. 2009 Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan

# **SECTION V**

## **Mitigation Strategy**

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## Mitigation Strategy

This section of the Natural Hazards Mitigation Plan contains proposed mitigation strategies for all of the participating jurisdictions. Some of the mitigation strategies are universal, and everyone will participate in them to the extent their resources allow. Other strategies are peculiar to the unique circumstances of the particular district or entity that brought them forth.

## Mitigation Goals

The natural hazard mitigation goals listed in this portion of the plan are multi-jurisdictional in nature and are intended to help guide the direction of and prioritize future natural hazard mitigation activities at the local level aimed at reducing risk and preventing loss from natural hazards.

The plan goals describe the overall direction that Jefferson County and Port Townsend agencies, organizations, special districts, private industry and citizens can take toward mitigating risk from natural hazards. The goals are the guiding principles from the broad direction of the mission statement to the specific recommendations of the action items.

### (1) Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural hazards.
- Improve hazard assessment information to make recommendations for discouraging new development and encouraging preventive measures for existing development in areas vulnerable to natural hazards.
- Enhance the Jefferson Community Emergency Response Team (C.E.R.T.) Program to provide citizens from all areas of Jefferson County with the information and tools they need to help them, their families, and their neighbors in the hours and days immediately following an emergency or disaster event.
- Encourage homeowners and businesses to purchase insurance coverage for damages caused by natural hazards.
- Encourage homeowners and businesses to take preventative actions in areas that are especially vulnerable to natural hazards.

### (2) Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.
- Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.
- Develop and implement additional education and outreach programs to increase public awareness of the risks associated with natural hazards.
- Continue the current flood awareness programs conducted by various jurisdictions as part of the National Flood Insurance Program Community Rating System.
- Create an earthquake awareness program conducted by various jurisdictions in which the vulnerability to earthquakes is high.
- Enhance the awareness programs for Wildland – Urban Interface fire risks, particularly with Homeowners Associations in wildland settings.

- (3) Natural Systems
- Balance watershed planning, natural resource planning, and land use planning with natural hazard mitigation to protect life, property, the economy, and the environment.
  - Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.
- (4) Partnerships and Implementation
- Encourage leadership within private and public sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.
  - Strengthen inter-jurisdiction and inter-agency communication and coordination and partnering of jurisdictions and agencies within Jefferson County to foster the establishment and implementation of natural hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
  - Strengthen inter-jurisdiction and inter-agency communication and coordination and partnering of jurisdictions and agencies between Jefferson County and its bordering neighbors to foster the establishment and implementation of natural hazard mitigation strategies and/or projects designed to benefit multiple jurisdictions.
  - Develop a partnership with the local and regional newspapers to produce a series of in-depth articles on each natural hazard and both personal and public mitigation techniques.
  - Develop and strengthen coordination and cooperation with local business and industries that are particularly vulnerable to natural hazards in Jefferson County.
- (5) Emergency Services
- Encourage the establishment of policies at the local level to help insure the prioritizing and implementation of mitigation strategies and/or projects designed to benefit critical/essential facilities, services, and infrastructure.
  - Where appropriate, coordinate and integrate natural hazard mitigation activities with existing local emergency operations plans.
  - Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, business, and industry.

## The Action Plan Matrix

The *action items* are a listing of activities in which county and city agencies and jurisdictions and citizens can be engaged to reduce risk. **Each action item includes an estimate of the timeline for implementation.** *Short-term action items (ST)* are activities that may be implemented with existing resources and authorities within one to three years. *Long-term action items (LT)* may require new or additional resources or authorities, and may take between one and five years to implement. *Ongoing action items (OG)* are continuous activities such as the annual review and update of the mitigation plan, itself.

The action items are organized within the following matrix, which lists all of the multi-hazard and hazard-specific action items included in the mitigation plan. These action items are the culmination of the data collection, research and analysis, and public participation process leading up to this plan. The Action Plan Matrix organizes this information into a management tool to be used in implementing the actions. The matrix includes the following information for each action item:

- **Natural Hazard.** A unique identifier within the document that tells the type of action item (short-term or long-term), the type of hazard, and the action item number for that action in the plan. New or changed items in the list for 2016 are flagged with an “\*”.

- **Action Item.** A description of the action to be taken.
- **Champions.** The organizations or individuals who are taking the lead responsibility in making the action happen. This can be the public agency with regulatory responsibility to address natural hazards, or that is willing and able to oversee activity, implementation, monitoring, and evaluation. Champions may include local, county, regional public and private agencies, businesses or individuals that are capable of or willing to be responsible for implementing activities and programs.
- **Timeline.** Action items include both short-term and long-term activities. The time-line attempts to put a gross estimate of the time it will take to implement the action given the availability of resources needed. Some items will be an ongoing effort that effectively requires a lifestyle change or permanent allocation of resources, while other items may be events or programs with specific accomplishments by a specific time.
- **Plan Goals.** This cell of the matrix contains the item numbers of the plan goals from the previous page that this activity seeks to meet.
- **Action Item Lifecycle Stage.** Each activity that is not continuous has a life cycle that it goes through: action item concept, public input & planning, funding, execution of action item, adoption or implementation, maintenance, monitor and evaluate. This grid within the matrix provides a visual quick-reference to progress on a given activity. Life Cycle Stages include:
  - (1) Action Item Concept - Indicates a concrete idea or plan has been developed to take forward in the process.
  - (2) Public Input & Planning – Indicates that the process is at the stage where it is collecting public input and planning, if appropriate.
  - (3) Funding – Indicates that funds are being sought to implement the action as appropriate. This can be from budget, grants, donations, etc.
  - (4) Execution of Action Item – May be drafting of a report, ado
  - (5) Adoption of policy resolutions, implementation of building projects, etc.
  - (6) Adoption or Implement – Adoption of resolutions to implement plans or approve projects.
  - (7) Maintain, Monitor, and Evaluate - Review, evaluate and maintain the project or plan as defined by the project charter.

***The format of the matrix is to have one table with the action items in it and a second table that marks the progress on the action items. The layout is intended to allow the user to open the Plan in a book format and have the corresponding pieces of both tables opposite each other for easy viewing. Elements that have changed in the revisions have their Natural Hazard ID marked with an asterisk. If the item has been completed, it also has a strike-through of the ID. Comments added for the 2016 Revision are in Blue.***

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Multi-Hazard Mitigation Action Items</b>				
OG-MH-0*	Adopt and Participate in the Jefferson County – City of Port Townsend Hazard Mitigation Plan as official plan.	Jefferson County, City of Port Townsend, and all Special Districts	Ongoing – Participation in update – 2016; Adoption – after FEMA review.	4. Partnerships and Implementation 5. Emergency Services
OG-MH-1	Identify and pursue funding opportunities to develop and implement local and county mitigation activities.	Jefferson County, City of Port Townsend and all Special Districts.	Ongoing	4. Partnerships and Implementation
OG-MH-2	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards.	DEM, Economic Development Council	Ongoing	1. Protect Life & Property,  2. Public Awareness,  4. Partnerships and Implementation
OG-MH-3	Educate the citizenry in the role of the 1 <sup>st</sup> Responder through Citizen’s Police Academy.	Port Townsend Police and Jefferson County Sheriff’s Office	Ongoing	2. Public Awareness,
OG-MH-4*	Train personnel on how to react in a natural disaster.	PTPD, JCSO, JCFD1, <b>JCPUD1</b>	Ongoing	1. Protect Life & Property.  5. Emergency Services

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items</i></b>						
OG-MH-0	X	X	X	X		X
OG-MH-1	X	X	X	X		X
OG-MH-2	X	X	X	X		X
OG-MH-3	X	X	X	X		X
OG-MH-4*	X	X	X	X		X



Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Multi-Hazard Mitigation Action Items</b>				
OG-MH-5	Educate employees regarding hazards & develop Emergency Response Plan	JCDEM, Port of Port Townsend, All School Districts.	Ongoing	1. Protect Life & Property, 4. Partnerships and Implementation 5. Emergency Services
OG-MH-6*	Regular Review of Capital Improvement Plan to include newly identified mitigation plans.	Port of Port Townsend	Annual – Latest revision 2015; Prioritization in January 2016.	1. Protect Life & Property, 5. Emergency Services
ST-MH-1*	Establish a formal role for the Jefferson County Natural Hazards Mitigation Advisory Committee to develop a sustainable process for implementing, monitoring, and evaluating countywide mitigation activities.	Hazard Mitigation Advisory Committee	Short-Term – Reconstitute for 2016 update.	4. Partnerships and Implementation
ST-MH-2	Integrate goals and action items from the Jefferson County Natural Hazard Mitigation Plan into existing regulatory documents and programs where appropriate.	Hazard Mitigation Advisory Committee	Ongoing	4. Partnerships and Implementation
ST-MH-3	Develop public and private partnerships to foster natural hazard mitigation program coordination in Jefferson County	DEM, DCD, Economic Development Council; Neighborhood Emergency Groups	On-going	4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items</i></b>						
OG-MH-5	X	X	X	X		
OG-MH-6*	X	X	X	X		X
ST-MH-1*	X	X		X		X
ST-MH-2	X	X		X		X
ST-MH-3	X	X		X		X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Multi-Hazard Mitigation Action Items</b>				
ST-MH-4*	Improve facilities to survive earthquakes and storms better. Provide continuity of service.	Jefferson County Water Districts 1,2,3 <b>Opted Out in 2009</b>	Short-Term	1. Protect Life & Property, 4. Partnerships and Implementation
ST-MH-5*	Build new 911 Dispatch Center and new Emergency Operation Center	DEM, JeffCom	<b>Completed 2005</b>	1. Protect Life & Property, 4. Partnerships and Implementation 5. Emergency
ST-MH-6*	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	DEM, DSD, DCD, and GIS	Short-Term – Updated for 2016	1. Protect Life & Property 4. Partnerships and Implementation
ST-MH-7*	Evaluate and integrate citizen ideas into planning and implementation efforts.	Jefferson County, Port Townsend <b>and all participating Special Districts.</b>	Short-Term	1. Protect Life & Property 4. Partnerships and Implementation
ST-MH-8*	Improve interoperability through coordinated use of communications & OPSCAN Program.	JeffCom 911, DEM, PTPD, JCSO, All Fire Districts	<b>Completed 2007 - 2009</b>	1. Protect Life & Property, 4. Partnerships and Implementation 5. Emergency
ST-MH-9*	Increase fuel supply for generators to 72 hours and improve storage accessibility.	Jefferson County Hospital District 2 dba Jefferson Healthcare	Target: 12/31/2016	1. Protect Life & Property,
ST-MH-10*	Plan for Emergency Specialty Services Building power generation & fuel supply.	Jefferson County Hospital District 2 dba Jefferson Healthcare	Target: 12/31/2016	1. Protect Life & Property,

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items</i></b>						
ST-MH-4*	X	X	X	X	X	X
ST-MH-5*	X	X	X	X	X	X
ST-MH-6*	X	X	X	X		
ST-MH-7*	X	X				
ST-MH-8*	X	X	X	X	X	X
ST-MH-9*	X	X	X	X		
ST-MH-10*	X	X	X	X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Multi-Hazard Mitigation Action Items (cont.)</b>				
LT-MH-1	Strengthen emergency services preparedness and Long-Term response by linking emergency services with Multi-Hazard mitigation programs, and enhancing public education on a regional scale.	DEM, DSD, DCD	Short-Term	5. Emergency Services
LT-MH-2	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses and schools.	JCDEM	Long-Term	1. Protect Life & Property, 2. Public Awareness
LT-MH-3*	Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.	DCD, DSD	Long-Term	3. Natural Systems
LT-MH-4*	Expand SCADA Controls	JCPUD1	Short Term to Long Term	1. Protect Life & Property
LT-MH-5*	Backup Transformer for Substation	JCPUD1	Long Term	1. Protect Life & Property
LT-MH-6*	Underground conductor where possible.	JCPUD1	Long Term	1. Protect Life & Property
LT-MH-7*	Create and build Port Townsend Resiliency Center	Port Townsend, PTSD50, JCPHD2, YMCA	Short Term to Long Term	1. Protect Life & Property, 4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Multi-Hazard Mitigation Action Items (Cont.)</i></b>						
LT-MH-1	X	X		X		
LT-MH-2	X	X		X		
LT-MH-3	X	X		X		
LT-MH-4*	X	X	X	X		
LT-MH-5*	X	X	X	X		
LT-MH-6*	X	X	X	X		
LT-MH-7*	X	X				

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Avalanche Mitigation Action Items</i></b>				
ST-AV-1	None Identified			
LT-AV-1	None Identified			

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Avalanche Mitigation Action Items</i></b>						
ST-AV-1	N/A					
LT-AV-1	N/A					

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Drought Mitigation Action Items</i></b>				
ST-DR-1*	Coordinate drought policies with Port Townsend Paper.	Port Townsend Public Works	Active review during 2015 due to City water sources approaching critical levels due to drought.	1. Protect Life, Property and Local Economy

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Drought Mitigation Action Items</i></b>						
ST-DR-1*	X	X		X		X



Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Earthquake Mitigation Action Items</i></b>				
ST-EQ-1*	Integrate new earthquake mapping data and improve technical analysis of earthquake hazards.	USGS, JC-GIS	2 Years	1. Protect Life & Property, 4.Partnerships and Implementation
ST-EQ-2	Structural Bracing of Shelving;	JC Library	Short-term	1. Protect Life & Property,
ST-EQ-3*	Port Water System Upgrade Improvements; Improvements to Quilcene reservoir and distribution lines.	Port of Port Townsend	Short-term	1. Protect Life & Property,
<del>ST-EQ-4*</del>	Build new Transit Facility to current earthquake codes.	Jefferson Transit Authority	Long-term <b>Completed June 15, 2015</b>	1. Protect Life & Property, 5.Emergency Services
ST-EQ-5	Purchase specialized equipment for water shortage emergencies	JCPUD1	Short-term	1. Protect Life & Property, 5.Emergency Services
ST-EQ-6	Secure Equipment to Floors & Walls	JCPUD1	Short-term	1. Protect Life & Property,
ST-EQ-7	Put automatic shut-off valves on all reservoirs.	JCPUD1	Short-term	1. Protect Life & Property,
ST-EQ-8*	Retrofit Fire Station for Earthquake Protection	JCFD2	Short-term – Not Done Yet.	1. Protect Life & Property
<del>ST-EQ-8*</del>	Retrofit Fire Station for Earthquake Protection	JCFD3	<b>Complete</b>	1. Protect Life & Property
ST-EQ-9	Seismically retrofit High School Gym; add seismic shut-off valves to propane tanks.	Chimacum School District	Short-term	1. Protect Life & Property
LT-EQ-1	Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.	City & County Government	Ongoing – Long-term	1. Protect Life & Property, 2. Public Awareness 4. Partnerships and Implementation
<del>LT-EQ-2*</del>	Seismically Retrofit Tunnel Lids throughout the Historic Downtown Business District. (High Priority - Underway starting in 2009.) (Rev. 2009).	All entities	Ongoing – Long Term	1. Protect Life & Property, 4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Earthquake Mitigation Action Items</i></b>						
ST-EQ-1	X					
ST-EQ-2	X	X				
ST-EQ-3*	X	X	X	X	X	X
ST-EQ-4*	X	X	X	X	X	X
ST-EQ-5*	X	X	X	X	X	X
ST-EQ-6*	X	X	X	X	X	X
ST-EQ-7*	X	X	X	X	X	X
ST-EQ-8*	X	X	X	X	X	X
ST-EQ-9	X	X	X	X		
LT-EQ-1	X	X		X		X
LT-EQ-2*	X	X	X	X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Earthquake Mitigation Action Items</i></b>				
LT-EQ-3	Encourage seismic strength evaluations of critical facilities in the County to identify vulnerabilities for mitigation.	City & County Government	Long-Term – started in 2007.	1. Protect Life & Property
LT-EQ-4	Encourage reduction of nonstructural and structural hazards in homes, schools, business, and government offices.	City & County Government	Long-Term	2. Public Awareness 4. Partnerships and Implementation
<del>LT-EQ-5*</del>	Seismically retrofit Port Townsend Historical City Hall.	PT Public Works	<b>Long-Term – Completed 2005</b>	1. Protect Life & Property
<del>LT-EQ-6*</del>	Replace Port Townsend Fire Station with seismically sound station.	PT Public Works & PTFD Construction Underway	<b>Completed 2005</b>	1. Protect Life & Property 5. Emergency Services
<del>LT-EQ-7*</del>	Move Port Townsend Police Station outside of liquefaction zone.	PT Government - Planning Underway	<b>Completed 2009</b>	1. Protect Life & Property 5. Emergency Services
<del>LT-EQ-8*</del>	Seismically Reinforce Port Townsend Library	Port Townsend	<b>Long-term – 1<sup>st</sup> piece of funding via PDM 2007. Completed 2013.</b>	1. Protect Life & Property
<del>LT-EQ-9*</del>	Seismically Reinforce Port Townsend Tunnel Lids	Port Townsend	<b>Long-term – Funded via Budget, DR-1682, DR-1734, and DR-1817. Completed.</b>	1. Protect Life & Property, 5. Emergency Services
<del>LT-EQ-10*</del>	Increase Emergency food supply for staff and patients.	JC Hospital Dist. 2	<b>Completed.</b>	1. Protect Life & Property,
LT-EQ-11*	Increase Emergency Water supply for staff and patients.	JC Hospital Dist. 2	<b>Not Yet Completed.</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Earthquake Mitigation Action Items</i></b>						
LT-EQ-3	X					
LT-EQ-4	X					
LT-EQ-5*	X	X	X	X	X	X
LT-EQ-6*	X	X	X	X	X	X
LT-EQ-7*	X	X	X	X	X	X
LT-EQ-8*	X	X	X	X	X	X
LT-EQ-9*	X	X	X	X	X	X
LT-EQ-10*	X	X	X	X	X	X
LT-EQ-11*	X	X	X	X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Earthquake Mitigation Action Items</i></b>				
LT-EQ-12*	Marina redevelopment to new building codes; Upland development in Quilcene will meet new building codes.	Port of Port Townsend	Long-term; Planning is Short Term.	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
<del>LT-EQ-13*</del>	Upgrade existing facilities to withstand earthquakes better.	Port Ludlow Drainage District <b>(Opted Out – 2016)</b>	Long-term	1. Protect Life & Property,
LT-EQ-14*	Nonstructural retrofitting of structures that are identified as seismically vulnerable.	School Districts: PTSD50; Brinnon SD46; Chimacum SD49; QVSD402	Ongoing – Long-term	1. Protect Life & Property,
<del>LT-EQ-15*</del>	Replace Station 1-1 with seismically sound station.	JCFD1	<b>Completed - 2014</b>	1. Protect Life & Property,
LT-EQ-16*	Continue hardening and upgrading infrastructure at tower sites.	JeffCom	Short Term	1. Protect Life & Property,
LT-EQ-17*	Expansion of the Library will allow the opportunity to seismically retrofit existing facilities.	Jefferson County Library District	Long-term – no immediate date.	1. Protect Life & Property
LT-EQ-18*	Enhance fire station 6-2 seismically.	Port of Port Townsend	New CIP being developed.	1. Protect Life & Property

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Earthquake Mitigation Action Items</i></b>						
LT-EQ-12	X	X				
LT-EQ-13*	X	X	X	X	X	X
LT-EQ-14	X	X				
LT-EQ-15*	X	X	X	X	X	X
LT-EQ-16*	X	X	X	X		
LT-EQ-17*	X					
LT-EQ-18*	X	X				

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Flood Mitigation Action Items</b>				
ST-FL-1	Analyze each repetitive flood property within Jefferson County and identify feasible mitigation options.	DCD, DSD, <b>Wa Dept. of Ecology, FEMA</b>	Short-Term	1. Protect Life & Property 3. Natural Systems 4. Partnerships and Implementation
ST-FL-2	Recommend revisions to standards required for development occurring within the floodplain, where appropriate.	DCD, DSD	Short-Term	1. Protect Life & Property 3. Natural Systems
ST-FL-3*	Develop better flood warning systems.	JCDEM, DCD, DSD	<b>Complete – Using AHAB system.</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
LT-FL-1*	Enhance data and mapping for floodplain information within the County, and identify and map flood-prone areas outside of designated floodplains.	DSD	<b>Long-Term – FEMA FIRMS update to be completed in 2016.</b>	1. Protect Life & Property 3. Natural Systems 5. Emergency Services
LT-FL-2*	Encourage development of acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in the floodplain.	<b>City of Port Townsend, Jefferson County, Jefferson County Land Trust, and the Salmon Recovery Office</b>	Long-Term	1. Protect Life & Property 3. Natural Systems 4. Partnerships and Implementation
LT-FL-3	Identify surface water drainage obstructions for all parts of unincorporated Jefferson County.	Jefferson County	Long-Term	1. Protect Life & Property 3. Natural Systems

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Flood Mitigation Action Items</i></b>						
ST-FL-1*	X	X		X		
ST-FL-2	X	X		X		
ST-FL-3*	X	X		X		
LT-FL-1*	X	X		X		
LT-FL-2*	X	X		X		
LT-FL-3	X	X		X		



Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Flood Mitigation Action Items (cont.)</i></b>				
LT-FL-4*	Establish a framework to compile and coordinate surface water management plans and data throughout the county.	<b>Jefferson County Public Works</b>	Long-Term	3. Natural Systems 4. Partnerships and Implementation
<del>LT-FL-5*</del>	Move JCFD4 Fire Station 4-2 out of repetitive flood zone.	JCFD4	<b>Long-Term – Completed - 2010</b>	1. Protect Life & Property 3. Natural Systems 5. Emergency Services
LT-FL-6	Coordinate with Fish & Wildlife to develop Hoh River mitigation plan.	JC Public Works	Long-Term – Underway	1. Protect Life & Property 3. Natural Systems 4. Partnerships and Implementation
<del>LT-FL-7*</del>	Upgrade drainage conveyance to handle 100-year flood event.	Port Ludlow Drainage District <b>(Opted Out – 2016)</b>	Long-Term	1. Protect Life & Property 3. Natural Systems

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Flood Mitigation Action Items (cont.)</i></b>						
LT-FL-4	X					
LT-FL-5*	X	X	X	X	X	X
LT-FL-6	X	X		X		
LT-FL-7	X	X			N/A	

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Landslide Mitigation Action Items</i></b>				
ST-LS-1	Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas.	JC Public Works, DEM	Short-Term	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>2. Public Awareness</li> <li>3. Natural Systems</li> </ol>
ST-LS-2*	Identify safe evacuation routes in high-risk debris flow and landslide areas.	JC Public Works, DEM	Short-Term	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>2. Public Awareness</li> <li>3. Natural Systems</li> </ol>
LT-LS-1	Evaluate current landslide warning systems to ensure effectiveness and efficiency and increase coordination between local jurisdictions.	DEM	Long-Term	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>4. Partnerships and Implementation</li> <li>5. Emergency Services</li> </ol>
LT-LS-2*	Limit activities in identified potential and historical landslide areas through regulation and public outreach.	County Government	Long-Term – Under review.	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>2. Public Awareness</li> <li>3. Natural Systems</li> </ol>
LT-LS-3*	Relocate Undie Road to prevent further destruction of the road by landslides.	County Public Works	Long-Term – Seeking Funding Help.	<ol style="list-style-type: none"> <li>1. Protect Life &amp; Property</li> <li>3. Natural Systems</li> </ol>

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Landslide Mitigation Action Items</i></b>						
ST-LS-1	X	X				
ST-LS-2*	X	X				
LT-LS-1	X					
LT-LS-2*	X	X				

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Severe Local Storm Mitigation Action Items</b>				
ST-WS-1	Enhance strategies for debris management for severe winter storm events.	PT Public works, JC Public Works	Short-Term	1. Protect Life & Property 4. Partnerships & Implementation
ST-WS-2*	Develop and implement programs to identify and remove hazard trees located in public right-of-way to reduce potential danger to lives, property, and public infrastructure during windstorms events.	PT Public works, JC Public Works Puget Sound Energy sold Jefferson County assets to Jefferson County PUD #1 (JCPUD1).	Short-Term	1. Protect Life & Property 4. Partnerships & Implementation
ST-WS-3	Map and publicize locations around the county that have the highest incidence of extreme storms.	DEM	Short-Term	2. Public Awareness 4. Partnerships & Implementation
ST-WS-4	Replace flat office roof with gable roof to shed snow.	JCPUD1	Short-Term	1. Protect Life & Property
ST-WS-5*	Replace windows on Jefferson General Hospital to withstand storms.	JC Hospital Dist. #2	Short-Term – Completed 2008	1. Protect Life & Property
ST-WS-6*	Replace roof on PT High School Annex	PT School Dist.	Completed - 2013	1. Protect Life & Property
ST-WS-7	Provide emergency backup power for school building.	Queets / Clearwater School Dist.	Short-Term	1. Protect Life & Property
ST-WS-8*	Replace roof of Shop, Bus Barn & Admin Building.to handle weather. Severe snow would put most roofs in jeopardy of collapse.	Quilcene School District	Completed	1. Protect Life & Property
ST-WS-9*	Develop and Implement storm water pollution and protection plan through DOE.	Quillayute School District	Long / Short Term	1. Protect Life & Property

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Severe Local Storm Mitigation Action Items</i></b>						
ST-WS-1	X					
ST-WS-2	X					
ST-WS-3	X					
ST-WS-4	X	X				
<del>ST-WS-5*</del>	X	X	X	X	X	X
<del>ST-WS-6*</del>	X	X	X	X	X	X
ST-WS-7	X	X				
<del>ST-WS-8*</del>	X	X				
ST-WS-9*	X	X	X	X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Severe Local Storm Mitigation Action Items (cont.)</b>				
ST-WS-10*	Establish Tree Trimming Protocols	JCPUD1	Short Term	1. Protect Life & Property
ST-WS-11*	Intertie water systems as much as possible.	JCPUD1	Short Term	1. Protect Life & Property
LT-WS-1*	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.	<b>PT Public works, JC Public Works</b>	Long-Term	1. Protect Life & Property 4. Partnerships & Implementation
LT-WS-2	Increase public awareness of severe winter storm mitigation activities.	County & City Governments	Long-Term	2. Public Awareness 4. Partnerships & Implementation
<del>LT-WS-3*</del>	Enhance Courthouse clock tower to be able to withstand 70-knot winds.	County & City Governments	<b>Long-Term – Completed 2008.</b>	1. Protect Life & Property
<del>LT-WS-4*</del>	Support/encourage electrical utilities in mitigation activities to reduce power outages from storms.	DEM, County & City Governments	<b>Complete – PUD representative is now present at EOC during activations – and participates in Incident Management Team training. PUD also does pre-storm briefings and prunes rights-of-way to reduce downfall.</b>	1. Protect Life & Property 4. Partnerships & Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Severe Local Storm Mitigation Action Items (cont.)</i></b>						
ST-WS-10*	X	X	X	X		
ST-WS-11*	X	X				
LT-WS-1*	X	X	X	X		
LT-WS-2	X			X		
LT-WS-3*	X	X	X	X	X	X
LT-WS-4*	X	X		X	X	X



Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Tsunami / Seiche Mitigation Action Items</i></b>				
ST-TS-1*	Breakwater Jetty / Wingwall Improvement	Port of Port Townsend	Long Term; Planning is Short Term	1. Protect Life & Property
<del>LT-TS-1*</del>	Move PT Police Station outside of inundation zone.	Port Townsend	<b>Long-Term – Completed 2009.</b>	1. Protect Life & Property 4. Emergency Services

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b><i>Volcanic Event Mitigation Action Items</i></b>				
ST-VO-1	Find ash fall models that are specific to Jefferson County.	DEM, JC GIS	Short-Term	1. Protect Life & Property 2. Public Awareness 3. Natural Systems

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Tsunami / Seiche Mitigation Action Items</i></b>						
ST-TS-1*	X	X				
LT-TS-1*	X	X	X	X	X	X

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b><i>Volcanic Event Mitigation Action Items</i></b>						
ST-VO-1	X	X		X		

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Wildfire Mitigation Action Items</b>				
OG-WF-1				
OG-WF-2*	Public Education	JCFD2 Commissioners	Yearly Classes - Ongoing	1. Public Awareness
ST-WF-1	Enhance Emergency Services to increase efficiency of wildfire response and recovery activities.	EJFR – JCFD5, DEM	Short-Term	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
ST-WF-2	Educate district personnel on federal cost-share and grant programs etc. so that full array of assistance to local agencies is understood.	JCFD1 – JCFD5	Short-Term	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
ST-WF-3	Create wildfire hazard atlas for City of Port Townsend.	EJFR	Short-Term	1. Protect Life & Property 5. Emergency Services
ST-WF-4	Install fire doors and fire suppression system.	Queets Clearwater School District	Short-Term	1. Protect Life & Property
LT-WF-1	Development and dissemination of maps relating to the fire hazard to help educate and assist builders and homeowners in being engaged in wildfire mitigation activities, and to help guide emergency services during response.	EJFR	Long-Term	1. Protect Life & Property 2. Public Awareness 4. Partnerships and Implementation 5. Emergency Services

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
LT-WF-2*	Firewise Program - Enhance outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards.	JCFD1, WSU, JCFD2, JCFD3	Long-Term Annual	1. Protect Life & Property 2. Public Awareness 4. Partnerships and Implementation

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b>Wildfire Mitigation Action Items</b>						
OG-WF-1*						
OG-WF-2*	X	X	X	X	X	X
ST-WF-1	X					
ST-WF-2	X					
ST-WF-3	X	X	X	X		
ST-WF-4	X	X	X	X		
LT-WF-1	X					
LT-WF-2*	X	X	X	X	X	X

Five-Year Action Plan Matrix				
Natural Hazard ID	Action Item	Champion	Timeline	Plan Goals
<b>Wildfire Mitigation Action Items (cont.)</b>				
LT-WF-3	Increase communication, coordination, and collaboration between wildland/urban interface property owners, local and county planners, and fire prevention crews and officials to address risks, existing mitigation measures, and federal assistance.	City & County Government	Long-Term	2. Public Awareness 4. Partnerships and Implementation 5. Emergency Services
LT-WF-4*	Consolidate fire districts to put more apparatus and personnel on wildfires.	PTFD & JCFD6 merged into JCFD1; JCFD3 & Kitsap County	Long-Term <b>JCFD1 Completed; JCFD3 executed MOU with Kitsap</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services
LT-WF-5*	Develop a “battalion” strategy to more effectively coordinate rural districts on wildfires.	JCFD1 through JCFD5	Long-Term – <b>Completed in 2006.</b>	1. Protect Life & Property 4. Partnerships and Implementation 5. Emergency Services

Five-Year Action Plan Matrix: Action Item Lifecycle						
Natural Hazard ID	Action Item Concept	Public Input & Planning	Funding	Execution of Action Item	Completion	Maintain, Monitor, and Evaluate
<b>Wildfire Mitigation Action Items (cont.)</b>						
LT-WF-3	X					
LT-WF-4*	X	X	X	X	X	X
LT-WF-5*	X	X	X	X	X	X

# **SECTION VI**

## **Coordinating Entities**

## Coordinating Entity Participation

Agencies, businesses, academia, and other interested parties were reached both through the public forums, and through the established working relationships with the County and the City. The entities presented below are a few of those that have proactive working relationships with Jefferson County and / or the City of Port Townsend, and are continuously involved in finding ways to reduce the effects of natural disasters. The Port Townsend Paper Company, for example, works with the City and County to prevent damage to the region’s water supply during periods of drought.

Each of the entities listed contains a background of the entity obtained from their website or from appropriate personnel, and the coordination issues it faces with regard to coordination with Jefferson County and the City in preparing for or reacting to disaster situations.

## Coordinating Entities

Clallam County Emergency Operations Center  
 Clallam Fire Protection District No.1 (Clallam / Jefferson)  
 Clallam Fire Protection District No. 3 (Clallam / Jefferson)  
 Clallam County PUD (power line across disco bay)  
 Fort Worden State Park  
 The Hoh Tribe of Indians  
 KPTZ 91.9 FM  
 Neighborhood Emergency Preparedness Groups (NPREP)  
 Port Townsend Paper  
 Propane Providers  
 Sequim School District No. 323  
 U.S. Coast Guard  
 U.S. Naval Magazine – Indian Island  
 Washington Department of Ecology  
 Washington Department of Fish and Wildlife  
 Washington Department of Natural Resources  
 Washington Department of Transportation  
 Washington Military Department – Emergency Management Division  
 Washington State Patrol

## Clallam County Emergency Operations Center <sup>1</sup>

The Division of Emergency Management plans for and responds to both natural and man-made disasters in Clallam County. These range from weather, floods, tsunamis, and earthquakes to incidents involving hazardous materials, or significant law enforcement events. The division prepares and implements a county-wide Comprehensive Emergency Management Plan, routinely conducts extensive exercises to test county emergency response capabilities and provides educational materials to the public to better prepare them for emergency events.

This section of the Sheriff's Office is Clallam counties liaison with federal and local agencies on emergencies of all kinds. Division staff members provide technical assistance to local governments as they prepare emergency plans and procedures and they also conduct emergency operations training for local governmental agencies.

### **Mailing Address**

223 East 4th Street, Suite 12  
Port Angeles, Washington 98362  
Fax 360-417-2485

[E-mail Form](mailto:cceem@co.clallam.wa.us) ( [cceem@co.clallam.wa.us](mailto:cceem@co.clallam.wa.us) )

### ***Clallam County Emergency Operations Center - Coordination Issues***

**Jefferson County and Clallam County do not always activate at the same time for regional events, e.g. damaging storms, potential flooding, etc.**

Clallam and Jefferson County EOC's do not always coordinate activations, therefore, there are times when Jefferson County is leaning forward to prepare for flood or storm conditions that Clallam is not activated. This reduces the opportunity for Clallam to gain intelligence because of Jefferson County's Pacific Coast contacts, and reduces the situational awareness Jefferson County can gain from events impacting Clallam before it hits Jefferson.

The Cascade Rising Exercise provided an opportunity for coordination of preparation efforts and training that can lead to closer coordination during storm events, etc.

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<sup>1</sup> <http://www.clallam.net/EmergencyManagement/>



## Clallam County Fire District No.1 (CCFD1) (Clallam / Jefferson)

CCFPD1 covers the area centered around Forks, Wa. Through contractual arrangement this includes the West End of Jefferson County, which is known as Jefferson County Fire District 7 (JCFD7). As of February 2016, the relative assessed value of the areas served are: Clallam County: \$318,237,387, Est. Taxes \$238,678; Jefferson County: Jefferson Value: \$2,656,485 Est. Taxes \$1,992.1<sup>2</sup>

### *Clallam County Fire District 1 (CCFD1) - Coordination Issues*

**An earthquake disaster event in CCFD1 jurisdiction has the potential to create multiple “micro- islands”.<sup>3</sup>**

An event will result in the county being broken up into about 20 micro islands. We’re the only county in the state that has looked at this, and identified the micro island areas.

About six micro-islands: LaPush to bottom of Dickey Lake to Three Rivers. Another is Fairholm to Bear Creek, one from Bear Creek to Forks, one to Forks, then to Jeff Co. line. Clallam County is working on an agreement to assist with the Hoh area. There would be a Hoh North and Hoh South zone.

Note that the micro-island areas are only identified up to the Jefferson County line.

**In a major disaster, communications will not be restored for a year.<sup>4</sup>**

Discussion about communication and restoration of services. It’s likely to take up to year. Communications will initially have to use ham radio operators.

**Clallam County has to do Jefferson County assessments for CCFD1 budget.<sup>5</sup>**

Initially, CCFD1 submitted documents separately for Jefferson County annexed properties and the Clallam County properties. We are to submit one document in total and Clallam County Assessor’s office handles the Jefferson County assessments. The Assessor’s Office was very helpful in coming up with a solution for our assessments for 2016.

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<sup>2</sup> CCFD1 Commissioners’ Meeting, Clallam County, Washington, February 14, 2016, p. 1.

<sup>3</sup> Ibid., 4.

<sup>4</sup> Ibid.

<sup>5</sup> CCFD1 Commissioners’ Meeting, Clallam County, Washington, December 13, 2015, p.1

## Clallam County Fire Protection District No.3 (CCFD3) including Jefferson County Fire District 8 (JCFD8)

Clallam County Fire District No.3 (CCFD3) is approximately 140 square miles in size and occupies the Eastern portion of Clallam County. The city of Sequim is served by the district through annexation. The Fire District begins at the Clallam-Jefferson county line on the East and extends to its Western boundary, approximately six miles East of Port Angeles, just East of Deer Park Rd. Highway 101 runs the entire length of the district. The north boundary is the Strait of Juan de Fuca, while the Olympic National Forest forms the southern boundary.<sup>6</sup> By contract, CCFD3 also covers the Gardiner area of Jefferson County, which is designated as Jefferson County Fire District 8 (JCFD8). The value of property protected in Jefferson County is \$61,143,725.<sup>7</sup>

**Phone:** (360)683-4242

**Fax:** (360)683-6834

**Email:** [info@clallamfire3.org](mailto:info@clallamfire3.org)

### **Headquarters Office**

323 North Fifth Ave  
Sequim, WA 98382

### ***Clallam County Fire District 3 (CFPD3) - Coordination Issues***

Same issues as CFPD1, above. In a disaster scenario, Jefferson County neighborhoods are being trained to work with the Jefferson County Department of Emergency Management. Emergency calls will go to CFPD3 via JeffCom 9-1-1. The Director of JeffCom 9-1-1 has been given authority over both Jefferson and Clallam County 9-1-1 Dispatch, so coordination among emergency responders should be improved across county lines.

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<sup>6</sup> <http://www.clallamfire3.org/about-us/district-overview/>

<sup>7</sup> Jefferson County Abstract of Assessed Values, Levy Rates, and Tax Amounts, Jefferson County, Washington, 2016.

## Clallam County Public Utility District<sup>8</sup>

### *Clallam PUD Background*

#### *Revenue & Expenditures<sup>9</sup>*

##### **Revenues**

Electric Fund \$52,716,536 Water Fund \$3,320,824 Sewer Fund \$47,071

##### **Expenditures**

Electric Fund \$51,138,719 Water Fund \$2,699,893 Sewer Fund \$64,789

**Customers:** The PUD provided service to 30,662 electric customers, 4,384 water customers, and 74 sewer customers. Electric customers were composed of 27,413 residential, 3,245 commercial, and 4 industrial. Water customers included 4,067 residential and 317 commercial. Sewer customers were all residential. Residential customers consumed 68.1 percent of the PUD’s total load, commercial customers used 27.1 percent, and industrial customers used 4.8 percent.<sup>10</sup>

**Average Rates:** Electric rates averaged 8.5 cents per kWh for residential customers, 7.1 cents per kWh for commercial customers, and 6.0 cents per kWh for industrial customers. Rates are set by the Board of Commissioners annually during its Fall budget hearings. Notices of Rate Hearings are published in the legal classified section of local newspapers.

**Purchased Power & Water:** The cost to purchase electrical energy for customers and the PUD was \$24,201,098, and the cost for purchased and pumped water was \$280,778.

**Conservation & Non-hydrorenewable Resources:** The total expended for energy conservation programs was \$1,283,000, which was from general rates and a BPA Rate Credit. The total expended for non-hydrorenewable resources was \$161,268.

**Energy Assistance Programs:** The total expended for low-income energy assistance programs was \$268,508. Low-income programs were funded from customer contributions and from general rates.

**Taxes:** The PUD paid a total of \$4,496,627 in taxes in 2014. Of that amount, \$834,757 was paid for federal taxes, \$2,900,434 for state taxes, and \$761,436 for local taxes.

**New Service Orders:** The PUD completed 281 new electric and 19 new water service orders.

<sup>8</sup> <https://www.clallampud.net/about/>

<sup>9</sup> <https://www.clallampud.net/wp-content/uploads/2016/03/2014-Annual-Report.pdf>

<sup>10</sup> Ibid.

### ***Clallam PUD Coordination Issues***

**Power Feed to Jefferson County Public Utility District No 1 (JCPUD1) and Port Townsend Paper:** Since Port Townsend Paper is the major private industry in Port Townsend, it is a critical economic resource for the City and County, both. The Clallam PUD has a contract to provide power to Port Townsend Paper. To do this, they have a power line strung from Clallam County, above ground (water) across the lower portion of Discovery Bay to connect at JCPUD1's 4-Corners Substation. The exposed line strung on power poles across the bay is vulnerable to severe local storms, earthquakes, and tsunamis. Discovery Bay has recorded earthquakes centered in the bay of up to 5.4 on the Richter scale in the last 50 years.

**Scenario 1 – Loss of Power Line:** A long-term disruption of power to Port Townsend Paper would significantly affect the area's economy. If the Discovery Bay line is lost, JCPUD1 needs to be able to replace the power for Port Townsend Paper from elsewhere on the grid.

**Scenario 2 – Puget Sound Earthquake:** A significant earthquake centered on one of the many Puget Sound faults could take down power lines serving Jefferson County, but leave the Clallam PUD line undamaged. In this scenario, JCPUD1 could obtain limited power from Clallam to support portions of the grid until repairs are made and power is restored through normal channels.

## Fort Worden State Park

Originally designed as a military base to protect Puget Sound, Fort Worden evolved into an iconic and cherished state park. The fort – featuring 100 historic structures – spans two miles of saltwater shoreline with views of the Olympic and Cascade Mountains, and the San Juan Islands. The fort offers exceptional meeting space, comfortable accommodations and delectable dining options, all within a campus-like setting. Located within a couple of miles from historic downtown Port Townsend, shopping and sightseeing opportunities are just minutes away.<sup>11</sup>

Fort Worden is designated a National Landmark Historic District beloved by many people.<sup>12</sup> Nestled on 432-acres of public lands, Fort Worden offers 30 forested campsites, 50 beach campsites and four primitive sites.<sup>13</sup> Ninety acres are leased to the Fort Worden Public Development Authority (PDA), which manages the Lifelong Learning Center that consists of the educational and entertainment facets of the park.

### *Fort Worden State Park - Coordination Issues*

**Two and a half miles of sandy beach in a Tsunami zone:** Part of the attraction of Fort Worden is the 2.5 miles of sandy beaches and adjacent RV campsites. The problem is that the area surrounding Jefferson County is a veritable spaghetti farm of earthquake faults. The South Whidbey Island Fault, for example, splits the distance between Fort Worden and Whidbey Island. This fault is capable of producing a 7.2 or greater earthquake under the Admiralty Inlet – followed by a tsunami or seiche. Patrons of the park must head for high ground as soon as the shaking has stopped. There will not be time for park officials or emergency management to ascertain if a tsunami has been generated and trigger the AHAB tsunami warning system.

**Large Seasonal Crowds & RV's on the Shoreline:** In a local earthquake / tsunami event, it is possible to have hundreds of people on the beach and all 50 beach campsites full with RV's so that the immediate response is shock and inaction, trapping many between the beach and the high ground.

In a “Distant Tsunami” event in which there are multiple hours before the wave arrives, warning sirens and notification can energize campers to pull their rigs out of the beach area, resulting in a bottleneck at the parade grounds, park exits and in the city streets adjacent to the park.

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<sup>11</sup> <http://fortworden.org/about/>

<sup>12</sup> <http://fortworden.org/about/support-the-fort/>

<sup>13</sup> <http://fortworden.org/stay-here/>

## The Hoh Tribe of Indians<sup>14</sup>



The Hoh River Indians Reservation in Washington State consists of 443 acres. The Hoh Reservation has approximately one mile of beachfront running east from the mouth of the Hoh River, and south to Ruby Beach. The Hoh Reservation was logged in 1954 and it will be 40-60 years before the second growth will be of commercial value. None of this land has been allotted. The Hoh Indian Reservation was established by an Executive Order of September 11, 1963. The Hoh Tribe has formed Tribal Government under Public Law 89-655, providing for a basic roll of tribal members. The livelihood of the Hoh Indians is primarily fishing although a few of the residents make traditional baskets, carved canoes for ocean going or river use, and other carvings. The local people dip for smelts on the beaches and use smokehouses for preserving food for future use. The tidelands are abundant with razor clams, butter clams, crab and perch fishing.



**Hoh Village, 1905**

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<sup>14</sup> <http://hohtribe-nsn.org/>

**Hoh Tribal Business Committee**  
**2464 Lower Hoh Rd**  
**Forks, WA 98331**  
**360-374-6582**



Hoh Tribal Center, Forks, WA

## About the Tribe

### History

The Hoh River Indians are considered a band of the Quileutes but are recognized as a separate tribe. The Hoh Reservation consists of 443 acres located 28 miles south of Forks, and 80 miles north of Aberdeen. The Hoh Reservation has approximately one mile of beachfront running east from the mouth of the Hoh River, and south to Ruby Beach. The Hoh Reservation was logged in 1954 and it will be 40-60 years before the second growth will be of commercial value. None of this land has been allotted. The Hoh Indian Reservation was established by an Executive Order of September 11, 1963. The Hoh Tribe has formed a Tribal Government under Public Law 89-655, providing for a basic roll of tribal members. The Governing body is elected by secret ballot biannually in November. The livelihood of the Hoh Indians is primarily fishing although a few of the residents make traditional decorative baskets, carved canoes for ocean going or river use and other decorative carvings. The local people dip for smelts on the beaches and still use smokehouses for preserving food for future use. The tidelands are abundant with razor clams, butter clams, crab and perch fishing.

## About the Area

### Geography

Reservation is 443 acres about 28 miles south of Forks, Washington. City: Forks, population 2,870, elevation 300, (logging community on Highway 101 between Port Angeles and Pacific Coast). County: Clallam, population 53,400; Native American, 2,275, 58% of nonwhite population, 4% of total. 1,752 square miles. (Strait of Juan de Fuca and Pacific Coast nearby.) County's assessed value averages \$1,554 per acre. County: Jefferson, population 18,100, Native American 349, 45% of nonwhite and 2% of total population. 1,805 square miles (extends from Pacific Coast through Olympic Peninsula to Puget Sound). County's assessed value averages \$805 an acre. Principal industries: Tourism, wood products, agriculture and fishing.

## Members

212 enrolled members.

## Other Offices and Programs

Law enforcement and community hall, no economic development plan. **The Hoh Indian Tribe has elected to do its own Natural Hazard Mitigation Plan.**

## Total Tribal Employees

Approximately 20 FTE.

### ***The Hoh Indian Tribe Coordination Issues***

**Flood and Tsunami:** The Hoh River opens out to the Pacific Ocean where it serves as a funnel for tsunamis. It is also a collector for the Hoh River basin which meanders significantly and which frequently floods. The Hoh Indian Tribe Reservation sits near the mouth of the river, and is perennially dealing with flood issues. In 2009, the Hoh Tribe of Indians was able to swap land with local private owners and with the federal government to provide higher ground to which to move critical facilities.

**Coordination with Jefferson County Department of Emergency Management:** The Jefferson County Department of Emergency Management has been working with the Tribal Council to find ways to assist the tribe in an emergency. Efforts include the acquisition of a warning siren to call the tribe together in an emergency, and the moving of buildings outside of areas of repeated flooding.

**Coordination with Jefferson County Public Works:** Part of the issues surrounding the flooding of the Hoh river involve the meanders of the river, and the placing of rip rap to protect vulnerable sections of roads running parallel to the river. Jefferson County Public Works fights an ongoing problem of the river flooding and undercutting roads resulting in landslides where sections of the road break loose. The Hoh Tribe of Indians, Jefferson County Public Works, and the Washington Department of Fish and Wildlife need to coordinate on a river plan that will protect the roads, accommodate wildlife, and mitigate the effects of repetitive flooding.



## KPTZ 91.9 FM

# **KPTZ and Emergency Preparedness<sup>15</sup>**

## **KPTZ Goals and Responsibilities**

KPTZ's role is to pass on vital information in partnership with the Jefferson County Emergency Operation Center (JCEOC). In an emergency our target is to get the right KPTZ people to the right place at the right time.

Our primary goal is to provide vital and timely information for events which are considered emergencies by the JCEOC. That is, where lives or property are in real danger. We have a secondary goal to educate community members on how to prepare for an emergency. We are not currently a news service.

Although we do try to report on local events from start to finish, currently we do not have the staff to consistently respond to road closures, traffic accidents and other important but not catastrophic events. We are, however, looking at ways to incorporate timely information for most of the events broadcast on the Nixle system.

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## **About KPTZ**

The KPTZ Emergency team is made up of 8-10 volunteers in partnership with Bob Hamlin (Emergency Management Program Manager) and Keppie Keplinger (PIO) of the JCEOC. We have been meeting regularly since January 2013 and have run many tests of our systems.

We have documented most of the emergency systems.

We are officially a trusted partner with the JCEOC. A very rare privilege for community radio stations. As a result our staff will be permitted to embed in the JCEOC and broadcast directly from that facility if necessary.

Several team members have passed the 4 basic FEMA classes in order to be credentialed by the JCEOC and therefore allowed to be embedded. We provide all these services at extremely low cost.

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<sup>15</sup> <https://kptz.org/emergency-preparedness/>

## **Backup Systems**

KPTZ has built many backup systems. Both the transmitter and studio have generators. There is a microwave link between the centers that will allow communication even if the phone lines are down. There is a backup studio at the transmitter site in case the primary studio is inoperable.

KPTZ is implementing a hand held radio network for communication among team members. There is a KPTZ desk at the JCEOC with the capability of interrupting regular programming with emergency updates. We can remotely record information and place it into the studio system to give regular updates.

We are developing a network of individuals we can call on to provide “on the ground” information in the case of an emergency.

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### ***KPTZ Coordination Issues***

#### ***Staffing During an Emergency***

The entire team knows that they will look after the safety and well-being of their own family first before attending to the needs of the station. In the case of a widespread emergency there will be a delay before we can get on the air with information.

#### ***What we Still Need to do:***

- Train more staff on the emergency procedures.
- Improve our documentation.
- Increase our networking within the county.
- Develop a news team.
- Maintain the stations readiness.

## Neighborhood Emergency Preparedness Groups (NPREP)<sup>16</sup>

### **Emergency Preparedness**

#### **The Intent**

A community's level of self-reliance and resilience is never more apparent—and critical—than when disaster strikes. This is true whether the disaster is an earthquake, a power outage or an economic collapse. While the activities of all Local 20/20 Action Groups enhance our ability to adapt to such an event, the Neighborhood Preparedness (NPREP) Action Group focuses on the particular needs that arise from a sudden plunge into radically different circumstances. We do this by assisting area residents through education and by example to become self-reliant before a disaster strikes, thus enhancing resilience throughout our community as we work to recover.

#### **Projects, Past and Present**

The main focus of the NPREP Action Group is to help neighbors organize so that they may work together when a disaster occurs, thereby enhancing the safety and comfort of all in such difficult times. Working with the Jefferson County Department of Emergency Management (DEM), this effort has facilitated the self-organization of well over 100 neighborhoods since 2006. While the number of organized neighborhoods is significant, many more are needed in Jefferson County.

Such neighborhood cooperation is built on a foundation of preparedness by individual households. The NPREP Action Group helped promote a series of emergency preparedness classes presented by Heather Taraka, a course that is now available at **Get Emergency Prepared**. NPREP also worked with the Port Townsend Food Co-op to stage a store-wide special pricing and educational event, now held annually, featuring foods and supplies necessary for disaster preparedness.

Finally, all of NPREP's goals converge at the Annual All-County Picnic. The first Picnic, held in 2013, was a great success with a turnout of more than 1,000 people. The Picnic offers informational talks and booths, great music, free corn on the cob, hands-on survival techniques, and a chance for neighbors to gather as one community. People interested in organizing their own neighborhoods can meet with NPREP team members to learn about the process.

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<sup>16</sup> <http://12020.org/emergency-preparedness/>

## Opportunities to Participate

The NPREP Action Group is currently one of the most active of Local 20/20's action groups, and is working in partnership with the Jefferson County Department of Emergency Management (DEM) to strengthen pre and post-disaster collaboration between neighborhoods and the Emergency Operations Center in areas such as communication and damage assessment. We provide regular outreach events to educate the public on emergency preparedness matters and/or to recruit new neighborhood organizers. We also coordinate training opportunities for our organizers and house ad hoc projects, such as the development of a plan for post-disaster sanitation.

### Contact:

NPREP@L2020.org

Source: [l2020.org/emergency-preparedness](http://l2020.org/emergency-preparedness)

## ***NPREP - Coordination Issues***

**Uneven Levels of Commitment:** With over 100 neighborhood emergency groups, there are a wide variety of knowledge, commitment, and persistence. The success of any given group can be a function of the neighborhood leadership in pulling together a group and developing an “institutional” commitment so that the group doesn't dissipate if a key member leaves.

**Communication Protocols:** Communication within a neighborhood, among neighborhoods, and with the Emergency Operations Center are still early in their development. Some neighborhoods are large enough to support a communications unit, while others are dependent on individuals that have taken the initiative to get an amateur radio license or familiarity with FRS radios.

**EOC Usage Protocols:** It is clear that having communications with the NPREP groups can help the EOC develop situational awareness during an emergency. How to do this is at an early stage of development and, as with the levels of commitment, there are significant differences in neighborhoods ability to respond – even under routine circumstances. There is also a need to get the EOC procedures defined for handling the information coming into the EOC from this route in addition to its normal sources such as JeffCom.

## Port Townsend Paper<sup>17</sup>

CEO: Steve Klinger



### Port Townsend Paper Mission

Port Townsend Paper Corporation's mission is to be the answer to our customers' need for fiber-based packaging. To accomplish this goal, we have dramatically increased our productivity, established a long-term, stable fiber supply, and refocused on important markets in North America.

### Customer Base

Port Townsend Paper is committed to our customers, to whom we sell unbleached kraft pulp, jumbo roll kraft paper, and kraft linerboard. We have more than 380 customers in over 15 countries worldwide, with the largest concentration of our customers in North America and Asia. Our focus in North America is on selling to converters of kraft jumbo rolls. The mill sells almost 100% of its pulp overseas and thousands of tons of kraft paper grades and linerboard annually.

Customers range from family-owned converters that sell their products within a local region to huge international companies. A small customer may purchase 45,000 pounds (one truckload) of paper per month, while a large customer may require 1 to 2.5 million pounds of paper or pulp per month. Ongoing customer relationships account for much of our business, but continued success is based on providing the products customers need on a timely basis and at a competitive price.

### Logistics

To meet the needs of our customers and to keep up with production, we operate and ship 24 hours a day each day of the year. In an average month, more than 800 trucks are loaded at the mill, along with an occasional barge. Since Port Townsend last had rail service in 1988, any shipments requiring boxcars are trucked to Tacoma and transferred to rail cars.

Raw materials include wood chips and old corrugated cardboard (OCC). Almost 2,000 trucks and 10-15 barges a month deliver the chips from the Olympic Peninsula and other locations, and more than 300 trucks bring OCC for our recycling plant. For efficiency and pollution reduction, we reload as many of these trucks as possible with outbound product.

### Community Involvement

Port Townsend Paper Corporation contributes more to the community than the \$27 million it puts into the local economy. Many mill employees are personally involved in the community.

Port Townsend Paper makes a 50% match to its employees' considerable contributions to [United Good Neighbors \(UGN\)](#), a local service organization. The mill's contribution to UGN is a long-standing tradition and a point of pride.

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<sup>17</sup> <http://www.ptpc.com/>

Education has always been a mill priority too. The company often participates in internship programs, offers scholarships, and provides tours and educational programs to school children. The mill also works with educational organizations like [Centrum](#).

Our involvement with our local [Port Townsend Marine Science Center](#) has included a longstanding membership on the Board of Directors, yearly sponsorship for a college intern, and a donation toward the capital project for upgrade and expansion of their educational facility. We support other local community projects such as the new [Northwest Maritime Center](#) and the [Larry Scott Memorial Trail](#), through donations and expertise.

Port Townsend Paper maintains active memberships on teams that address local environmental issues such as the [Solid Waste Advisory Council](#) and the Emergency Preparedness Council. We provide specialized safety training to our employees, local emergency response teams and to the general public. In fact, mill employees constitute a large portion of volunteer emergency crews in Jefferson County.

The Company participates in many other groups and on many other projects that support community businesses, economics, education, and youth activities. Among these are the School Board, coaching for local youth athletic teams, the Economic Development Council, [Habitat for Humanity](#), [Chamber of Commerce](#), and the [Peninsula College Foundation](#).

### ***Port Townsend Paper - Coordination Issues***

**Drought:** Port Townsend Paper is one of the few businesses directly impacted by drought conditions in the County. During severe drought they have curtailed operations to assure adequate water supplies for the population.

**Wildfire:** The perimeter of the Port Townsend Paper is either waterfront or rural with a heavy interlacing of urban wilderness. In addition, mountains of wood chips are stored on site in the open as raw material for the paper making process. Port Townsend Paper coordinates with multiple fire districts to respond in the case of either structural or wildfire situations in and about their facilities.

**Earthquake, Flood, and Tsunami:** Port Townsend Paper is built in a flood, tsunami and seismic hazard area. The characteristics that make this location vulnerable happen to be the characteristics that made it a desirable place for the paper plant in 1927.

**Water Shortage:** Port Townsend Paper is one of the few businesses directly impacted by low water tables and growth in the Jefferson County area. In 2009, the lake supplying water to the region got down to a 20-day supply. Port Townsend Paper has agreements that it will stop operations when the water level reaches a 15-day supply, thus protecting the area's water supply but hurting its economy.

## Propane Providers

Port Townsend and Jefferson County do not have a natural gas provider. Consequently, heating and cooking are done with wood, electricity, or propane. The primary providers are Cenex, Ferrellgas, Suburban Propane, Mountain Propane, Sunshine Propane, and Propane Northwest, Inc., whose combined service area is shown in the map below.



### **Propane Providers - Coordination Issues**

**Earthquake:** Our nightmare scenario is a Magnitude 7 or higher earthquake that detaches 1000 propane tanks from their moorings and starts explosions and fires everywhere. Simulations have shown that a magnitude-7 earthquake centered on the Whidbey Island Fault would devastate Quimper Peninsula, where the majority of Jefferson County’s population is. There is no question that we will eventually be hit with a large earthquake; the only question is when.

Partnering with the local propane providers to educate consumers about building codes related to propane tanks, and earthquake resistant set-ups for tanks will help reduce the effects when “the big one” becomes a reality.

Two large and damaging explosions recently took place in the central Puget Sound; one a propane tank explosion in a home in Port Orchard on Feb. 23, 2016 resulted in two fatalities. The other was a natural gas explosion in the Greenwood district of Seattle on Mar. 9, 2016. Both explosions were widely heard and also reported by some as feeling like an earthquake.<sup>18</sup>

<sup>18</sup> “Explosion “Earthquake”, PNSN Blog, Pacific Northwest Seismic Network, by Steve Malone, March 10, 2016.



## Sequim School District No. 323<sup>19</sup> (Clallam / Jefferson)

### **Our Mission:**

On behalf of the Sequim Community the **School District shall inspire and achieve excellence in the academic, creative, and physical potential of each student.**

### **Contact:**

503 N. Sequim Ave.  
Sequim, WA 98382  
Office hours: 7:30am - 4:30pm

Phone: 360-582-3260  
Fax: 360-683-6303

### **Sequim School District Boundaries**

The boundary to the west off of Highway 101 is Blue Mountain Road. Anything west of Blue Mountain Road is the Port Angeles School District.

Off of Old Olympic Highway, Gasman Road is the boundary that begins Port Angeles School District. East of Gasman Road is Sequim School District.

The east end of our boundary goes all the way to Diamond Point, even though it actually sits in Jefferson County. The portion of the Sequim School District that is in Jefferson County is labeled SD323 and is shown in orange on the map below.



<sup>19</sup> <http://www.sequimschools.wednet.edu/>



## ***Sequim School District 323 - Coordination Issues***

**Localized Emergencies.:** It is possible to have an event that is localized to the Jefferson County portion of the District and vice versa. This has the potential to create confusion when trying to resolve an ongoing situation.

## U.S. Coast Guard - Port Townsend<sup>20</sup>

**Established:** The [13<sup>th</sup> Coast Guard District](#) commissioned the U.S. Coast Guard Cutter Osprey, the first [87-foot](#) cutter for the District, on June 19, 1999, at Union Warf Pier in Port Townsend, Wash. The 87-foot cutter, built by Bollinger Shipyard, in Lockport, La., is the first to arrive in the Northwest, replacing the [82-foot](#) Point Class Patrol Boats. The cutter brings with it money and timesaving technology such as updated bridge radar and controls, and more safety features including the rear~ deploying small boat. The Osprey also has the capability to support a co-ed crew. The aluminum superstructure and steel hull and main deck are designed for a 25-year service life. The new design has several enhancements over the aging 82-foot patrol boats that it is replacing. Improvements include stability in open ocean (up to 8~ foot seas), significantly upgraded habitability (allowing for a mixed-gender, 10-person crew with 11 berths max), 25~ knot maximum speed, and compliance with all current and projected environmental protection laws. The 87-footer employs an innovative stern launch and recovery system using an aluminum-hulled inboard diesel-powered water jet small boat.

The ship's vastly larger pilothouse is equipped with an integrated bridge system including an electronic chart display information system, which interfaces with the Coast Guard's new surface search radar.

**Accomplished Operations:** Law enforcement, search and rescue, marine environmental response, recreational boating safety enforcement and military readiness. The Osprey was the lead Coast Guard asset in a recent cocaine seizure from the motor vessel Western Wind in February 2000. This was the largest seizure of cocaine in the Northwest, 2.5 tons with a street value of more than \$200 million.



The Thirteenth Coast Guard District Public Affairs Office (ipa) created this page on January 25, 1999 and last modified it April 22, 2003. This page may be reproduced locally. If any changes are needed please notify D13 (ipa) at 206.220.7237. More Coast Guard information can be accessed at <http://www.uscg.mil> and a complete list of these fact sheets is at <http://www.uscg.mil/d13>.

<sup>20</sup> [www.uscg.mil/d13/docs/factsheets/uscgc\\_osprey.pdf](http://www.uscg.mil/d13/docs/factsheets/uscgc_osprey.pdf)

## ***USCG - Coordination Issues***

**Law Enforcement and Fire:** Heightened patrol requirements mean that the Coast Guard contingent is not always available for search and recovery within the Port Townsend Bay. The Sheriff's Department Marine Patrol and the Port Townsend Fire Department are working to coordinate efforts. Depending on availability, the Coast Guard may assume incident command, but the fire department in particular is the only unit in the bay with a waterborne firefighting capability.

Law Enforcement and Fire may have roles to play at sea in conjunction with the Coast Guard during the aftermath of severe local storms or tsunamis. PTFD also provides assistance during oil spills or events that may threaten an ecological disaster.

**Terrorist:** A seaborne terrorist event would undoubtedly result in a response of the Navy, Coast Guard, and appropriate elements of local law and fire departments. The nature of the incident would determine the roles.

## U.S. Naval Magazine - Indian Island<sup>21</sup>

Commanding Officer: Cmdr. Nicholas Vande Griend

Naval Magazine Indian Island (NAVMAG II) officially joined the four major US Navy installations of Navy Region Northwest during a brief ceremony on April 27<sup>th</sup>, 2000. The 2,716-acre facility reports directly to the Navy Region Northwest Commander.

Indian Island is approximately five miles long and oriented on a north-south axis between Marrowstone Island and the mainland of the Quimper Peninsula, between the waters of Port Townsend and Kilisut Harbor.

The NAVMAG II mission is to provide ordnance operations support including the receipt, storage, inspection and issue of naval ordnance. Staffing levels of active duty members, civil service and contract employees remains static and Navy Region Northwest tugs provide docking evolution support to vessels berthed at the wharf.

The Ammunition Wharf is located on the extreme northwest part of the island at approximately 48°04'30"N 122°45'00"W. The pier is the primary maritime facility of NAVMAG II and is large enough to accommodate a Nimitz class aircraft carrier (1,040 ft. long/91,487 to 96,358 tons). The pier is 1,500 ft. (457 m) long. Alongside depths at the wharf are 50 ft. (15.2 m) or more.

Three mooring buoys are located south of the south end of the ammunition pier and are utilized as moorage for moorage floats, USN Ship Training, and foul weather anchorages. The Explosive Anchorages listed on Chart 18464 are no longer utilized.

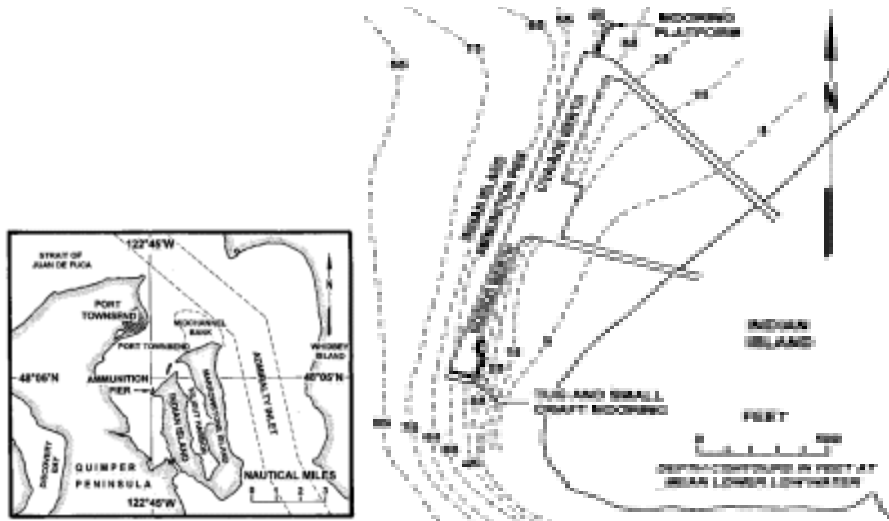
United States Coast Pilot 7 mentions a "usual" anchorage of unspecified holding quality about 0.5 to 0.7 nmi south of the "railroad ferry terminal" at Port Townsend, on a muddy bottom in depths of 48 to 60 ft (14.6 to 18.3 m). The location would place the anchorage approximately 1.4 nmi north-northwest of the NAVMAG II Pier. The same document states that in southerly gales, better anchorage is afforded close inshore off the north end of Marrowstone Island or near the head of the bay on a muddy bottom in "moderate depths."

Because of its protected location on Port Townsend Bay, wave motion is not an issue at the wharf and currents are not a significant problem. Prevailing currents within Port Townsend bay north of the wharf are circular, and may set clockwise or counter-clockwise, depending on wind flow and the tide. Harbor pilots who service ships at the wharf, state that ebb tides cause strong currents in Admiralty Inlet. Because of the relatively narrow entrance channel, ships destined for the wharf must keep at least 10 kt steerageway until well west of a line between Point Wilson and Marrowstone Point. A strong north-setting current passes west of Indian Island through Port Townsend Canal (between Indian Island and the mainland of the Quimper Peninsula) during an ebb tide, but the waters of Port Townsend bay, largely diffuse it before it reaches the wharf.

Strong southerly winds are the primary hazard for wharf is strong southerly winds that move north around both sides of Indian Island, reaching the pier as south southeasterly. Arriving ships normally approach the pier in a wide, counterclockwise turn, and moor starboard side to the pier

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<sup>21</sup> [http://www.mybaseguide.com/navy/14-550/nb\\_kitsap\\_naval\\_magazine\\_indian\\_island](http://www.mybaseguide.com/navy/14-550/nb_kitsap_naval_magazine_indian_island)



### ***Naval Magazine Indian Island - Coordination Issues***

**Law Enforcement and Fire:** NAVMAG II has internal security and fire department to respond to on-base incidents. Personnel work closely with Jefferson County authorities to facilitate mutual understanding of the hazards on the naval base and conduct joint drills with local agencies at least semi-annually. Depending on its nature, a hazardous material incident could involve local and state agency response and support, affecting communities close to the base. No large quantities of regulated hazardous material are stored or used at NAVMAG II and the base environmental department ensures all regulated hazardous waste is removed from the facility within 90 days as prescribed by the Washington State Department of Ecology permit.

## Washington Department of Ecology<sup>22</sup>

The Washington State Department of Ecology has ten programs to oversee and preserve the quality of Washington life. Each has its own mission statement:

### AIR QUALITY

Mission: To protect, preserve, and enhance the air quality of Washington to safeguard public health and the environment and support high quality of life for current and future generations.

### ENVIRONMENTAL ASSESSMENT

Mission: To measure, assess, and communicate environmental conditions in Washington State.

### HAZARDOUS WASTE AND TOXICS REDUCTION

Mission: To foster sustainability, prevent pollution and promote safe waste management.

### NUCLEAR WASTE

Mission: To lead the effective and efficient cleanup of the U.S. Department of Energy's Hanford Site, ensure sound management of mixed hazardous wastes in Washington, and protect the state's air, water, and land at and adjacent to the Hanford Site.

### SHORELANDS AND ENVIRONMENTAL ASSISTANCE

Mission: To work in partnership with communities to support healthy watersheds and promote statewide environmental interests. Includes Coastal Zone Management (CZM), Federal Permitting (including 401 Water Quality Certification), Floodplain Management, Ocean Management, Padilla Bay National Estuarine Research Reserve, Shoreline Management, State Environmental Policy Act (SEPA), Washington Conservation Corps (WCC), and Wetlands.

### SPILL PREVENTION, PREPAREDNESS, AND RESPONSE

Mission: To protect Washington's environment, public health, and safety through a comprehensive spill prevention, preparedness, and response program.

### TOXICS CLEANUP

Mission: To protect human health and the environment for the people of Washington by preventing, reducing, or eliminating exposure to contamination to support the development of environmentally and economically sustainable communities. (Includes Sediment Management and Underground Storage Tanks.)

### WASTE 2 RESOURCES

Mission: To reduce the amount and the effects of wastes generated in Washington State. Includes the Industrial Section.

### WATER QUALITY

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<sup>22</sup> <http://www.ecy.wa.gov/>

Mission: To protect and restore Washington's waters.

### **WATER RESOURCES**

Mission: To manage water resources to meet the current and future needs of the natural environment and Washington's communities. Includes Water Well Log Report Search and Viewer.

Also see the Office of the Columbia River.

### ***WA Department of Ecology - Coordination Issues***

**Overlapping Jurisdictions:** In the course of a significant event, multiple jurisdictions may have to be notified. For example, a significant oil spill on a body of water requires notification of the Washington Department of Ecology and possibly the USCG, depending on what body of water it is.

## Washington Department of Fish and Wildlife<sup>23</sup>

The Washington Department of Fish and Wildlife's mandate is to protect and enhance fish and wildlife and their habitats and provide sustainable, fish and wildlife related recreational and commercial opportunities. RCW Title 77 defines the Department's regulatory authority over the management of species (e.g., hunting and fishing rules, scientific collection permits, bald eagle management). The Department's Hydraulic Project Approval program regulates construction or performance of work that will use, divert, obstruct, or change the natural flow or bed of any of the salt or freshwaters of the state.

The Department also provides technical assistance, science, and support to local governments and state agencies that share responsibility for fish and wildlife habitat protection and recovery. This includes, but is not limited to, work with city and county governments under the Growth Management Act and Shoreline Management Act related to planning, designation and protection of fish and wildlife habitat; assistance to local groups implementing salmon recovery plans; review of development proposals with potential habitat impacts; and review of timber harvest planning and forest practices.

At the local level, WDFW's advisory role in protecting fish and wildlife habitat owned by private citizens is set forth in GMA, State Environmental Policy Act (SEPA) and the Shoreline Management Act. Through these legislative acts, WDFW may provide comments on the accuracy of environmental documents and offer recommendations to reduce impacts of development on wildlife habitat. It is up to the city or county government to incorporate these comments and recommendations in their permits and planning activities, and WDFW's counsel may be modified or rejected by the local government.

Because over half of the land base in Washington State is privately owned, decisions made by local governments regarding land use planning and development, including the management of potential natural hazards, significantly affect fish and wildlife and their habitats. For that reason, WDFW is a coordinating entity with expertise to lend to local planning.

### ***Fish and Wildlife - Coordination Issues***

**Flood, Severe Local Weather and Ecologically Sensitive Areas:** WDFW coordinates with the Jefferson County Public Works and special districts and jurisdictions which need to take fish and wildlife resources into account when proposing flood control and related mitigation activities. An example is the Duckabush and Dosewallips Comprehensive Flood Hazard Management Plan, involving WDFW, Jefferson County Public Works, and other local, state, federal, and tribal entities.

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<sup>23</sup> <http://wdfw.wa.gov/>



## Washington Department of Natural Resources<sup>24</sup>

In 1957, the legislature created the Department of Natural Resources (DNR) to manage state trust lands for the people of Washington. Under the elected leadership of the Commissioner of Public Lands, DNR manages seven specific trusts to generate revenue and preserve forests, water, and habitat. DNR now manages 5.6 million acres of forest, range, agricultural, aquatic, and commercial lands for more than \$200 million in annual financial benefit for public schools, state institutions, and county services.

**Our mission:** In partnership with citizens and governments, the Washington State DNR provides innovative leadership and expertise to ensure environmental protection, public safety, perpetual funding for schools and communities, and a rich quality of life.

In today's firefighting in rural and forested areas of the state, traditional boundaries between those fighting wildfires and those battling structural fires give way to the common need to help one another. The Department of Natural Resources has established programs to assist Fire Protection Districts.

- [Federal Excess Property Program](#)
- [State Surplus Sales](#)
- [Combined Fire District Assistance Grants](#)

Maintaining the [health and vitality of Washington forest](#) land is a serious issue. Each year, in Eastern Washington, 13 percent of the forest's potential annual growth is lost to diseases. More than 1,000 [earthquakes](#) occur in the state annually. Washington has a record of at least 20 damaging earthquakes during the past 125 years.

### [Volcanoes](#)

The Pacific Coast of Washington is at risk from [tsunamis](#). Coastal or submarine landslides or volcanism can cause these destructive waves, but large submarine earthquakes most commonly cause them.

## ***Department of Natural Resources - Coordination Issues***

**Interoperability:** DNR and the Jefferson County and Port Townsend fire districts frequently support each other on wildland fires. A DNR representative attends the East Jefferson County Chiefs Association meetings to facilitate cooperation at policy levels. Interoperability of equipment and procedures has been a key issue that the DNR and fire districts are working on to improve both the capabilities and the safety of the firefighter in the field.

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<sup>24</sup> <http://www.dnr.wa.gov/>

## Washington State Department of Transportation<sup>25</sup> (WSDOT)

The Washington State Department of Transportation is the steward of a multimodal transportation system and responsible for ensuring that people and goods move safely and efficiently. In addition to building, maintaining, and operating the state highway system, WSDOT is responsible for the state ferry system, and works in partnership with others to maintain and improve local roads, railroads and airports, as well as to support alternatives to driving, such as public transportation, bicycles and pedestrian programs.

### **Mission Statement**

The mission of WSDOT is to keep people and business moving by operating and improving the state's transportation systems vital to our taxpayers and communities.

### **WSDOT management principles:**

#### **Leadership**

We are committed that WSDOT provide strategic vision and leadership for our state's transportation needs.

#### **Delivery and Accountability**

We shall manage the resources taxpayers and the legislature entrusted to us for the highest possible return on value. We shall be disciplined in our use of both time and money. We shall account for our achievements, our shortcomings and our challenges to citizens, to elected officials, and to other public agencies.

#### **Business Practices**

We shall encourage progressive business management practices in delivering cost effective and efficient transportation services. Our quest for short-term cost savings and business process improvement shall be balanced by the long term need to preserve and improve the state's transportation systems through sound fiscal planning and asset management.

#### **Safety**

Concern for the health and safety of the people who use and work on our transportation facilities shall be a paramount value in every area of our business.

#### **Environmental Responsibility**

Our work shall incorporate the principles of environmental protection and stewardship into the day-to-day operations of the department as well as the on-going development of the state's transportation facilities.

#### **Excellence and Integrity**

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<sup>25</sup> <http://www.wsdot.wa.gov/>

Our employees shall work in a culture of workplace excellence and diversity that encourages creativity and personal responsibility, values teamwork, and always respects the contributions of one another and of those with whom we do business. We shall adhere to the highest standards of courtesy, integrity and ethical conduct. We shall encourage and recognize our employees' professionalism and their career growth.

### **Communications**

We shall stress the importance of sharing clear, concise and timely information with WSDOT employees, elected officials, community leaders, businesses, citizens and taxpayers, others in the transportation community, with the press and other media. We shall strive for the effectiveness of all our employees in meeting WSDOT's communications standards.

## ***Department of Transportation - Coordination Issues***

**Survivability of Transportation to Jefferson County:** Jefferson County is on a peninsula, but its primary supply routes make it feel like an island: two of the three major transportation links, the Ferry System and the Hood Canal Bridge, cross water. Both the ferry system and the Hood Canal Bridge are susceptible to severe winter storms, tsunamis, and earthquakes. The photo below shows the 1973 storm that destroyed a section of the Hood Canal Bridge.



An earthquake – tsunami combination could take out all of the major transportation routes into Jefferson County, resulting in the County needing to be self-sufficient for many days, and then to be supplemented by emergency transportation assistance.

## Washington Military Department Emergency Management Division<sup>26</sup>

The mission of the Washington Military Department’s Emergency Management Division (EMD) is to minimize the impact of emergencies and disasters on the people, property, environment, and economy of Washington State.

The Division notifies and alerts state agencies and local governments of impending emergencies and disasters. During state emergencies, EMD manages the State Emergency Operations Center located on Camp Murray, near Tacoma, and coordinates the response to ensure help is provided to those who need it quickly and effectively. The EOC is designated as the central location for information gathering, disaster analysis, and response coordination. Other state agencies with emergency roles may come to the EOC to help coordinate the state response. Federal government agencies, along with state and local volunteer organizations, also may provide representatives.

At the EOC, information gathered is used by executives to make decisions concerning emergency actions and to identify and prioritize the use of state resources needed to respond to the emergency. The EOC may issue emergency warnings or disseminate critical information and instructions to government personnel and the public who may need to take emergency protective actions.

### ***Emergency Management Division - Coordination Issues***

**Activation Protocols:** The Jefferson County Emergency Operations Center has a policy of “leaning forward” when events are predictable, e.g a severe windstorm predicted a day ahead of time. It will activate before the storm hits with an appropriate level of staffing based on weather predictions.

In the past, at times like this, the State EOC is manned by a Duty Watch Officer (DWO). When a storm or other event hits multiple counties, the response time from the State EOC may be impacted between the time the DWO starts handling multiple requests and the time additional staffing can be mustered to deal with a growing event.

**WebEOC Availability:** Jefferson County is becoming adept at using WebEOC, particularly to facilitate communications when under Area Command. During the windstorm event named locally by JCDEM as “16 Charlie”, WebEOC was taken off line by the State EOC so that it would not be corrupted while the change-over was made to emergency power. This impacted Jefferson County’s ability to document, disseminate and coordinate operations among fire districts and the PUD under Area Command.

**Logistics Coordination:** There are Indian tribes within Jefferson County that have the legal right to go straight to the State for logistics. In the past, there have been instances when resources requests were made directly to the State, but the tribe called Jefferson County to find out where their stuff was. The

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<sup>26</sup> <http://mil.wa.gov/emergency-management-division/emd-about-us>

WebEOC Logistics page is supposed to allow the County to track resource orders, but we have to know about them before we will track them

**Logistics Bottleneck:** During a major event, it is likely that the State EOC Logistics person will be overwhelmed by requests from multiple jurisdictions. This has the potential to create significant bottlenecks at a critical time.

## Washington State Patrol<sup>27</sup>

The WSP is a professional law enforcement agency made up of dedicated professionals who work hard to improve the quality of life of our citizens and prevent the unnecessary loss of life on a daily basis. We will continue to work aggressively to enforce laws around the state while protecting the people of Washington from injury and grief.

The 600 or so troopers patrolling the highways every day are the most visible part of this agency, but there are also over 1,000 civilian employees who are less visible and just as important. They include those who work for the State Fire Marshal to help prevent fires in the home or workplace; those who work as technicians and scientists in our crime labs processing DNA samples to help prosecute criminal cases; and they include investigative support staff who maintain our criminal records and databases so that sex offenders don't end up working with children.

Keeping our state safe is a huge job, even with our commissioned and civilian staff. That is why we routinely partner with other law enforcement, traffic safety, and criminal justice agencies to provide the highest quality of service to the citizens of this state.

Locally, approximately 18 troopers and 2 sergeants are assigned across the North Olympic Peninsula to cover all of Jefferson and Clallam Counties with a detachment office along SR 101 just east of Port Angeles.

### ***Washington State Patrol - Coordination Issues***

**Communications Interoperability:** Communications is a significant challenge in the Olympic Peninsula because of geographical considerations with the rugged Olympic Mountains and the Strait of Juan de Fuca. Dealing with a host of agencies all working on different radio platforms continues to hamper effective multi-agency response to incidents.

**WSP Staffing:** During a major event, the WSP will have a significant role in maintaining the viability of State Highways. Having sufficient staff to provide liaison with county emergency departments and the State while keeping control of the State highway system will be of paramount importance. Yet, due to a combination of economic and sociologic issues, it is very difficult to recruit officers for the WSP in 2016. This has the potential to severely hamper response and recovery during regional disaster events requiring a police presence.

**WSP Response Time:** Jefferson County and the City of Port Townsend do not have the resources to maintain a “full function” police department or sheriff's office. Thus, neither has a crime lab or bomb squad or an armored vehicle, etc. As a result, in a major law incident that requires a more esoteric response, they rely on the resources of the WSP.

In 2016, for example, a school worker found an old pipe bomb in his school building and carried it to the police station in Port Townsend. This resulted in the evacuation of the police station and the other agencies resident in the building used by the PTPD, e.g. the food bank, the Red Cross, and KPTZ FM radio. The city police called in the WSP Bomb Squad to take possession of the pipe bomb and detonate

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<sup>27</sup> <http://www.wsp.wa.gov/>

it – but even with a team ready-to-go, it takes the bomb squad 2 – 3 hours to get to Port Townsend from its home base.

There is no good fix for this. It is not economically feasible to have a bomb squad, etc. stationed in every town and city that could have a problem. In a really extreme situation, a small unit such as the bomb squad could be airlifted to the incident by helicopter – but even this is expensive and would not always be a viable solution.

The best that can be done is to have good communications among agencies and established contingency plans for rapid deployment of needed assets during a major incident. For example, the State Ferry System is considered part of Washington’s highway system. In an incident, such as a bomb found on board while at the Port Townsend dock, both the WSP and the USCG could have overlapping jurisdiction, along with coordination needed with the city police. It is best to have easily recognized scenarios preplanned for, rather than attempting to establish responsibilities at the time of the incident.

# **SECTION VII**

## **Appendices**



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## **APPENDICES**

<b>Appendix A</b>	<b>Acronyms</b>
<b>Appendix B</b>	<b>Contact Points &amp; Contributors</b>
<b>Appendix C</b>	<b>Endnotes</b> (Moved to behind each topic.)
<b>Appendix D</b>	<b>Frequently Asked Questions</b>
<b>Appendix E</b>	<b>Resources</b>
<b>Appendix F</b>	<b>Adoption Resolutions</b>
<b>Appendix G</b>	<b>Public Participation Documentation</b>

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## Appendix A – Acronyms

### Acronyms

<i>Acronym</i>	<i>Description</i>
A.D.*	Anno Domini - in the Christian era; used before dates after the supposed year Christ was born; "in AD 200"
AHAB*	All Hazard Alert Broadcast (Tsunami Warning System)
AMOC*	Atlantic Meridional Overturning Circulation
APSAP*	Alternate Public Safety Access Point
AV*	Avalanche
BCA	Benefit/Cost Analysis
BOCC*	Board of County Commissioners
BPA*	Bonneville Power Administration
BR*	Bankruptcy
BFD*	Brinnon Fire Department (JCFD4)
CCFD1*	Clallam County Fire District No. 1
CCFD3*	Clallam County Fire District No. 3
CFR	Code of Federal Regulations
CME*	Coronal Massive Ejection
CRS	Community Rating System
CRX*	Cascade Rising Exercise (Multi-State, Multi-agency, Cascadia Subduction Zone Event Exercise)
CWOP*	Closed Without Paying
DCD	Jefferson County Department of Community Development
DEM	Jefferson County Department of Emergency Management
DR*	Emergency Declaration or Drought, depending on context.
DSD	Port Townsend Developmental Services Department
DBVFD*	Discovery Bay Volunteer Fire Department (JCFD5)
DW*	Damaging Wind
DWO*	Duty Watch Officer
ECY*	Ecology
EJFR*	East Jefferson Fire & Rescue (JCFD1)
EMD*	Emergency Management Division
EOC*	Emergency Operations Center
EQ	Earthquake
FEMA	Federal Emergency Management Agency
FL	Flood
FS	Fire Suppression Declaration
Ga*	Billion Years
GIS	Geographic Information Systems
GMA	Growth Management Act
HAZMAT*	Hazardous Material
HAZMIT*	Hazard Mitigation
HEMP*	High Altitude Electromagnetic Pulse

<i>Acronym</i>	<i>Description</i>
HIVA	Hazard Identification and Vulnerability Assessment
HRI*	Heat Related Illness
IPCC*	Intergovernmental Panel on Climate Change
ISIS*	Islamic State in Iraq and Syria
JARC	Job Access Reverse Commute
JC	Jefferson County
JCC*	Jefferson County Code
JCDEM*	Jefferson County Department of Emergency Management
JCFD1*	Jefferson County Fire District No. 1 (East Jefferson Fire & Rescue)
JCFD2*	Jefferson County Fire District No. 2 (Quilcene Volunteer Fire Dept)
JCFD3*	Jefferson County Fire District No. 3 (Port Ludlow Fire & Rescue)
JCFD4*	Jefferson County Fire District No. 4 (Brinnon Volunteer Fire Dept)
JCFD5*	Jefferson County Fire District No. 5 (Discovery Bay / Gardiner)
JCFD6*	Jefferson County Fire District No. 6 (Cape George – annexed by JCFD1 (EJFR))
JCSO	Jefferson County Sheriff's Office
JPREP	Jefferson Peninsula Regional Emergency Planning Committee
ka*	Thousand Years
ky*	Kilo Years
LN	Landslide
LSR*	Local Storm Report
LT	Long-Term
Ma*	Million Years
MET*	The Met Office is the UK's National Meteorological Service.
MGD*	Million Gallons Per Day
NAVMAG II	Naval Magazine – Indian Island
NCDC*	National Climatic Data Center
NFIP	National Flood Insurance Program
nmi*	Nautical Mile
NOAA*	National Oceanic and Atmospheric Administration
NOPRCD*	North Olympic Peninsula Resource Conservation & Development
NPREP*	Neighborhood Preparedness (Action Groups)
OCEAN*	OCEAN stands for Opportunity, Community, Experience, Academics, Navigation, an alternative program.
OG	Ongoing
OGWS*	Olympic Gravity Water System
OPEPO*	OPEPO is a 1st-5th grade alternative multi-age program within the Port Townsend Public School District, where students work cooperatively with two teacher / facilitators.
OPS-CAN*	Olympic Public Safety Communications Alliance Network
PLFR	Port Ludlow Fire – Rescue (JCFD3)
PSAP*	Public Safety Access Point
PSP*	Paralytic Shellfish Poisoning
PT	Port Townsend
PUD*	Public Utility District
PW	Public Works
PTFD	Port Townsend Fire Department
PTMC*	Port Townsend Municipal Code

<b><i>Acronym</i></b>	<b><i>Description</i></b>
PTPD	Port Townsend Police Department
QFR*	Quilcene Fire & Rescue (JCFD2)
RL*	Repetitive Loss
SCADA	Supervisory Control and Data Acquisition
SD	School District
SO	Sheriff's Office
SORCE*	SOLar Radiation and Climate Experiment
SPC*	Storm Prediction Center
SRL*	Severe Repetitive Loss
ST	Short-Term
THC*	Thermohaline Circulation
TS	Tsunami
VO	Volcano
VSOP*	VSOP (planets) or <i>Variations séculaires des orbites planétaires</i> , mathematical theories for the calculation of the orbits and the positions of the planets
UK*	United Kingdom (Great Britain)
USCG*	United States Coast Guard
WebEOC*	WebEOC is the name of a software package run by the State to allow documentation of and communication with County EOC's during activations.
WRIA*	Water Resource Inventory Area
WS*	Winter Storm
WSAC*	Washington State Association of Counties
WSDNR*	Washington State Department of Natural Resources
WSDOT*	Washington State Department of Transportation
WSECY*	Washington State Department of Ecology
WSP*	Washington State Patrol
WUI*	Wildland Urban Interface
WWRHCC*	Western Washington Rural Health Care Collaborative

\*Entry has been added or updated in the 2016 Revision.

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## Appendix B

### Contact Points & Contributors



## Contact Points

### Jefferson County

MAILING ADDRESS:

Lynn Sterbenz  
Director  
Jefferson County Department of Emergency Management  
81 Elkins Road  
Port Hadlock, WA 98339

TELEPHONE: (360) 385-9368  
FAX: (360) 379-0521  
E-MAIL: [lsterbenz@co.jefferson.wa.us](mailto:lsterbenz@co.jefferson.wa.us)

### City of Port Townsend

MAILING ADDRESS:

Michael Evans  
Police Chief  
Port Townsend Police Department  
City of Port Townsend  
2520 Blaine St, Ste 100  
Port Townsend, WA 98368

TELEPHONE: (360) 385-2322  
FAX: (360) 379-4438  
E-MAIL: [mevans@cityofpt.us](mailto:mevans@cityofpt.us)

**Jefferson County – City of Port Townsend  
All Hazard Mitigation Plan Participants  
(Stakeholders)**

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
<i>Natural Hazard Mitigation Plan Steering Committee</i>						
1.	Jefferson County Dept. of Emergency Management 81 Elkins Road Port Hadlock, WA 98338 bhamlin@co.jefferson.wa.us	Lynn Sterbenz Director	360.385.9368		Steering Committee Member	Plan Sponsor; Plan Writer
2.	Jefferson County Dept. of Emergency Management 81 Elkins Road Port Hadlock, WA 98338 bhamlin@co.jefferson.wa.us	Bob Hamlin Director	360.385.9368	(Retired 12/31/2016)	Steering Committee Member	Plan Sponsor; Plan Writer
3.	Jefferson County Dept. of Emergency Management 81 Elkins Road Port Hadlock, WA 98338 kkeplinger@co.jefferson.wa.us	Keppie Keplinger Deputy Program Manager	360.385-9368	(Retired 09/30/2016)	Steering Committee Member	Plan Sponsor; Plan Writer
4.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 kclow@cityofpt.us	Ken Clow Director Port Townsend Public Works	360.379.5090		Steering Committee Member	Plan Direction, Provide Resources
5.	Port Townsend Police Department 1925 Blaine St Port Townsend, WA 98368 mevans@cityofpt.us	Michael Evans Chief of Police	360.385.2322		Steering Committee Member	Plan Direction, Provide Resources, Grant Liaison

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
6.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 lbailey@cityofpt.us	Lance Bailey Director Development Services Dept	360.390.4048		Steering Committee Member	Plan Direction, Provide Resources
7.	Jefferson County Dept. of Emergency Management 81 Elkins Road Port Hadlock, WA 98338 khorvath@co.jefferson.wa.us	Ken Horvath Hazard Mitigation Plan Update Project Coordinator	360.385.9368		Steering Committee Member	Plan Writer; Grant Writer
<b><i>All Hazard Mitigation Plan Advisory Group</i></b>						
8.	Jefferson County Fire District Nbr 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR) 24 Seton Road Port Townsend, WA 98368 gpomeroy@ejfr.org	Gordon Pomeroy Fire Chief	360.385-2626		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
9.	Jefferson County Fire District Nbr 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR) 40 Seton Road Port Townsend, WA 98368 tkrysinski@ejfr.org	Ted Krysinski Asst Fire Chief	360.385-2626		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
10.	Jefferson County Fire District Nbr 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR) 40 Seton Road Port Townsend, WA 98368 btracer@ejfr.org	Brian Tracer Asst Fire Chief	360.385-2626		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
11.	Jefferson County Fire District Nbr 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR) 40 Seton Road Port Townsend, WA 98368 Tysseidyke-all@ejfr.org	Terri Ysseldyke-All District Secretary	360.385-2626		Stakeholder, Advisory Grp	Facilitator – Made sure the resolution was done.
12.	Jefferson County Fire District Nbr 2 (JCFD2) Dbas Quilcene Volunteer Fire Dept (QVFD) P.O. Box 433 Quilcene, WA 98376 chief@qvfd.org	Larry Karp Fire Chief	360.765.3333		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
13.	Jefferson County Fire District Nbr 3 (JCFD3) dba Port Ludlow Fire - Rescue 7650 Oak Bay Road Port Ludlow, WA 98365 brad.martin@plfr.org	Brad Martin Fire Chief	360.437.2236		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
14.	Jefferson County Fire District Nbr 4 (JCFD4) 272 Schoolhouse Rd P.O. Box 42 Brinnon, WA 98320 tmanly@brinnonfire.org	Tim Manly Fire Chief	360.796.4450		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
15.	Jefferson County Fire District Nbr 5 (JCFD5) dba Discovery Bay Fire and Rescue 12 Bentley Pl. Port Townsend, WA 98368 wkneopfle@dbvfr.org	Willie Kneopfle Fire Chief	360.379.6839		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan

Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
16.	Port Townsend Police Department 1925 Blaine St Port Townsend, WA 98368 mevans@cityofpt.us	Michael Evans Chief of Police	360.385.2322		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
17.	City of Port Townsend – Public Works 250 Madison St Port Townsend, WA 98368 kclow@cityofpt.us	Ken Clow Director	360.379.5090		Stakeholder, Advisory Grp <b>Steering Committee</b>	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
18.	Jefferson County Public Hospital District #2 824 Sheridan St Port Townsend, WA 98368 hwhittington@jeffersonhealthcare.org	Hilary Whittington, Chief Financial Officer	360.385.2200		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
19.	Jefferson County Public Hospital District #2 824 Sheridan St Port Townsend, WA 98368 bhunt@jeffersonhealthcare.org	Bill Hunt, Emergency Manager	360.385.2200		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
20.	Jefferson County Public Hospital District #2 824 Sheridan St Port Townsend, WA 98368 eharland@jeffersonhealthcare.org	Elaina Harland	360.385.2200		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
21.	Jefferson County Public Hospital District #2 824 Sheridan St Port Townsend, WA 98368 mfeeny@jeffersonhealthcare.org	Mary Feeny	360.385.2200		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
22.	Jefferson County Library District 620 Cedar Ave Port Hadlock, WA 98339 mwagner@jclibrary.info	Meredith Wagner Director	360.385.6544		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
23.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368 samg@portofpt.com	Sam Gibboney Director	360.385.0656	(Effective 06/01/2016)	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
24.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368 larry@portofpt.com	Larry Crockett Director	360.385.0656	Retired 5/31/2016	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
25.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368 jim@portofpt.com	Jim Pivarnik Deputy Director	360.385.0656	No longer with Port of PT.	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
26.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368 snelson@portofpt.com	Sue Nelson Executive Assistant	360.385.0656		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
27.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368 eric@portofpt.com	Eric Toews Director of Planning, Properties, and Environment	360.385.0656		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
28.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368 greg@portofpt.com	Greg Englin Director of Operations	360.385.0656		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
29.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 jpolm@ptschools.org	John Polm Superintendent of Schools	360.379.4501	(Effective 7/1/2016)	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
30.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 dengle@ptschools.org	Dr. David Engle Superintendent of Schools (Retired 6/30/2016)	360.379.4501	Updated School District Emergency Plan completed June 2009.	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
31.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 btaylor@ptschools.org	Brad Taylor Director of Facilities	360.379.4501		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
32.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 <a href="mailto:pbeathard@bsd46.org">pbeathard@bsd46.org</a>	Patricia Beathard Superintendent	360.796-4646		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Action, Review Plan
33.	Chimacum School District No. 49 P.O. Box 287 Chimacum, WA 98325-0278 <a href="mailto:rick_thompson@csd49.org">rick_thompson@csd49.org</a>	Rick Thompson Superintendent	360.302.5896		Stakeholder, Advisory Grp	Plan Review & Recommend Approval

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
34.	Queets / Clearwater School District No. 20 146000 HWY 101 Forks, WA 98331 scarter@qcsd.wednet.edu	Scott M. Carter Superintendent	360.962.2395		Stakeholder, Advisory Grp	Plan Review & Recommend Approval
35.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376 wlis@qsd48.org	Wally F. Lis Superintendent	360.765.3363		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Action, Review Plan
36.	Quillayute Valley School District No. 402 P.O. Box 60 Forks, WA 98331 diana.reaume@qvschools.org	Diana Reaume Superintendent	360.374.6262		Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Action, Review Plan
37.	Jefferson Transit Authority 63 Four Corners Road Port Townsend, WA 98368 trubert@jeffersontransit.com	Tammi Rubert General Manager	360.385.4777	Opted Out in 2009, 2016.	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Action, Review Plan
38.	Public Utility District No. 1 of Jefferson County P.O. Box 929 230 Chimacum Road Port Hadlock, WA 98339 jparker@jeffpud.org	James Parker Director	360.385.5800		Stakeholder, Advisory Grp	Plan Review, Critique, and Recommend Approval
39.	Jefferson County – Dept of Community Development 621 Sheridan St Port Townsend, WA 98368	Stacie Prada Mgr – Long Range Planning	360.379.4450	Elected as county treasurer. Position now vacant. (2016)	Stakeholder, Advisory Grp	Plan Review, Critique, and Recommend Approval
40.	Jefferson County – Dept of Public Works 623 Sheridan St Port Townsend, WA 98368	Joel Peterson Associate Planner	360.385-9160		Stakeholder, Advisory Grp	Plan Review, Critique, and Recommend Approval



Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
<i>Stakeholder – Reviewers - Contributors</i>						
41.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 pmorely@co.jefferson.wa.us	Philip Morley County Administrator	360.385.9500		Stakeholder	Plan Direction, Provide Resources
42.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 pjohnson@co.jefferson.wa.us	Phil Johnson County Commissioner, District 1	360.385.9100		Stakeholder, Review & Approve	Review & Adopt Plan
43.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 dsullivan@co.jefferson.wa.us	David Sullivan County Commissioner, District 2	360.385.9100		Stakeholder, Review & Approve	Review & Adopt Plan
44.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 kkler@co.jefferson.wa.us	Kathleen Kler County Commissioner, District 3	360.385.9100		Stakeholder, Review & Approve	Review & Adopt Plan
45.	Jefferson County 623 Sheridan St Port Townsend, WA 98368 mreinders@co.jefferson.wa.us	Monte Reinders, P.E. Director Jefferson County Public Works	3385.9160	Also, County Engineer	Stakeholder, Contributor	Provide input to the Plan
46.	Jefferson County Dept. of Community Development 621 Sheridan St Port Townsend, WA 98368 dgoldsmith@co.jefferson.wa.us	David Goldsmith Interim Director of DCD	360.379.4450	Preceded Patty Charnas as Interim Director until replacement for Carl Smith found.	Stakeholder	County Planning, Plan Direction, Provide Resources
47.	Jefferson County Dept. of Community Development 621 Sheridan St Port Townsend, WA 98368	Carl Smith (Retired)		Preceded David Goldsmith as Director of DCD	Stakeholder	County Planning, Plan Direction, Provide Resources

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
48.	Jefferson County Dept. of Community Development 621 Sheridan St Port Townsend, WA 98368 pcharnas@co.jefferson.wa.us	Patty Charnas Director	360.379.4450		Stakeholder	Plan Direction, Provide Resources
49.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 treasurerstaff@co.jefferson.wa.us	Stacie Prada Jefferson County Treasurer	360.385.9150		Stakeholder, Provide Input	Provide Financial Profile of County; County Assets at risk.
50.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 racarroll@co.jefferson.wa.us	Rose Ann Carroll Jefferson County Auditor	360.385.9121 (Accounting)		Stakeholder, Provide Input	Provide elected officials contacts; political profile of County.
51.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368 jchapman@co.jefferson.wa.us	Jeff Chapman Jefferson County Assessor	360.385.9105		Stakeholder, Provide Input	Provide private assets at risk within the County.
52.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 dtimmons@cityofpt.us	David Timmons City Manager	360.379.5043		Stakeholder, Authorized Agent for City	Plan Direction, Provide Resources
53.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 dstinson@cityofpt.us	Deborah Stinson	360.379.5047		Mayor, City Council	Advise, Review & Adopt Plan
54.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 crobinson@cityofpt.us	Catharine Robinson	360.379.5047		Deputy Mayor, City Council	Advise, Review & Adopt Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
55.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 msandoval@cityofpt.us	Michelle Sandoval	360.379.5047		City Council	Advise, Review & Adopt Plan
56.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 rgray@cityofpt.us	Robert Gray	360.379.5047		City Council	Advise, Review & Adopt Plan
57.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 ahoward@cityofpt.us	Amy Howard	360.379.5047		City Council	Advise, Review & Adopt Plan
58.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 padams@cityofpt.us	Pamela Adams	360.379.5047		City Council	Advise, Review & Adopt Plan
59.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 dfaber@cityofpt.us	David Faber	360.379.5047		City Council	Advise, Review & Adopt Plan
60.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 jsanders@cityofpt.us	Joanna Sanders City Clerk	360 379-5045		City Staff, Contact	Resolution Review
61.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 sgross@cityofpt.us	Steve Gross City Attorney	360.379.5048		City Staff, Contact	Resolution Review
62.	City of Port Townsend Development Services Department 250 Madison St Port Townsend, WA 98368 lbailey@cityofpt.us	Lance Bailey Director	360.390.4048		Steering Committee Member	City Planning; Provide Resources; Review & Critique

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
63.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 jurber@cityofpt.us	Judy Surber Planning Manager	360.379.5084		City Staff, Contact	Provide City NFIP Data, Plan Review & Critique
64.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 stiffany@cityofpt.us	Sara Tiffany Grant Accountant	360.390-4115		City Staff, Contact	Manage City- side of E16-091 Grant.
65.	City of Port Townsend 250 Madison St Port Townsend, WA 98368 tjohnson@cityofpt.us	Tyler Johnson GIS Coordinator	360.390.4062			Provide cartographic support.
66.	Jefferson County – JeffCom 911 81 Elkins Road Port Hadlock, WA 98338 khatton@jcpsn.us	Karl Hattan Director	360.385.3831 x588		Stakeholder	Plan contributor, Review & Critique
67.	Jefferson County Sheriff Department 81 Elkins Road Port Hadlock, WA 98338 dstanko@co.jefferson.wa.us	David Stanko Sheriff	360.385.3831		Stakeholder	Plan contributor, Review & Critique
68.	Jefferson County Sheriff Department 81 Elkins Road Port Hadlock, WA 98338 jnole@co.jefferson.wa.us	Joe Nole Undersheriff	360.385.3831		Stakeholder	Plan contributor, Review & Critique
69.	Port Ludlow Drainage District P.O. Box 65261 Port Ludlow, WA 98365	Nancy Lockett		Gray & Osborne, Inc – Consulting Engineers	Contractor Engineer, Contact	Hazard Profile & Assessment
70.	Port Ludlow Drainage District P.O. Box 65261 Port Ludlow, WA 98365 commish@pldd.org	Dwight Wilcox			District Commissioner, Stakeholder	Review & Adopt Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
71.	Port Ludlow Drainage District P.O. Box 65261 Port Ludlow, WA 98365 commish@pldd.org	Allen Vyeda			District Commissioner, Stakeholder	Review & Adopt Plan
72.	Port Ludlow Drainage District P.O. Box 65261 Port Ludlow, WA 98365 commish@pldd.org	Jim Boyer			District Commissioner, Stakeholder	Review & Adopt Plan
73.	Port Ludlow Drainage District P.O. Box 65261 Port Ludlow, WA 98365	Sue Bartkus			District Secretary	Staff Support; Turn-around Documents
74.	Jefferson County Fire District No. 1 dba East Jefferson Fire & Rescue 35 Critter Lane Port Townsend, WA 98368	Richard A Stapf Jr.	360.385.2626		District Commissioner, Contact	Review & Adopt Plan
75.	Jefferson County Fire District No. 1 dba East Jefferson Fire & Rescue 35 Critter Lane Port Townsend, WA 98368	Zane Wyll			District Commissioner, Contact	Review & Adopt Plan
76.	Jefferson County Fire District No. 1 dba East Jefferson Fire & Rescue 35 Critter Lane Port Townsend, WA 98368	Dave Johnson			District Commissioner, Contact	Review & Adopt Plan
77.	Jefferson County Fire District No. 2 dba Quilcene Volunteer Fire Department P.O. Box 130 Quilcene, WA quilcenefire@qvfd.org	Debbie Randall	360.765.3333		District Commissioner, Contact	Review & Adopt Plan
78.	Jefferson County Fire District No. 2 dba Quilcene Volunteer Fire Department P.O. Box 130 Quilcene, WA quilcenefire@qvfd.org	Herb Beck			District Commissioner, Contact	Review & Adopt Plan

Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
79.	Jefferson County Fire District No. 2 dba Quilcene Volunteer Fire Department P.O. Box 130 Quilcene, WA quilcenefire@qvfd.org	Melody Bacchus			District Commissioner, Contact	Review & Adopt Plan
80.	Jefferson County Fire District No. 3 dba Port Ludlow Fire & Rescue 7650 Oak Bay Rd Port Ludlow, WA 98365	Bob Pontius Chairman	(360) 437-2899		District Commissioner, Contact	Review & Adopt Plan
81.	Jefferson County Fire District No. 3 dba Port Ludlow Fire & Rescue 7650 Oak Bay Rd Port Ludlow, WA 98365	Raelene Rossart Vice Chairman	(360) 437-2899		District Commissioner, Contact	Review & Adopt Plan
82.	Jefferson County Fire District No. 3 dba Port Ludlow Fire & Rescue 7650 Oak Bay Rd Port Ludlow, WA 98365	Ed Davis	(360) 437-2899		District Commissioner, Contact	Review & Adopt Plan
83.	Jefferson County Fire District No. 3 dba Port Ludlow Fire & Rescue 7650 Oak Bay Rd Port Ludlow, WA 98365	Eugene Q. Carmody, Jr	(360) 437-2899		District Commissioner, Contact	Review & Adopt Plan
84.	Jefferson County Fire District No. 3 dba Port Ludlow Fire & Rescue 7650 Oak Bay Rd Port Ludlow, WA 98365	Ron Helmonds	(360) 437-2899		District Commissioner, Contact	Review & Adopt Plan
85.	Jefferson County Fire District Nbr 4 (JCFD4)	Patrick Nicholson Fire Chief (Former)		Chief until 02/2016. Contributed initial updates to profile & hazard survey.	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
86.	Jefferson County Fire District No. 4 dba Brinnon Fire Department 272 Schoolhouse Rd Brinnon, WA 96320 rgarrison@brinnonfire.org	Ronald D. Garrison	(360) 796-4450		District Commissioner, Contact	Review & Adopt Plan
87.	Jefferson County Fire District No. 4 dba Brinnon Fire Department 272 Schoolhouse Rd Brinnon, WA 96320 kmc Edwards@brinnonfire.org	Ken McEdwards	(360) 796-4450		District Commissioner, Contact	Review & Adopt Plan
88.	Jefferson County Fire District No. 4 dba Brinnon Fire Department 272 Schoolhouse Rd Brinnon, WA 96320 msmith@brinnonfire.org	Meril Smith	(360) 796-4450		District Commissioner, Contact	Review & Adopt Plan
89.	Jefferson County Fire District No. 4 dba Brinnon Fire Department 272 Schoolhouse Rd Brinnon, WA 96320 peggyw@brinnonfire.org	Peggy Ware	(360) 796-4450		District Secretary	Staff Support
90.	Jefferson County Fire District No. 5 dba Discovery Bay Volunteer Fire Department #12 Bentley Place Port Townsend, WA 98368 info@dbvfr.org	Bill Gallant	(360) 797-7711		District Commissioner Position 1, Contact	Review & Adopt Plan
91.	Jefferson County Fire District No. 5 dba Discovery Bay Volunteer Fire Department #12 Bentley Place Port Townsend, WA 98368 info@dbvfr.org	Ford Kessler	360.797.7711		District Commissioner Position 2, Contact	Review & Adopt Plan

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
92.	Jefferson County Fire District No. 5 dba Discovery Bay Volunteer Fire Department #12 Bentley Place Port Townsend, WA 98368 info@dbvfr.org	Barbara Knoepfle	360.797.7711		District Commissioner Position 3, Contact	Review & Adopt Plan
93.	Public Hospital District 1	David L. Dickson		Opted Out	District Commissioner, Contact	Review & Adopt Plan
94.	Public Hospital District 1	Nikki Hay		Opted Out	District Commissioner, Contact	Review & Adopt Plan
95.	Public Hospital District 1	Carol Jean Young		Opted Out	District Commissioner, Contact	Review & Adopt Plan
96.	Public Hospital District 2 Dbas Jefferson HealthCare 834 Sheridan St Port Townsend, WA 98368 adeleo@jeffersonhealthcare.org	Anthony F. DeLeo	(360) 385-2200		District Commissioner, Contact	Review & Adopt Plan
97.	Public Hospital District 2 Dbas Jefferson HealthCare 834 Sheridan St Port Townsend, WA 98368 mready@jeffersonhealthcare.org	Matt Ready	(360) 385-2200		District Commissioner, Contact	Review & Adopt Plan
98.	Public Hospital District 2 Dbas Jefferson HealthCare 834 Sheridan St Port Townsend, WA 98368 kkolff@jeffersonhealthcare.org	Dr. Kees Kolff	(360) 385-2200		District Commissioner, Contact	Review & Adopt Plan



<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
99.	Public Hospital District 2 DbA Jefferson HealthCare 834 Sheridan St Port Townsend, WA 98368 mdressler@jeffersonhealthcare.org	Mari Dressler	(360) 385-2200		District Commissioner, Contact	Review & Adopt Plan
100.	Public Hospital District 2 DbA Jefferson HealthCare 834 Sheridan St Port Townsend, WA 98368 jbuhler@jeffersonhealthcare.org	Jill Buhler	(360) 385-2200		District Commissioner, Contact	Review & Adopt Plan
101.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368	Larry Crockett Director	(360) 385-0656		Stakeholder	Plan Review & Recommend Approval
102.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368	Jim Pivarnik Deputy Director	(360) 385-0656		Stakeholder	Plan Review & Recommend Approval
103.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368	Steve Tucker	(360) 385-0656		Commissioner Position 1	Plan Review & Adopt
104.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368	Brad Clinefelter	(360) 385-0656		Commissioner Position 2	Plan Review & Adopt
105.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368	Peter W. Hanke	(360) 385-0656		Commissioner Position 3	Plan Review & Adopt
106.	Port of Port Townsend 2701 Jefferson St Port Townsend, WA 98368	Eric Toews			Planning Analyst	Plan Review & Contributions
107.	Jefferson County Public Library District	Leigh Hearon Chairperson	360.385.6544		District Trustee	Plan Review & Adopt
108.	Jefferson County Public Library District	Sylvia White Vice-Chair	360.385.6544		District Trustee	Plan Review & Adopt
109.	Jefferson County Public Library District	Susan Whitmire Secretary	360.385.6544		District Trustee	Plan Review & Adopt

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
110.	Jefferson County Public Library District	Hal Beattie	360.385.6544		District Trustee	Plan Review & Adopt
111.	Jefferson County Public Library District	Ellen Hargis	360.385.6544		District Trustee	Plan Review & Adopt
112.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 dengle@ptschools.org	Dr. David Engle Superintendent	360.379.4501		Stakeholder	Plan Review & Recommend Approval
113.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 rbutler@ptschools.org	Roseanne Butler	360.379.4502		District Secretary	Staff Support
114.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 kwhite@ptschools.org	Keith White	360.379.2272		District 5 Commissioner	Plan Review & Adopt
115.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 cwelch@ptschools.org	Connie Welch	360.531.1457		District 1 Commissioner	Plan Review & Adopt
116.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 nohara@ptschools.org	Nathanael O'Hara	360.379.4502		District 3 Commissioner	Plan Review & Adopt
117.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 jjwilson@ptschools.org	Jennifer James-Wilson	360.379.4502		District 2 Commissioner	Plan Review & Adopt
118.	Port Townsend School District No. 50 450 Fir St Port Townsend, WA 98368 ltuclar@ptschools.org	Laura Tucker	360.379.4502		District 4 Commissioner	Plan Review & Adopt

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
119.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 pbeathard@bsd46.org	Patricia Beathard Superintendent	360.796.4646		Stakeholder	Hazard Profile & Assessment, Determine Mitigation Activities, Plan Review
120.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 vshindler@bsd46.org	Valerie Schindler	360.796.4646		District 1 Commissioner	Plan Review & Adopt
121.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 rstevens@bsd46.org	Ron Stevens	360.796.4646		District 2 Commissioner	Plan Review & Adopt
122.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 jbaisch@bsd46.org	Joe Baisch	360.796.4646		District 3 Commissioner	Plan Review & Adopt
123.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 stowne@bsd46.org	Shirley Towne	360.796.4646		District 5 Commissioner	Plan Review & Adopt
124.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 wbarnet@bsd46.org	William Barnet	360.796.4646		District 4 Commissioner	Plan Review & Adopt
125.	Brinnon School District No. 46 46 Schoolhouse Rd Brinnon, WA 98320 dprater@bsd46.org	Donna Prater	360.796.4646		District Staff, Contact	Staff Support
126.	Chimacum School District No. 49 P.O, Box 278, 91 W. Valley Rd Chimacum, WA 98325	Stephanie McCleary Admin Asst	360.302.5894		District Staff, Contact	Hazard Profile & Assessment, Determine Mitigation

Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
						Activities, Plan Review
127.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 sarah_martin@csd49.org	Sarah Martin	360.302.5890		District 1 Commissioner	Plan Review & Adopt
128.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 cammy_brown@csd49.org	Anna (Cammy) Brown	360.302.5890		District 2 Commissioner	Plan Review & Adopt
129.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 maggie_ejde@csd49.org	Maggie Ejde	360.302.5890		District 3 Commissioner	Plan Review & Adopt
130.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 robert_bunker@csd49.org	Robert Bunker	360.302.5890		District 4 Commissioner	Plan Review & Adopt
131.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 kevin_miller@csd49.org	Kevin Miller	360.302.5890		District 5 Commissioner	Plan Review & Adopt
132.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 Art_clarke@csd49.org	Art Clarke	360.302.5895		Finance Operations	Profile Update, Turn-Around Docs; Plan Review
133.	Chimacum School District No. 49 P,O, Box 278, 91 W. Valley Rd Chimacum, WA 98325 Theresa_burrouhs@csd49.org	Theresa Burroughs	360.302.5892		District Administrative Assistant & Accounts Payable	Profile Update, Turn-Around Docs; Plan Review
134.	Queets – Clearwater School District No. 20 146000 Hwy 101	Lyle Pfeifle	360.962.2395 Fax: 360.962.2038		District 1 Commissioner, Contact	Plan Review & Adopt

Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
	Forks, WA 98331					
135.	Queets – Clearwater School District No. 20 146000 Hwy 101 Forks, WA 98331	Sarah “Selene” Charles	360.962.2395 Fax: 360.962.2038		District 2 Commissioner	Plan Review & Adopt
136.	Queets – Clearwater School District No. 20 146000 Hwy 101 Forks, WA 98331	David Atkinson	360.962.2395 Fax: 360.962.2038		District 3 Commissioner	Plan Review & Adopt
137.	Queets – Clearwater School District No. 20 146000 Hwy 101 Forks, WA 98331	Rowland Mason	360.962.2395 Fax: 360.962.2038		District 4 Commissioner	Plan Review & Adopt
138.	Queets – Clearwater School District No. 20 146000 Hwy 101 Forks, WA 98331	Kristeen C. Mowitch	360.962.2395 Fax: 360.962.2038		District 5 Commissioner	Plan Review & Adopt
139.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376 <a href="mailto:gstebbins@qsd48.org">gstebbins@qsd48.org</a>	Dr. Gary Stebbins Principal	360.765.3363		District Staff, Stakeholder	Hazard Profile & Assessment, Determine Mitigation Activities, Plan Review
140.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376	Mark Apeland	360.765.3363		District 1 Commissioner, Contact	Plan Review & Adopt
141.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376	Gary Rae	360.765.3363		District 2 Commissioner, Contact	Plan Review & Adopt
142.	Quilcene School District No. 48 P.O. Box 40	Vivian Kuehl	360.765.3363		District 3 Commissioner,	Plan Review & Adopt

Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
	Quilcene, WA 98376				Contact	
143.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376	Gena D. Lont	360.765.3363		District 4 Commissioner, Contact	Plan Review & Adopt
144.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376	Greg Brotherton	360.765.3363		District 5 Commissioner, Contact	Plan Review & Adopt
145.	Quilcene School District No. 48 P.O. Box 40 Quilcene, WA 98376 <a href="mailto:pmack@qsd48.org">pmack@qsd48.org</a>	Pamela Mack Business Assistant	360.765.3363		District Secretary	Staff Support
146.	Quillayute Valley School District No. 402 P.O. Box 60 411 S Spartan Ave Forks, WA 98331	Val James Giles	360.374.6262		District 1 Commissioner, Contact	Plan Review & Adopt
147.	Quillayute Valley School District No. 402 P.O. Box 60 411 S Spartan Ave Forks, WA 98331	Rick Gale	360.374.6262		District 2 Commissioner, Contact	Plan Review & Adopt
148.	Quillayute Valley School District No. 402 P.O. Box 60 411 S Spartan Ave Forks, WA 98331	Bill Rhode	360.374.6262		District 3 Commissioner, Contact	Plan Review & Adopt
149.	Quillayute Valley School District No. 402 P.O. Box 60 411 S Spartan Ave Forks, WA 98331	Brian Pederson	360.374.6262		District 4 Commissioner, Contact	Plan Review & Adopt
150.	Quillayute Valley School District No. 402 P.O. Box 60 411 S Spartan Ave Forks, WA 98331	Mike Reeves	360.374.6262		District 5 Commissioner, Contact	Plan Review & Adopt

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
151.	Jefferson Transit Authority 63 4 Corners Road Port Townsend, WA 98368 trubert@jeffersontransit.com	Tammi Rubert General Manager	360.385.3020 x107	<b>Opted Out in 2016</b>	Stakeholder, Advisory Grp	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
152.	Jefferson Transit Authority 63 4 Corners Road Port Townsend, WA 98368 clran@jeffersontransit.com	Cheryl Loran Account Specialist / Grants/Procurement Administrator	360.385.3020 X105	<b>Opted Out in 2016</b>	JTA Staff	Hazard Profile & Assessment, Determine Mitigation Activities, Review Plan
153.	Port of Port Townsend P.O. Box 1180 2701 Jefferson Street Port Townsend, WA 98368	Steve Tucker	360.385.0656		District 1 Commissioner	Plan Review & Adopt
154.	Port of Port Townsend P.O. Box 1180 2701 Jefferson Street Port Townsend, WA 98368	Brad Clinefelter	360.385.0656		District 2 Commissioner	Plan Review & Adopt
155.	Port of Port Townsend P.O. Box 1180 2701 Jefferson Street Port Townsend, WA 98368	Peter W. Hanke	360.385.0656		District 3 Commissioner	Plan Review & Adopt
156.	Jefferson County Public Utility District 310 Four Corners Road Port Townsend, WA 98368	Don McDaniel	360.385.5800		District Staff, Contact	Hazard Profile & Assessment, Determine Mitigation Activities, Plan Review
157.	Jefferson County Public Utility District 310 Four Corners Road Port Townsend, WA 98368	Barney Burke	360.385.5800	Until December 2016	District 1 Commissioner, Contact	Plan Review & Adopt
158.	Jefferson County Public Utility District 310 Four Corners Road Port Townsend, WA 98368	Jeff Randall	360.385.5800	Starting in 2017	District 1 Commissioner, Contact	Plan Review & Adopt

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>	
159.	Jefferson County Public Utility District 310 Four Corners Road Port Townsend, WA 98368	Kenneth Collins	360.385.5800		District 2 Commissioner, Contact	Plan Review & Adopt	
160.	Jefferson County Public Utility District 310 Four Corners Road Port Townsend, WA 98368	Wayne King	360.385.5800		District 3 Commissioner, Contact	Plan Review & Adopt	
161.	Water District No. 1 (Paradise Bay)	Calvin (Cal) White	360.437.9492	Opted Out (2009)	District 1 Commissioner, Contact	Plan Review & Adopt	
162.	Water District No. 1 (Paradise Bay)	Vernon Good	360.437.9492	Opted Out (2009)	District 2 Commissioner, Contact	Plan Review & Adopt	
163.	Water District No. 1 (Paradise Bay)	Raelene Rossart	360.437.9492	Opted Out (2009)	District 3 Commissioner, Contact	Plan Review & Adopt	
164.	Water District No. 2 (Brinnon)	Jeremy N. Mueller	360.796.4684	Opt Out – Too Small; No needs.	Commissioner Position 1, Contact	District Commissioner	
165.	Water District No. 2 (Brinnon)	Daniel Carlson	360.796.4684	Opt Out – Too Small; No needs.	Commissioner Position 2, Contact	District Commissioner	
166.	Water District No. 2 (Brinnon)	Wayne Shlaeflie	360.796.4684	Opt Out – Too Small; No needs.	Commissioner Position 3, Contact	District Commissioner	
167.	Water District No. 3	Dissolved by the State. No Longer Exists.					
168.	Parks & Recreation District No. 1	Gary Elmer	360.765.5061	Opt Out in 2009	Commissioner Position 1	Plan Review & Adopt	
169.	Parks & Recreation District No. 1	Dennis Schmitt	360.765.5061	Opt Out in 2009	Commissioner Position 2	Plan Review & Adopt	
170.	Parks & Recreation District No. 1	Larry Robinson	360.765.5061	Opt Out in 2009	Commissioner Position 3	Plan Review & Adopt	
171.	Parks & Recreation District No. 1	Cathy Bowman	360.765.5061	Opt Out in 2009	Commissioner Position 4	Plan Review & Adopt	



Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
172.	Parks & Recreation District No. 1	Richard Hull	360.765.5061	Opt Out in 2009	Commissioner Position 5	Plan Review & Adopt
<b><i>Additional Contributors</i></b>						
173.	City of Port Townsend – Administration 250 Monroe St Port Townsend, WA 98368 kmclaughlin@cityofpt.us	Kelly McLaughlin Admin Assistant	360.379.5047		City Administration, Contact	Plan Review, Data Resource – City Assets
174.	City of Port Townsend – City Clerk 250 Monroe St Port Townsend, WA 98368 janders@cityofpt.us	Joanna Sanders	360.385-5083		City Administration	Manage adoption resolution.
175.	City of Port Townsend – Public Works 250 Monroe St Port Townsend, WA 98368 stiffany@cityofpt.us	Sarah Tiffany Project Grant Accountant	360.390-4115		City’s Grant Manager for the Public Works Dept.	Grant Administration for the city.
176.	City of Port Townsend – Public Works 250 Monroe St Port Townsend, WA 98368 jmerchant@cityofpt.us	John Merchant Ops Manager			Stakeholder	Plan Review
177.	City of Port Townsend – Public Works 250 Monroe St Port Townsend, WA 98368 tjohnson@cityofpt.us	Tyler Johnson GIS Project Mgr.	360.379.5092		City Administration, Contact	Provide City Graphics for Plan
178.	City of Port Townsend – Public Works 250 Monroe St Port Townsend, WA 98368 ijablonski@cityofpt.us	Ian Jablonski Water Quality Manager Asst Mgr.	360.379-5001		Stakeholder	Coordinate Water System Emergency Plan, Develop Mitigation Activity
179.	Jefferson County – Central Services Dept. P.O. Box 1220 Port Townsend, WA 98368	Doug Noltemier			Staff - Contact	County GIS – Provide Maps

Line Nbr	Organization/Email Address	Contact Person & Position	Phone	Notes	Role	Tasks
	pmorely@co.jefferson.wa.us					
180.	Washington State – Dept of Natural Resources <a href="http://www.dnr.wa.gov/contact-us">http://www.dnr.wa.gov/contact-us</a>	Dave Christensen			Staff - Contact	Provide County CRS and NFIP Data for the Plan
181.	Jefferson County – Dept of Public Health	Susan Porto			Staff - Contact	Provide County Water District Inventory
182.	Jefferson County – Public Works P.O. Box 1220 Port Townsend, WA 98368 skilmer@co.jefferson.wa.us	Scott Kilmer			Staff - Contact	Provide County Road Damage Figures & Photos due to Landslide
183.	Jefferson County – Public Works P.O. Box 1220 Port Townsend, WA 98368 ssolomon@co.jefferson.wa.us	Shelly Solomon			Staff - Contact	Provide County River Channel Avulsion Research
184.	Jefferson County P.O. Box 1220 Port Townsend, WA 98368	Carl Smith (Retired) Prior County Administrator			Contact	Initiated Natural Hazard Mitigation Plan Project
185.	Citizen	Tom Camfield Author, Publisher			Contact	Provide Photos of Severe Weather
186.	Housing Authority of Kitsap & Jefferson Counties	Roy Sorsby Operations Manager			Contact after absorbing HAJC	Opt Out – No assets owned in Jefferson County
187.	NAVMAG Indian Island (NMII)	Cdr Nicholas Vande Griend			Commanding Officer	Review & Approve Coord Entity Write-up
188.	NAVMAG Indian Island (NMII)	Mona Acorace			Admin Assistant – Staff Support	Coordinating Entity Write-up Editing

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
189.	NAVMAG Indian Island (NMII)	John Mabbit			Manager – NMII Emergency Management	Coordinating Entity Write-up Editing
190.	NAVMAG Indian Island (NMII)	Steve Brokens			Manager – Port Operations	Coordinating Entity Write-up Editing
191.	NAVMAG Indian Island (NMII)	Bill Kalina			Manager – NMII Environmental Pgms	Coordinating Entity Write-up Editing
192.	Citizen Contributor	Robert Bindschadler (NASA Emeritus Scientist)		Climatologist	Content Contribution	Significant Editing / Consultation re Climate Change
193.	Citizen Contributor	Pam Clise			Content Contribution	
194.	Citizen Contributor	Dennis Crawford			Content Contribution	
195.	Citizen Contributor	Linda Davis (2016) Solstice Farm			Resilience Strategy Content	
196.	Citizen Contributor – Brinnon Emergency Group	Jacque Hartley			Content Contribution	
197.	Citizen Contributor	Jeffery Hartman			Content Contribution	
198.	Citizen Contributor	Sue Horvath (2016)			Content Contribution	
199.	Citizen Contributor	Pete Hubbard (2016)			Content Contribution	
200.	Citizen Contributor – North Olympic Peninsula Resource Conservation & Development	Cindy Jayne (2016)		Climate Change Preparedness Plan	Content Contribution	Significant Editing / Consultation re Climate Change

<b>Line Nbr</b>	<b>Organization/Email Address</b>	<b>Contact Person &amp; Position</b>	<b>Phone</b>	<b>Notes</b>	<b>Role</b>	<b>Tasks</b>
201.	Citizen Contributor	Rita Kepner (2016)			Content Contribution	
202.	Citizen Contributor	Deborah Stinson			Content Contribution	
203.	Citizen Contributor	Vicki Young			Content Contribution	
204.	Citizen Contributor	Mike Zimmerman (2016)		Retired Park Ranger	Content Contribution	Marrowstone Island Estimate
205.	Washington State Military Department Emergency Management Division MS: TA-20, Building 20 Camp Murray, Washington 98430-5122	Brynne Walker (2015 – Current) Hazard Mitigation Program Manager			State Review of Jefferson County Plan	Pre-FEMA State review and critique.
206.	Washington State Military Department Emergency Management Division MS: TA-20, Building 20 Camp Murray, Washington 98430-5122	Tim Cook (2014-2015) Hazard Mitigation Program Manager			State Review of Jefferson County Plan	PDM Grant Coordination

## Appendix C

### Endnotes\*

\*Endnotes & citations have been moved to immediately behind their relevant topic.

# Appendix D

## Frequently Asked Questions

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## Frequently Asked Questions

### **What is natural hazard mitigation?**

Natural hazard mitigation is the development and implementation of activities designed to reduce or eliminate losses resulting from natural hazards.

### **Why develop a natural hazards mitigation strategy?**

Developing a mitigation strategy for Jefferson County completes the process of planning that began with the Jefferson County Hazard Identification and Vulnerability Assessment (HIVA). This report serves to establish a foundation for coordination and collaboration among local agencies, jurisdictions, and the citizens of Jefferson County in addition to providing a basis for identifying mitigation strategies and future mitigation projects as a means to assist in meeting the requirements of various federal assistance programs.

The rising cost of responding to and recovering from natural disasters has led to an increased interest in identifying effective ways to reduce the vulnerability to natural hazards and the disasters these hazards can create. Natural hazard mitigation plans assist communities in identifying the hazards that could impact them, determining the vulnerability of the community to these hazards, and identifying mitigation strategies to prevent or reduce the impacts these hazards pose to the community through a coordinated, multi-jurisdictional approach. To encourage such activity, Congress passed the Disaster Mitigation Act of 2000.

The Disaster Mitigation Act of 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance.

To implement the new Disaster Mitigation Act of 2000 requirements, the Code of Federal Regulations (CFR) at 44 CFR Parts 201 and 206, establish planning and funding criteria for state and local governments.

The primary purpose of hazard mitigation is to identify community policies, actions, and tools for implementation over the long term that will result in a reduction in risk and potential for future losses community-wide. This is accomplished by using a systematic process of learning about the hazards that can affect the community, setting clear goals, identifying appropriate actions, following through with an effective mitigation strategy, and keeping the plan current.

### **What are the benefits of hazard mitigation?**

- ***Save lives and property*** – communities can save lives and reduce property damage from natural hazards through mitigation actions, such as moving families and their homes out of



harm's way or by limiting development and/or regulating the type of construction or structures allowed in certain areas.

- **Reduce vulnerability to future hazards** – by having a mitigation strategy in place, communities are better prepared to take the proper steps that will permanently reduce the risk of future losses.
- **Facilitate post-disaster funding** – by identifying mitigation strategies and projects before the next disaster, Jefferson County communities will be in a better position to obtain post-disaster funding because much of the background work necessary for funding assistance will already be in place.

### **Who does the natural hazards mitigation plan benefit?**

The *Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan* was developed, written, and adopted as a multi-jurisdictional natural hazards mitigation plan for the benefit of the incorporated municipalities, various special purpose districts, and the unincorporated rural areas of Jefferson County. It is anticipated that a large number of county special purpose districts will also adopt this plan in order to benefit from future hazard mitigation funding.

The information contained in this plan is applicable countywide and serves to provide the framework for natural hazard mitigation within Jefferson County. Much has already been gained in simply developing this plan and establishing the basic mitigation strategies that have been incorporated into this document. It is hoped that the spirit of inter-jurisdictional cooperation that has begun with this planning effort will continue in the years to come thereby providing further benefits to all jurisdictions and agencies within the county as well as the citizens these jurisdictions and agency serve.

Furthermore, the Plan was developed following the process set forth in the Disaster Mitigation Act of 2000 as well as the requirements of the National Flood Insurance Program Community Rating System. By doing so, it is anticipated that the citizens living in those jurisdictions within Jefferson County that participate in the Community Rating System could possibly further benefit from this plan through an additional decrease in their flood insurance premiums.

### **What is it going to cost me?**

The writing of the *Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan* was funded by a combination of a grant from FEMA and matching funds from the City of Port Townsend. There will be some relatively minor costs incurred in staff time to gather the information to go into the Plan for your own district. Costs of the mitigation activities, themselves, belong to those jurisdictions and special districts that initiate them, and are funded as the originating entity deems most appropriate, whether by tax revenues, bonds, grants or loans.

# Appendix E

## Resources

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## **RESOURCES**

### **General**

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- Jefferson County – City of Port Townsend Hazard Mitigation Plan, 2009. Available at: <http://www.jprephazmitplan.org> or at: <http://www.jeffcoec.org/documents/2009%20Hazard%20Mitigation%20Plan.pdf>
- Jefferson County Hazard Identification and Vulnerability Assessment (THIRA), 2011. Available at: <http://www.jeffcoec.org/documents/Jefferson%20Co%20HIVA%202011.pdf>
- Jefferson County Washington Comprehensive Plan, Last update November 2013. (Periodic Update due in 2018.), Available at: <http://www.co.jefferson.wa.us/commdevelopment/CompPlanGeneral.htm>
- Jefferson County Critical Areas Ordinance Update, “Best Available Science Report”, ESA, December, 2015. Available at:
- DRAFT Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe, January, 2016. Available at: [http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
- Quillayute Valley School District No. 402 Hazard Mitigation Plan, Quillayute School District, Forks, Washington, June 2015. Available at: [http://www.qvschools.org/pages/Quillayute\\_Valley\\_SD\\_402/Community/Hazard\\_Mitigation\\_Plan](http://www.qvschools.org/pages/Quillayute_Valley_SD_402/Community/Hazard_Mitigation_Plan)
- Washington School K-12 Facilities Hazard Mitigation Plan, Office of Superintendent of Public Instruction (OSPI), 2014. Available at: [http://www.k12.wa.us/SchFacilities/PDM/pubdocs/PDM\\_Plan.pdf](http://www.k12.wa.us/SchFacilities/PDM/pubdocs/PDM_Plan.pdf)
- State of Washington RISKMAP Business Plan, 2011. Available at: [http://www.ecy.wa.gov/programs/sea/floods/riskmap\\_pdf/riskmap\\_business\\_plan.pdf](http://www.ecy.wa.gov/programs/sea/floods/riskmap_pdf/riskmap_business_plan.pdf)
- Washington State Natural Hazard Mitigation Plan, Washington Department of Emergency Management, 2014. Available at: <http://mil.wa.gov/other-links/enhanced-hazard-mitigation-plan>
- *Resources and Best Available Science Guidance*, Washington State Enhanced Hazard Mitigation Plan. Available at: [http://mil.wa.gov/uploads/pdf/appendix\\_7\\_best\\_available\\_science-2014-update.pdf](http://mil.wa.gov/uploads/pdf/appendix_7_best_available_science-2014-update.pdf)
- Washington State Department of Transportation 2007 – 2026. Available at: <http://www.wsdot.wa.gov/NR/rdonlyres/B1E8FB10-D415-4228-817D-9C4BE4569128/0/WTPLinks2.pdf>
- FEMA’s “Multi-Hazard Identification and Risk Assessment”, 1997. Available at: <http://www.fema.gov/media-library/assets/documents/7251>
- Hazard Mitigation Planning Process, FEMA, Last Updated: 03/2016. Available at: <http://www.fema.gov/hazard-mitigation-planning-process>

- Institute for Hazard Mitigation Planning and Research, University of Washington. Available at: <http://mitigate.be.uw.edu/>

## Specific – Natural & Technological Hazards

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### Climate Change

- “Climate Change Preparedness Plan for the North Olympic Peninsula”, North Olympic Peninsula Resource Conservation and Development Council and the Washington Department of Commerce, September 2015. Available at: [www.noprkd.org](http://www.noprkd.org)
- “City of Port Townsend & Jefferson County 2011 Climate Action Plan”, Adopted November 14, 2011. Available at: [http://www.co.jefferson.wa.us/commdevelopment/PDFS/Climate\\_Change/FINAL%20CAP%20-%20adopted%2011-14-2011.pdf](http://www.co.jefferson.wa.us/commdevelopment/PDFS/Climate_Change/FINAL%20CAP%20-%20adopted%2011-14-2011.pdf)
- FEMA Climate Change. Available at: <http://www.fema.gov/climate-change>

### Avalanche

- “Northwest Weather and Avalanche Center” - Available at: <http://www.nwac.noaa.gov/>

### Drought

- Washington’s Water Supply, Washington Department of Ecology. Available at: <http://www.ecy.wa.gov/drought/>
- United States Drought Monitor. Available at: <http://droughtmonitor.unl.edu/>
- National Drought Mitigation Center. Available at: <http://drought.unl.edu/Home.aspx>
- National Integrated Drought System (NDIS). Available at: <https://www.drought.gov/drought/>
- NDIS Drought Early Warning System (DEWS). Available at: <https://www.drought.gov/drought/dews/pacific-northwest>

### Earthquake

- “Washington State Earthquake Hazards” by Linda Lawrence Noson, Anthony Qamar, and Gerald W. Thorsen, Washington Division of Geology and Earth Resources Information Circular 95, 1988
- “Cascadia Rising Newsletter No. 1”, by Bob Hamlin, Program Manager, Jefferson County Washington Department of Emergency Management, January 2016. <http://www.jeffcoec.org/documents/CRZ%20Article%201%20JANUARY%202016.pdf>

- “*Cascadia Rising Newsletter No. 2*”, by Bob Hamlin, Program Manager, Jefferson County Washington Department of Emergency Management, February 2016.  
<http://www.jeffcoec.org/documents/CRZ%202nd%20Edition%20February%202016.pdf>
- “*Cascadia Rising Newsletter No. 3*”, by Bob Hamlin, Program Manager, Jefferson County Washington Department of Emergency Management, March 2016.  
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- “*Cascadia Rising Newsletter No. 5*”, by Bob Hamlin, Program Manager, Jefferson County Washington Department of Emergency Management, May 2016.  
<http://www.jeffcoec.org/documents/CRZ%20Article%205%20May%202016.pdf>
- “*Cascadia Rising Lessons Learned Summary*”, Power Point Presentation by Bob Hamlin, Program Manager, Jefferson County Washington Department of Emergency Management, July 2016.  
<http://www.jeffcoec.org/documents/CASCADIA%20SHORT.pptx>
- “*Earthquake Risk Assessment*”, DRAFT Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe, January, 2016, pp. 9 - 17. Available at:  
[http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
- “*The Really Big One*” by Kathryn Schulz, The New Yorker, July 20, 2015. (Awarded Pulitzer prize in 2016.) Available at: <http://www.newyorker.com/magazine/2015/07/20/the-really-big-one>
- Pacific Northwest Seismograph Network Outreach. Available at: <http://www.pnsn.org/>
- *Earthquake*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.4, 2014. Available at: [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Earthquake\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Earthquake_Hazard_Profile.pdf)

## **Flood**

- “Channel Migration Zone Study for the Duckabush, Dosewallips, Big Quilcene, and Little Quilcene Rivers”, U.S. Department of the Interior, Bureau of Reclamation, February 2004
- FEMA Digital Q3 Flood Data, Jefferson County  
<http://www.ecy.wa.gov/services/gis/data/flood/jefferson.gif>
- FEMA National Flood Insurance Program – Community Rating System, “*CRS Coordinator’s Manual*”, 2002
- “Hydraulic Modeling and Analysis of U.S. Highway 101 Milepost 174 Hoh River Erosion Project”, Engineered Logjam Bank Protection, Herrera Environmental Consultants for Washington State Department of Transportation, July 2004
- Jefferson County Flood Damage Prevention Ordinance, Ordinance No. 18-1120-95

- “Lower Hoh River Channel Migration Study”, Perkins Geosciences for the Hoh Tribe of Indians, June 2004
- Lower Big Quilcene Comprehensive Flood Hazard Plan, Jefferson County Department of Public Works, March 1998
- “Summary Report for the Geomorphic Assessment of the Hoh River in Washington State, U.S. Department of the Interior, Bureau of Reclamation, February 2004
- “*Flood Risk Assessment*”, DRAFT Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe, January, 2016, pp. 4 - 8. Available at: [http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
- *Flood*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.6, May 2013. [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Flood\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Flood_Hazard_Profile.pdf)

### **Landslide**

- Annual Repair Costs Road Repair Necessitated by Landslides in Jefferson County 2015 - 2016, Email from Monte Reinders, Jefferson County Director of Public Works, April 27, 2016
- Deep-seated Landslide Inventory of the West-Central Olympic Peninsula by Wendy J. Gerstel, Washington Division of Geology and Earth Resources, Open File Report 99-2, July 1999
- “Puget Sound Landslides”, Washington State Department of Ecology  
<http://www.ecy.wa.gov/programs/sea/landslides/signs/signs.html>
- “Slope Stability Map – Jefferson County”, Coastal Zone Atlas, Washington Department of Ecology, 1979 <http://www.ecy.wa.gov/programs/sea/femaweb/jefferson.htm>
- “*Landslide Risk Assessment*”, Risk Report for Jefferson County
- “Significant Deep Seated Landslides in Washington 1884 – 2014”,  
[http://file.dnr.wa.gov/publications/ger\\_list\\_large\\_landslides.pdf](http://file.dnr.wa.gov/publications/ger_list_large_landslides.pdf)
- “*Landslide Risk Assessment*”, DRAFT Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe, January, 2016, pp. 18 - 20. Available at: [http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
- *Landslide*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.7, 2012. [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Landslide\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Landslide_Hazard_Profile.pdf)

### **Severe Local Storms**

- “*The 1962 Columbus Day Windstorm*”, Wolf Read, September 16, 2001  
<http://www.climate.washington.edu/stormking/October1962.html>

- “Columbus Day Storm, October 12, 1962”, National Weather Service Portland, Oregon Presentation, NWS PQR on 5 October 2013. <https://prezi.com/lrr7bpc9coz3/columbus-day-storm-october-12-1962/>
- *Severe Storm*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.7, 2014. [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Severe\\_Storm\\_Hazard%20profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Severe_Storm_Hazard%20profile.pdf)

### **Tornado**

- *Severe Storm*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.7, 2014. [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Severe\\_Storm\\_Hazard%20profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Severe_Storm_Hazard%20profile.pdf)
- *Recommendation for an Enhanced Fujita Scale*, Wind Science and Engineering Center, Texas Tech University, Lubbock, Texas, October 10, 2006. Implemented in 2007. Available at: <http://www.depts.ttu.edu/nwi/Pubs/FScale/EFScale.pdf>

### **Tsunami/Seiche**

- “Tsunami!” University of Washington Geophysics Department  
<http://www.geophys.washington.edu/tsunami/intro.html>
- “Pacific Tsunami ETA Calculation”, Jefferson County Washington Department of Emergency Management, Available at:  
<http://www.jeffcoec.org/documents/Pacific%20Tsunami%20ETA%20calculations.GIF>
- “Port Townsend Vicinity Inundation Map”, produced by Tim Walsh, Washington Department of Natural Resources, 2015. Available at:  
<http://www.jeffcoec.org/documents/Port%20Townsend%20S1%20maximum.JPG>
- “Local Tsunamis in the Pacific Northwest”, USGS  
<http://walrus.wr.usgs.gov/tsunami/cascadia.html>
- West Coast Tsunami Warning System, NOAA/NWS. Available at: <http://wcatwc.arh.noaa.gov/>
- “Tsunami Risk Assessment”, DRAFT Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe, January, 2016, pp. 21 - 23. Available at:  
[http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)
- *Tsunami*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.5, 2014. Available at: [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Tsunami\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Tsunami_Hazard_Profile.pdf)

### **Volcano**

- Pierce County Hazard Identification and Risk Assessment, 2015. Available at:  
<http://www.co.pierce.wa.us/DocumentCenter/View/7032>
- *Volcano*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.10, 2014. Available at: [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Volcano\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Volcano_Hazard_Profile.pdf)



[PLAN/Volcano\\_Hazard\\_Profile.pdf](#)

- USGS Cascade Volcanoes Observatory. Available at: <http://volcanoes.usgs.gov/observatories/cvo/>

### **Wildland/Forest/Interface Fire**

- DNR 2015 Annual Report. Available at: [http://issuu.com/wadnr/docs/em\\_annualreport15/1?e=1302180/33969117](http://issuu.com/wadnr/docs/em_annualreport15/1?e=1302180/33969117)
- State of Washington Department of Natural Resources  
<http://www.dnr.wa.gov>
- *Wildland Urban Fire*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.5, 2014. Available at: [http://mil.wa.gov/uploads/pdf/wildland\\_fire\\_hazard\\_profile\\_2014-update.pdf](http://mil.wa.gov/uploads/pdf/wildland_fire_hazard_profile_2014-update.pdf)

### **Dam Failure**

- Washington State Department of Ecology. 2010 Report to the Legislature: Status of High and Significant Hazard Dams in Washington with Safety Deficiencies. Publication 11-11-005. March 2011. Accessed: 28 August 2012. Available at: <https://fortress.wa.gov/ecy/publications/publications/1111005.pdf>
- *Dam Safety*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.16, 2014. Available at [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Dam\\_Safety\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Dam_Safety_Hazard_Profile.pdf)

### **Terrorism**

- *Terrorism*, Access Washington. Available at: <http://access.wa.gov/topics/emergency/terrorism>
- *Terrorism*, Washington State Enhanced Hazard Mitigation Plan, Washington Department of Emergency Management, Tab 5.16, 2014. Available at: [http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Terrorism\\_Hazard\\_Profile.pdf](http://mil.wa.gov/uploads/pdf/HAZ-MIT-PLAN/Terrorism_Hazard_Profile.pdf)

## **Special Districts**

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### **City of Port Townsend**

- “*City of Port Townsend Emergency Management Plan*”, Port Townsend Police Department Emergency Management Division, June 1996
- Olympic Gravity Water Supply System, “Estimated Replacement Cost”, Draft Report to the City of Port Townsend from R.W. Beck, April 2000

- City of Port Townsend 2016 Comprehensive Plan. Available at:  
<http://weblink.cityofpt.us/weblink/Browse.aspx?StartID=34326&dbid=0>
- City of Port Townsend Shoreline Master Plan. Available at:  
<http://weblink.cityofpt.us/weblink/Browse.aspx?StartID=34326&dbid=0&cr=1>
- City of Port Townsend 2014 Water System Plan. Available at:  
<http://weblink.cityofpt.us/weblink/0/doc/113749/Page1.aspx>

### **Jefferson County**

- Jefferson County – City of Port Townsend Hazard Mitigation Plan, 2009. Available at:  
<http://www.jeffcoec.org/documents/2009%20Hazard%20Mitigation%20Plan.pdf>
- or at: <http://www.jprephazmitplan.org>
- Jefferson County Hazard Identification and Vulnerability Assessment (THIRA), 2011. Available at:  
<http://www.jeffcoec.org/documents/Jefferson%20Co%20HIVA%202011.pdf>
- Jefferson County Washington Comprehensive Plan, Last update November 2013. (Periodic Update due in 2018.), Available at: <http://www.co.jefferson.wa.us/commdevelopment/CompPlanGeneral.htm>
- Jefferson County Critical Areas Ordinance Update, “Best Available Science Report”, ESA, December, 2015. Available at:
- DRAFT Risk Report for Jefferson County, including the City of Port Townsend and the Hoh Tribe, January, 2016. Available at:  
[http://www.jeffcoec.org/documents/JeffersonCounty\\_RiskReport\\_Final\\_508.pdf](http://www.jeffcoec.org/documents/JeffersonCounty_RiskReport_Final_508.pdf)

### **Port of Port Townsend**

- Port of Port Townsend Strategic Plan 2010 – 2015. Available at: <http://www.portofpt.com/wp-content/uploads/StratPlanAdopted3.24.10.pdf>
- Port of Port Townsend Comprehensive Scheme of Harbor Improvements, 2013. Available at:  
<http://portofpt.com/wp-content/uploads/12-2013-CompleteCompScheme.pdf>

### **Regional**

- National Weather Service – Seattle. Available at: <http://www.wrh.noaa.gov/sew/>
- *Natural Hazard Regional Profiles*, Washington State Hazard Mitigation Plan, Washington Department of Emergency Management, March 2004 Draft
- FEMA Region X. Available at: <http://www.fema.gov/region-x-ak-id-or-wa>

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## Appendix F – Adoption Resolutions

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<b>Summary of Adoption Resolutions</b>				
<b>Agency/Jurisdiction</b>	<b>2004 Adoption Resolution Number</b>	<b>2009 Adoption Resolution Number</b>	<b>2016 Adoption Resolution Number</b>	<b>2016 Adoption Date</b>
Jefferson County	50-04	21-10	04-17	01/23/2017
City of Port Townsend	04-037	10-013	16-046	11/07/2016
Port Ludlow Drainage District	13	Not Numbered	Opt Out	Opt Out
Jefferson County Fire District 1 (JCFD1) dba East Jefferson Fire & Rescue (EJFR)	2004-07	10-06	16-08	09/21/2016
Jefferson County Fire District 2 (JCFD2) dba Quilcene Fire - Rescue	2004-1	2010-03	2016-09	11/14/2016
Jefferson County Fire District 3 (JCFD3) dba Port Ludlow Fire & Rescue (PLFR)	2004-01	2010-004	2016-10	11/08/2016
Jefferson County Fire District 4 (JCFD4) dba Brinnon Fire - Rescue	2004-4	2010-5	2016-5	11/08/2016
Jefferson County Fire District 5 (JCFD5) dba as Discovery Bay Volunteer Fire Dept	01-04	2010-6	2017-01	02/08/2017
Jefferson County Fire District 6 (JCFD6)	282-04	Annexed by JCFD1		
JeffCom 9-1-1	County Dept	County Dept	2017-001	01/26/2017
Public Hospital District No. 1	Opt Out	Opt Out	Opt Out	Opt Out
Public Hospital District No. 2	2004-013	2010-18	2017-05	01/18/2017
Jefferson County Library District	04-02	10-01	16-06	12/14/2016
Port of Port Townsend	426-04	550-10	657-17	01/25/2017
Port Townsend School District No. 50	04-16	10-12	16-16	11/28/2016
Brinnon School District No. 45	Opt Out	207-10	246-16	11/17/2016
Chimacum School District No. 49	2004-13	2010-05	2016-9	12/14/2016
Queets/Clearwater School District No. 20	01-04/05	1040	16-09	11/15/2016
Quilcene School District No. 48	01:04/05	01:10/11	02:16/17	12/14/2016
Quillayute Valley School District No. 402	01-04/05	04-10/11	06-16/17	02/14/2017
Jefferson Transit Authority	04-12	Opt Out	17-3	02/21/2017
Public Utility District No. 1 of Jefferson County	2004-013	2010-007	2016-022	11/15/2016

# Jefferson County - Adoption Resolution (2017)

cc: EM } 1.23.17  
JCSO }

## STATE OF WASHINGTON COUNTY OF JEFFERSON

In the Matter of Adoption of }  
the Jefferson County – City of Port Townsend } **RESOLUTION NO. 04-17**  
All Hazards Mitigation Plan (Rev. 2016) }

- WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and
- WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and
- WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and
- WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,
- WHEREAS**, in 2016 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and seventeen other Special Purpose Districts, coordinated development of an updated multi-district Hazard Mitigation Plan (Plan) to meet or exceed the criterion of the Act; and
- WHEREAS**, adoption of the Plan is necessary and in the public interest;

### NOW, THEREFORE, BE IT RESOLVED

- That the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* as reflected as FINAL v5 on the <http://jprephazmitplan.org/> website on this date, is hereby adopted as the official hazards mitigation plan for Jefferson County, and repeals and replaces the plan adopted by Resolution 21-10 adopted June 28, 2010; and furthermore,
- That the Jefferson County Department of Emergency Management is hereby authorized to submit the adopted *All Hazards Mitigation Plan* to FEMA for federal review and approval.

ADOPTED this 23<sup>rd</sup> day of January, 2017.



ATTEST:  
*Carolyn Avery*  
Carolyn Avery  
Deputy Clerk of the Board

### JEFFERSON COUNTY BOARD OF COMMISSIONERS

*Kathleen Kler*  
Kathleen Kler, Chair  
*David Sullivan*  
David Sullivan, Member  
*Kate Dean*  
Kate Dean, Member

# City of Port Townsend - Adoption Resolution (2016)

*Resolution 16-046*

## RESOLUTION NO. 16-046

### A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PORT TOWNSEND, WASHINGTON, ADOPTING THE JEFFERSON COUNTY/CITY OF PORT TOWNSEND NATURAL HAZARD MITIGATION PLAN (REVISED 2016)

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) required the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazards Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts, coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval according to the Act; and

**WHEREAS**, FEMA determined that the submitted 2010 Natural Hazards Mitigation Plan met or exceeded the criterion of the Act; and

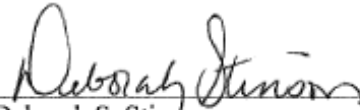
**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and

**WHEREAS**, FEMA has determined that the Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan (Revised 2016) meets or exceeds the criterion of the Act; and


**WHEREAS**, the City Council concludes that the adoption of the Plan is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Port Townsend that the Jefferson County/City of Port Townsend Hazard Mitigation Plan (Revised 2016) is hereby adopted as the official natural hazards mitigation plan for the City of Port Townsend and repeals and replaces the plan adopted by Resolution 10-013 adopted May 7, 2010.

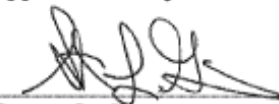
**ADOPTED** by the City Council of the City of Port Townsend at a regular meeting thereof, held this 7<sup>th</sup> day of November 2016.

  
Deborah S. Stinson  
Mayor

**Attest:**

  
Joanna Sanders, CMC  
City Clerk

**Approved as to form:**

  
Steven L. Gross  
City Attorney



# Port Ludlow Drainage District - Adoption Resolution (2010) (Opted Out for 2016 Update)

## PORT LUDLOW DRAINAGE DISTRICT RESOLUTION NO. \_\_\_\_

### IN THE MATTER OF ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND NATURAL HAZARDS MITIGATION PLAN (REVISED 2009)* FOR THE PORT LUDLOW DRAINAGE DISTRICT

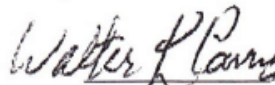
1. WHEREAS, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) required the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazards Mitigation Planning Grants, and
2. WHEREAS, in 2004 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, its special districts and the City of Port Townsend, coordinated development of a joint jurisdiction Natural Hazards Mitigation Plan, and submitted the adopted plan to the Federal Emergency Management Agency (FEMA) for approval according to the Act, and
3. WHEREAS, FEMA determined that the submitted 2004 Natural Hazards Mitigation Plan met or exceeded the criterion of the Act, and
4. WHEREAS, the Act requires review and revision of the plan every five (5) years with the next revision due November 2009, and
5. WHEREAS, it is concluded that the adoption of the Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan (Revised 2009) is necessary and in the public interest,

NOW, THEREFORE BE IT RESOLVED, that the *Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan (Revised 2009)* is hereby adopted as the official natural hazards mitigation plan for the **Port Ludlow Drainage District** and repeals and replaces the Plan adopted by **Resolution 13** approved on **July 7, 2004**.

ADOPTED at the Regular Meeting of the **Port Ludlow Drainage District Board of Commissioners**, this **ninth** day of **December**, 2010.

PORT LUDLOW DRAINAGE DISTRICT BOARD OF COMMISSIONERS

SEAL:

 Chair

ATTEST:

 Member

Clerk of the Board

\_\_\_\_\_, Member

**Jefferson County Fire District No. 1 dba East Jefferson Fire & Rescue  
Adoption Resolution (2016)**

**JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 1  
RESOLUTION NO. 16-08**

**IN THE MATTER OF ADOPTING THE JEFFERSON COUNTY – CITY OF PORT  
TOWNSEND NATURAL HAZARDS MITIGATION PLAN (REVISED 2016) FOR  
JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 1**

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) required the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazards Mitigation Planning Grants; and

**WHEREAS**, in 2004 the Jefferson County Department of Emergency Management, on behalf of Jefferson County and the City of Port Townsend, coordinated development of a joint jurisdiction Natural Hazards Mitigation Plan, and submitted the adopted plan to the Federal Emergency Management Agency (FEMA) for approval according to the Act; and

**WHEREAS**, FEMA determined that the submitted 2004 Natural Hazards Mitigation Plan met or exceeded the criterion of the Act; and


**WHEREAS**, the Act requires review and revision of the plan every five (5) years; and

**WHEREAS**, it is concluded that the adoption of the Jefferson County – City of Port Townsend Natural Hazards Mitigation Plan (Revised 2016) is necessary and in the public interest, and

**NOW, THEREFORE, BE IT RESOLVED** that the Jefferson County – City of Port Townsend Hazard Mitigation Plan (Revised 2016) is hereby adopted as the official natural hazards mitigation plan for Jefferson County Fire Protection District No. 1 and repeals and replaces the plan adopted by Resolution 2010-06 approved on May 18, 2010.

**ADOPTED** at the Regular Meeting of the Board of Commissioners of Jefferson County Fire Protection District No. 1, this 21st day of September 2016.

JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 1 BOARD OF COMMISSIONERS

  
\_\_\_\_\_  
Rich Stapf, Jr., Chairman

Absent 9/21/16  
\_\_\_\_\_  
David Johnson, Commissioner

  
\_\_\_\_\_  
Zane Wyll, Sr., Commissioner

ATTEST:  
  
\_\_\_\_\_  
Teresa Ysseldyke-All, District Secretary

**Jefferson County Fire District #2 dba Quilcene Fire - Rescue  
Adoption Resolution (2016)**

ORIGINAL

**Jefferson County Fire Protection District No. 2**

Commissioner Art Frank  
Chairman of the Board  
P.O. Box 433, Quilcene, WA 98376 360-765-3333 fax: 360-765-0133  
Commissioner Melody Bacchus  
Commissioner Herbert Beck

**JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 2  
RESOLUTION NO. 2016-09**

**IN THE MATTER OF ADOPTING THE JEFFERSON COUNTY –  
CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN  
(REVISED 2016) FOR  
JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 2**

1. **WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and
2. **WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and
3. **WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and
4. **WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,
5. **WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

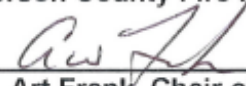
**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan*

Resolution # 2016-09  
Page 2

*(Revised 2016)* is hereby adopted as the official hazards mitigation plan for Jefferson County Fire Protection District No. 2 and repeals and replaces the plan adopted by Resolution 2010-03 adopted September 13, 2010.

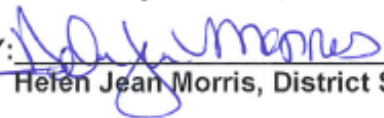
**ADOPTED** at a meeting of the Board of Commissioners of Jefferson County Fire Protection District No. 2, on November 14, 2016.

**SIGNED for Jefferson County Fire Protection District No. 2**

BY:   
Art Frank, Chair of the Board

BY: \_\_\_\_\_  
Herbert Beck, Commissioner

BY:   
Melody Bacchus, Commissioner

ATTEST BY:   
Helen Jean Morris, District Secretary



**Jefferson County Fire District #3 dba Port Ludlow Fire & Rescue  
Adoption Resolution (2016)**

**JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 3  
PORT LUDLOW FIRE & RESCUE**

**RESOLUTION NO. 2016-10**

**A RESOLUTION ADOPTING THE JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL  
HAZARDS MITIGATION PLAN (REVISED 2016) FOR PORT LUDLOW FIRE & RESCUE**

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

**WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,

**WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for **PORT LUDLOW FIRE & RESCUE** and repeals and replaces the plan adopted by Resolution 2010-004 adopted May 11, 2010.

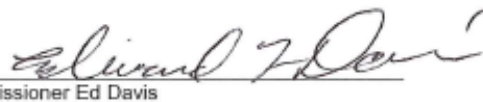
**ADOPTED** at the Meeting of the Board of Commissioners, Jefferson County Fire Protection District No. 3, this 8th day of November, 2016.


**SIGNED:**

By:   
Commissioner Robert Pontius, Chairman

By:   
Commissioner Raelene Rossart, Vice-Chairman

By:   
Commissioner Gene Carmody

By:   
Commissioner Ed Davis

By:   
Commissioner Ron Helmonds

**ATTEST:**

  
Gene Carmody, District Secretary

**Jefferson County Fire District No. 4 dba Brinnon Fire Department  
Adoption Resolution (2016)**

**RESOLUTION NO. 2016-5**

**A RESOLUTION ADOPTING THE JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016) FOR**

**JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 4  
DBA BRINNON FIRE DEPARTMENT**

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

**WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

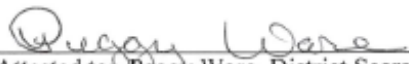
**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,

**WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for Jefferson County Fire Protection District #4 and repeals and replaces the plan adopted by Resolution 2010-5 adopted May 11, 2010.

**ADOPTED** at the Regular Meeting of the Board of Fire Commissioners of Jefferson County Fire Protection District #4, this 8<sup>th</sup> day of November, 2016.

  
\_\_\_\_\_  
Kenneth L. McEdwards, Chairman of the Board of Fire Commissioners

  
\_\_\_\_\_  
Attested to: Peggy Ware, District Secretary

**Jefferson County Fire District #5 dba Discovery Bay Volunteer Fire Department  
Adoption Resolution (2017)**

Jefferson County Fire Protection District No. 5

Commissioner Ford Kessler  
Chairman of the Board

Commissioner Barbara Knoepfle  
Commissioner Herbert Beck

12 Bentley Place, Port Townsend, WA 98368

**JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 5  
RESOLUTION NO. 2017-01**

**IN THE MATTER OF ADOPTING THE JEFFERSON COUNTY –  
CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN  
(REVISED 2017) FOR  
JEFFERSON COUNTY FIRE PROTECTION DISTRICT NO. 5**

1. **WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and

2. **WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

3. **WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

4. **WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and

5. **WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan*

Resolution # 2017-01  
Page 2

(Revised 2016) is hereby adopted as the official hazards mitigation plan for Jefferson County Fire Protection District No. 5 and repeals and replaces the plan adopted by Resolution ~~2016-01~~ adopted.

ADOPTED at a meeting of the Board of Commissioners of Jefferson County Fire Protection District No. 5, on February 8, 2017.

SIGNED for Jefferson County Fire Protection District No. 5

BY: Ford Kessler  
Ford Kessler, Chair of the Board

BY: Barbara Knoepfle  
Barbara Knoepfle, Commissioner

BY: \_\_\_\_\_

ATTEST BY: Helen Jean Morris  
Helen Jean Morris, District Secretary



## JeffCom 9-1-1 Communications (New Jurisdiction) Adoption Resolution (2017)

### RESOLUTION NO. 2017-001

**A RESOLUTION ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016)* FOR**

### JEFFCOM 911 COMMUNICATIONS

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

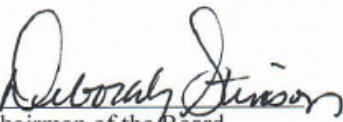
**WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,

**WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for JeffCom 911 Communications and repeals and replaces the plan adopted by Jefferson County Resolution 21-10 adopted June 28, 2010.

**ADOPTED** at the Regular Meeting of the Board of **JeffCom 911 Communications**, this 26th day of January, 2017.

By:   
Chairman of the Board

Attest:   
Office Manager

By:   
Jeffcom 9-1-1 Director

**Jefferson County Public Hospital District #1 - Adoption Resolution**

**Opt Out**

RESOLUTION NO. \_\_\_\_\_

**A RESOLUTION ADOPTING THE JEFFERSON COUNTY – CITY OF PORT TOWNSEND NATURAL HAZARDS MITIGATION PLAN AS THE OFFICIAL NATURAL HAZARDS MITIGATION PLAN FOR**

**Jefferson County Public Hospital District #1**

**WHEREAS**, the Jefferson County Natural Hazards Mitigation Plan is a Multi-Jurisdictional Plan that meets the Federal Emergency Management Agency requirements for compliance with the Disaster Mitigation Act of 2000 (44CFR 201.6); and

**WHEREAS**, the Jefferson County Natural Hazards Mitigation Plan provides a current framework for natural hazard reduction in the community, and the framework for the plan has been reviewed through an extensive public involvement process; and

**WHEREAS**, an environmental review process was completed for the Jefferson County Natural Hazards Mitigation Plan and said plan is in compliance with all procedural requirements; and

**WHEREAS**, the Jefferson County Natural Hazards Mitigation Plan will need to be reviewed and updated on a regular basis and **Jefferson County Public Hospital District #1** will need to continue to remain an active participant in the review and updating process in order to continue to meet the requirements of the Disaster Mitigation Act of 2000 (44CFR 201.6); and

**WHEREAS**, it is concluded that the adoption of the Jefferson County Natural Hazards Mitigation Plan is necessary and in the public interest;

**NOW, THEREFORE, BE IT RESOLVED**, that the Jefferson County Natural Hazards Mitigation Plan is hereby adopted as the official natural hazards mitigation plan for **Jefferson County Public Hospital District #1**

.

Passed and approved at a regular meeting of the **Jefferson County Public Hospital District #1** Board of Commissioners this \_\_\_\_\_ day of \_\_\_\_\_, 2009.

**Insert appropriate district signature block**

## Jefferson County Public Hospital District #2 Adoption Resolution (2017)

### RESOLUTION NO. 2017-05

#### A RESOLUTION ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016)*

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

**WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,

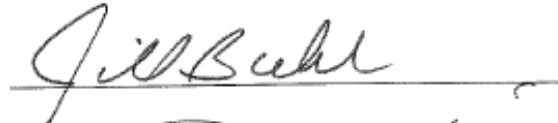
**WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan and repeals and replaces the plan adopted by Resolution 2010-18 adopted September 1, 2010.

**ADOPTED** at the Regular Meeting of the Board of Commissioners of Jefferson County Public Hospital District No. 2 this 18 day of January, 2017.

APPROVED BY THE COMMISSION:

Commission Chair– Jill Buhler



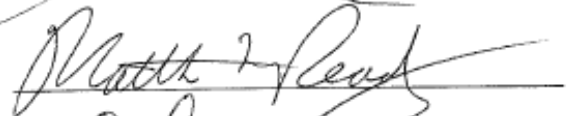
Commission Secretary – Marie Dressler  
**ATTEST:**



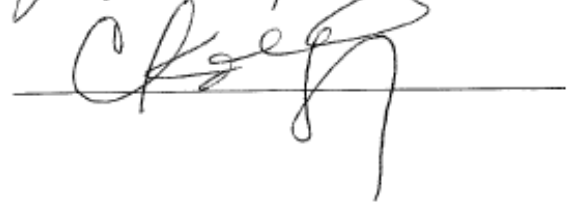
Commissioner – Tony De Leo



Commissioner – Matt Ready



Commissioner – Kees Kolff



## Jefferson County Public Library District Adoption Resolution (2016)



### RESOLUTION NO. 16-06

#### A RESOLUTION ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016)* FOR THE JEFFERSON COUNTY LIBRARY

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) require the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

**WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,

**WHEREAS**, it is concluded that the adoption of the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for the Jefferson County Library and repeals and replaces the plan adopted by Resolution 10-01 adopted June 9, 2010.

**ADOPTED** this   14th   day of   December  , 2016 by the Board of Trustees, Jefferson County Library District.

**ATTEST:**

  Leigh Sh...  , Chair

  Michael O. Kuback  , Member

  Eileen Hargis  , Member

  [Signature]  , Member

  Stephanie White  , Member



**Port of Port Townsend - Adoption Resolution (2017)**

**RESOLUTION NO. 657-17**

**A RESOLUTION OF THE COMMISSION OF THE PORT OF PORT TOWNSEND  
AUTHORIZING PARTICIPATION IN THE 2016 REVISION OF THE JEFFERSON  
COUNTY – CITY OF PORT TOWNSEND NATURAL HAZARDS MITIGATION PLAN**

**WHEREAS:** the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) required the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazards Mitigation Planning Grants, and

**WHEREAS:** in 2004 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, its special districts and the City of Port Townsend, coordinated development of a joint jurisdiction Natural Hazards Mitigation Plan, and submitted the adopted plan to the Federal Emergency Management Agency (FEMA) for approval according to the Act, and

**WHEREAS:** FEMA determined that the submitted 2004 Natural Hazards Mitigation Plan met or exceeded the criterion of the Act, and

**WHEREAS:** the Act requires review and revision of the Plan every five (5) years with the next revision due January 31, 2017 and

**WHEREAS:** FEMA requires that the eligible jurisdiction submit a resolution of intent to participate in the planning review and revision process.

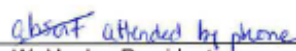
**NOW, THEREFORE BE IT HEREBY RESOLVED,** that the Port Commission of the Port of Port Townsend:

1. Acknowledges the 2016 Natural Hazards Mitigation Plan five year review and revision process.
2. Authorizes the Port of Port Townsend and its representatives to participate in the Jefferson County Department of Emergency Management's efforts in developing the Hazard Mitigation Plan revision as required by FEMA rules.
3. Will adopt the revised Jefferson County – City of Port Townsend Hazard Mitigation Plan upon its acceptance by FEMA as meeting the requirements of the Plan revision.

**ADOPTED this 25th day of January, 2017 by the Commission of the Port of Port Townsend** and duly authenticated in open session by the signatures of the Commissioners voting in favor thereof and the Seal of the Commission duly affixed.

ATTEST:

  
Stephen R. Tucker, Secretary

  
*absent attended by phone*  
Peter W. Hanke, President

  
Brad A. Clinefelter, Vice President

APPROVED AS TO FORM:

  
Goodstein Law Group, Port Attorney



**Port Townsend School District No. 50 - Adoption Resolution (2016)**

PORT TOWNSEND SCHOOL DISTRICT NO. 50  
1610 Blaine Street  
PORT TOWNSEND, WA 98368

**RESOLUTION 16-16**

**A RESOLUTION ADOPTING THE JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016) FOR PORT TOWNSEND SCHOOL DISTRICT**

WHEREAS, the Disaster Mitigation act of 2000 (44CFR 201.6) (the ACT) require the development of a Natural Hazards Mitigation Plan as a pre-requisite for pre-disaster and post-disaster Hazard Mitigation Grants, including natural Hazard Mitigation Planning Grants; and

WHEREAS, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act, and

WHEREAS, FEMA determined that the submitted 2010 Natural Hazards Mitigation Plan met or exceeded the criterion of the Act, and

WHEREAS, the Act requires review and revision of the plan every five (5) years; and

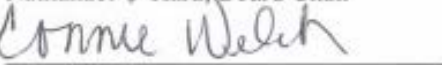
WHEREAS, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

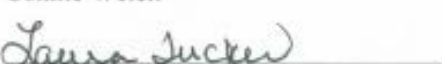
NOW, THEREFORE BE IT RESOLVED that the Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016) is hereby adopted as the official hazards mitigation plan for the Port Townsend School District No. 50, and repeals and replaces the plan adopted by Resolution 10-12 adopted June 28, 2010.

ADOPTED by the Board of Directors of Port Townsend School District No. 50, Jefferson County, Washington, at an open public meeting held November 28, 2016.

BY ORDER OF THE BOARD OF DIRECTORS  
PORT TOWNSEND SCHOOL DIST NO. 50

  
Nathanael O'Hara, Board Chair

  
Connie Welch

  
Laura Tucker

  
Jennifer James Wilson

  
Keith White

ATTEST:

  
John A. Polm, Jr.  
Secretary to the Board

**Brinnon School District No. 45 - Adoption Resolution (2016)**



**Brinnon School District No. 46**

46 SCHOOLHOUSE ROAD  
BRINNON, WA 98120  
PHONE (509) 736-4640

**RESOLUTION NO. 246-16**

**IN THE MATTER OF ADOPTING THE JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016) FOR BRINNON SCHOOL DISTRICT**

1. **WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and
2. **WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and
3. **WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and
4. **WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,
5. **WHEREAS**, it is concluded that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for *Brinnon School District* and repeals and replaces the Plan adopted by Resolution 207-10 adopted August 23, 2010.

**ADOPTED** at the Regular Meeting of the Brinnon Board of Directors, this 17 day of November, 2016.

BRINNON SCHOOL DISTRICT OF JEFFERSON COUNTY BOARD OF DIRECTORS

\_\_\_\_\_  
*Bea*  
 \_\_\_\_\_  
*Julie Scheller*  
 \_\_\_\_\_  
*Randy*  
 \_\_\_\_\_  
*Bea*  
 \_\_\_\_\_  
 Attest: *Carrie* Secretary to the Board

**Chimacum School District No. 49 - Adoption Resolution (2010)**

**CHIMACUM SCHOOL DISTRICT  
RESOLUTION NO. 2016-9**

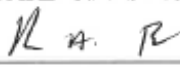
**IN THE MATTER OF ADOPTING THE JEFFERSON COUNTY – CITY OF PORT TOWNSEND  
ALL HAZARDS MITIGATION PLAN (REVISED 2016) FOR  
CHIMACUM SCHOOL DISTRICT**

1. **WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and
2. **WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and
3. **WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and
4. **WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,
5. **WHEREAS**, it is concluded that the adoption of the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED**, that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for Chimacum School District and repeals and replaces the plan adopted by Resolution 2010-05 approved on August 25, 2010.

**ADOPTED** at the Board of Directors of the Chimacum School District No. 49, Jefferson County, WA, at a regular meeting held the 14th day of December 2016.

BOARD OF DIRECTORS

  
\_\_\_\_\_  
Chair, Robert Bunker

  
\_\_\_\_\_  
Director, Sarah Martin

  
\_\_\_\_\_  
Director, Mike Gould

  
\_\_\_\_\_  
Director, Kevin Miller

\_\_\_\_\_  
Director, Open Seat

ATTEST:

  
\_\_\_\_\_  
Rick Thompson  
Superintendent/Secretary to the Board



**Queets/Clearwater School District No. 20 - Adoption Resolution (2016)**

**QUEETS CLEARWATER SCHOOL DISTRICT  
RESOLUTION NO. 16—**

**IN THE MATTER OF ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND  
ALL HAZARDS MITIGATION PLAN (REVISED 2016)* FOR  
QUEETS CLEARWATER SCHOOL DISTRICT**

1. **WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and
2. **WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and
3. **WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and
4. **WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,
5. **WHEREAS**, it is concluded that the adoption of the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED**, that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for Queets Clearwater School District and repeals and replaces the plan adopted by Resolution 1040 approved on November 16, 2010.

**ADOPTED** at the Regular Meeting of the *Queets Clearwater School District Board of Commissioners*, this 15 day of NOVEMBER, 2016.

QCSD DISTRICT BOARD OF COMMISSIONERS

SEAL:

 Chair

 Member

ATTEST:

 Member

Clerk of the Board

**Quilcene School District No. 48 - Adoption Resolution (2016)**

QUILCENE SCHOOL DISTRICT  
PO BOX40  
QUILCENE, WA 98376

**RESOLUTION NO. 2 :16/17**

**IN THE MATTER OF ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016)* FOR QUILCENE SCHOOL DISTRICT**

1. **WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Natural Hazard Mitigation Planning Grants; and
2. **WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and
3. **WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and
4. **WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,
5. **WHEREAS**, it is concluded that the adoption of the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED**, that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for *Quilcene School District No. 048* and repeals and replaces the plan adopted by Resolution 01:10/11 approved on November 17, 2010.

**ADOPTED** at the Regular Meeting of the *Quilcene School District Board of Directors*, this KTH day of December, 2016.

QCSD DISTRICT BOARD OF COMMISSIONERS

Dan Ra, Chair

SEAL:

M. [Signature], Vice-Chair

ATTEST:

Wally F. [Signature], Superintendent

Clerk of the Board

**Quillayute Valley School District No. 402 - Adoption Resolution (2017)**

QUILLAYUTE VALLEY SCHOOL DISTRICT NO. 402  
FORKS, WASHINGTON 98331

RESOLUTION NO. 06-16/17

“In the Matter of Adopting the Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016) for the Quillayute Valley School District”

WHEREAS, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Natural Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Hazard Mitigation Planning Grants; and

WHEREAS, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

WHEREAS, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and


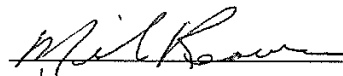

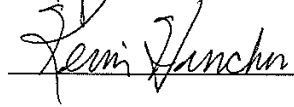
WHEREAS, the Act requires review and revision of the Plan every five (5) years; and,

WHEREAS, it is concluded that the adoption of the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is necessary and in the public interest:

THEREFORE, BE IT RESOLVED, that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for the Quillayute Valley School District and repeals and replaces the plan adopted by Resolution 04-10/11 approved on December 14, 2010.

ADOPTED by the Board of Directors of the Quillayute Valley School District No. 402, Clallam County, WA, at a regular open public meeting thereof, held the 4<sup>th</sup> day of February, 2017, the following Directors being present and voting.

QUILLAYUTE VALLEY SCHOOL DISTRICT NO. 402  
Clallam County, Washington

  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
\_\_\_\_\_

ATTEST:

  
Diana C. Reaume, Secretary to the Board

**Jefferson Transit Authority – Adoption Resolution (2017)**

**Jefferson Transit Authority  
Resolution No. 17-03**

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**A RESOLUTION** of the Board of Directors of the Jefferson County Public Transportation Benefit Area, hereinafter called the "Authority," to Adopt the Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan as the Official Plan for Jefferson Transit Authority (JTA).

**WHEREAS**, the Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan is a multi-jurisdictional plan that meets the Federal Emergency Management Agency requirements for compliance with the Disaster Mitigation Act of 2000 (44CFR 201.6); and

**WHEREAS**, the Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan provides a current framework for natural hazard reduction in the community, and the framework for the plan has been reviewed through an extensive public involvement process; and

**WHEREAS**, an environmental review process was completed for the Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan and said Plan is in compliance with all procedural requirements; and


**WHEREAS**, the Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan will need to be reviewed and updated on a regular basis and JTA will need to continue to remain an active participant in the review and updating process in order to continue to meet the requirements of the Disaster Mitigation Act of 2000 (44CFR 201.6); and

**WHEREAS**, it is concluded that the adoption of the Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan is necessary and in the public interest,

**NOW, THEREFORE, BE IT RESOLVED** that the Jefferson County/City of Port Townsend Natural Hazard Mitigation Plan is hereby adopted as the official Natural Disaster Hazard Mitigation Plan for JTA.

**CERTIFICATION**

The undersigned duly qualified Clerk of the Board, acting on behalf of the Jefferson County Public Transportation Benefit Area, certifies that the foregoing is a true and correct copy of a resolution adopted at a legally convened meeting of the Jefferson Transit Authority Board held on February 21, 2017.

  
\_\_\_\_\_  
Chair

  
\_\_\_\_\_  
Vice Chair

  
\_\_\_\_\_  
Member

  
\_\_\_\_\_  
Member

  
\_\_\_\_\_  
Member

Attest:  
  
\_\_\_\_\_  
Clerk of the Board

Resolution 17-03: Adopt the Natural Disaster Hazard Mitigation Plan  
Adopted February 21, 2017  
Page 1 of 1



**Public Utility District No. 1 of Jefferson County - Adoption Resolution (2016)**

**RESOLUTION NO. 2016-022**

**A RESOLUTION ADOPTING THE *JEFFERSON COUNTY – CITY OF PORT TOWNSEND ALL HAZARDS MITIGATION PLAN (REVISED 2016)* FOR PUBLIC UTILITY DISTRICT NO. 1 OF JEFFERSON COUNTY, WASHINGTON**

**WHEREAS**, the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act) requires the development of a Hazards Mitigation Plan as a prerequisite for pre-disaster and post-disaster Hazard Mitigation Grants, including Hazard Mitigation Planning Grants; and

**WHEREAS**, in 2010 the Jefferson County Department of Emergency Management, on behalf of Jefferson County, the City of Port Townsend and eighteen other Special Purpose Districts coordinated development of a multi-district Hazard Mitigation Plan (Plan) and submitted the adopted Plan to the Federal Emergency Management Agency (FEMA) for approval per the Act; and

**WHEREAS**, FEMA determined that the submitted 2010 Hazard Mitigation Plan met or exceeded the criterion of the Act; and

**WHEREAS**, the Act requires review and revision of the Plan every five (5) years; and,

**WHEREAS**, FEMA has determined that the Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Rev. 2016) meets or exceeds the criterion of the Act; and,

**WHEREAS**, it is concluded that the adoption of the Plan is necessary and in the public interest:

**NOW, THEREFORE, BE IT RESOLVED** that the *Jefferson County – City of Port Townsend All Hazards Mitigation Plan (Revised 2016)* is hereby adopted as the official hazards mitigation plan for the Public Utility District No. 1 of Jefferson County, Washington and repeals and replaces the plan adopted by Resolution 2010-007 adopted June 16, 2010.

**ADOPTED** at the regular meeting of the Board of Commissioners of Public Utility District No. 1 of Jefferson County, Washington on this 15<sup>th</sup> day of November, 2016.

  
Kenneth Collins, President

  
Barney Burke, Vice-President

  
Wayne King, Secretary

# Appendix G

## Public Participation Documentation

## Public Participation Documentation

The following documents are a subset of the public notices, agendas, minutes, etc. kept by each jurisdiction and special district. These relate only to the two primary jurisdictions, Jefferson County and the City of Port Townsend, and are provided solely to meet the requirement that the jurisdictions demonstrate that the public had an opportunity to participate in the development of the Plan.

**“The ability to deal with a crisis is largely dependent on the structures and relationships that have been developed before the emergency.”** Bob Hamlin, Program Manager, Jefferson County Department of Emergency Management.

Public input to large generalized plans such as the Natural Hazard Mitigation Plan is generally limited to people with special interests. Thus, we involved the public via JPREP meetings, online access to the Plan as it was in the process of being developed, and through “piggy-backing” onto other meetings, such as local presentations of the Draft FEMA FIRMS.

JPREP is the acronym for “Jefferson County - Port Townsend Regional Emergency Preparedness Network”, which consists of community leaders, stakeholders, and citizens interested in the preparedness of the region and a chance to network with the people they will be working with during an emergency. This is somewhat “preaching to the choir”, but we do get genuine ideas and feedback from those participating.

Much of the feedback comes from the Neighborhood Preparedness (NPREP) groups that have been organized since the last Hazard Mitigation Plan. Jefferson County and the City of Port Townsend have over 123 neighborhoods that have active Neighborhood Emergency Groups that contribute to the attitudes for survival in the County.

In order to better involve the public in the planning process, the Natural Hazards Mitigation Steering Committee advertised and conducted public meetings as part of the Board and/or council meetings in which resolutions were passed relating to the Plan. Generally, to adopt a resolution requires two meetings, a reading and the adoption, so there is opportunity for the word to get out and for commentators to be present at one of the meetings.

All such meetings fall under Washington’s Open Public Meetings Act (RCW 42.30) and thus assure that the appropriate notifications, Agendas, etc. are published. Passing of a resolution or inclusion of the Board minutes provides proof that all legal requirements were met.

We have found that this makes it easier for the public to attend because the facilities and time are generally known, and it is easier for individuals to plan their schedules around these meetings. This effort is in addition to the many public meetings and workshops held by stakeholders to solicit input into the development of their own planning documents, such as Jefferson County’s Comprehensive Plan, which provided much of the material for the over-all Plan.

## Appendix “G” Contents

<b>Item</b>	<b>Title</b>
1.	Table of Representative Hazard Mitigation Plan Related Meetings
2.	Hazard Mitigation Plan Update Website
3.	Agenda - City Council Meeting Appointing City Manager Applicant Agent for the Hazard Mitigation Plan Grant.
4.	Minutes - City Council Meeting Appointing City Manager Applicant Agent for the Hazard Mitigation Plan Grant.
5.	Resolution 14-023 Appointing City Manager as Applicant Agent
6.	Press Release Requesting Input to the Plan – March 2016
7.	Port Townsend City Newsletter – April 2016
8.	Press Release Publication – <i>Port Townsend &amp; Jefferson County Leader</i> – April 20 2016
9.	Press Release Publication – <i>Peninsula Daily News</i> – April 20 2016
10.	Email Blast to Neighborhood Emergency Groups – April 20, 2016
11.	List of Neighborhood Emergency Groups
12.	Email Reminder to JPREP for January 30, 2015 Meeting
13.	Email Reminder to JPREP for April 1, 2016 Meeting
14.	NPREP Newsletter requesting review of the Hazard Mitigation Plan
15.	Email Reminder to JPREP for September 30, 2016 Meeting
16.	“Last Chance” Press Release – October 2016
17.	PDN “Eye on Jefferson” Announcement – 10/15/2016
18.	PTCC Agenda Bill – 10/17/2016 Briefing on Hazard Mitigation Plan
19.	PTCC Agenda – 10/17/2016 Briefing on Hazard Mitigation Plan
20.	PTCC Minutes – 10/17/2016 Briefing on Hazard Mitigation Plan
21.	BOCC Agenda Request – 10/24/2016 Review of Hazard Mitigation Plan
22.	BOCC Agenda – 10/24/2016 Review of Hazard Mitigation Plan
23.	BOCC BOB – 10/24/2016 Review of Hazard Mitigation Plan
24.	BOCC Minutes – 10/24/2016 Review of Hazard Mitigation Plan
25.	Request for Input Published in Leader Online – November 2, 2016
26.	Request for Input Published in Leader – November 2, 2016
27.	PDN “Eye on Jefferson” Announcement – 11/05/2016
28.	PTCC Agenda Bill – 11/07/2016 Adoption of Hazard Mitigation Plan
29.	PTCC Agenda – 11/07/2016 Adoption of Hazard Mitigation Plan
30.	PTCC Minutes – 11/07/2016 Adoption of Hazard Mitigation Plan
31.	Port Townsend Neighborhood.com Request for Input
32.	Climate Action Committee Agenda – 11/30/2016
33.	Climate Action Committee Minutes – 11/30/2016
34.	BOCC Minutes – 01/09/2017 Discussion of Hazard Mitigation Plan
35.	Marrowstone Island Foundation Request – 01/09/2017
36.	Marrowstone Island Foundation Agenda – 01/10/2017
37.	Marrowstone Island Foundation Minutes – 01/10/2017
38.	BOCC Agenda Request – 01/23/2017 Adoption of Hazard Mitigation Plan
39.	BOCC Agenda – 01/23/2017 Adoption of Hazard Mitigation Plan
40.	BOCC BOB – 01/23/2017 Adoption of Hazard Mitigation Plan
41.	<b>BOCC Minutes – 01/23/2017 Adoption of Hazard Mitigation Plan (Waiting on Publication)</b>



Item 1: Table of Hazard Mitigation Plan Related Meetings		
Date	Public Location	Purpose of Meeting
May 19, 2014	Port Townsend City Hall	Brief City Council and members of the public on the need to do a 5-year update of the Hazard Mitigation Plan
June 2, 2014	Port Townsend City Hall	City Council Meeting - Appoint the City Manager as “Applicant Agent” and City representative for the <i>Jefferson County – City of Port Townsend Hazard Mitigation (Rev. 2016) Update Project</i> . Authorize applying for a FEMA planning grant to help fund the work.
January 30, 2015	Fire Station 1-6 Meeting Rm Port Townsend	JPREP Meeting – Inform Stakeholders and interested members of the public about the Hazard Mitigation Update Project, the near real-time website, and ask for citizen input.
January 29, 2016	Fire Station 1-6 Meeting Rm Port Townsend	JPREP Meeting – Brief Stakeholders and interested members of the public on the status of the Hazard Mitigation Plan update and to ask for public input.
April 1, 2016	Fire Station 1-6 Meeting Rm Port Townsend	JPREP Meeting – Brief Stakeholders and interested members of the public on the status of the Hazard Mitigation Plan update and to ask for public input.
September 30, 2016	Fire Station 1-6 Meeting Rm Port Townsend	JPREP Meeting – Brief Stakeholders and interested members of the public on the status of the Hazard Mitigation Plan update and to ask, yet again, for public input.
October 17, 2016	Port Townsend City Hall	Brief City Council and members of the public on the Hazard Mitigation Plan.
October 24, 2016	Jefferson County Commission Chambers	Brief the Jefferson County Board of County Commissioners (BOCC) and members of the public on the Hazard Mitigation Plan.
November 7, 2016	Port Townsend City Hall	City Council to adopt the Hazard Mitigation Plan.
November 30, 2016	Cotton Building Port Townsend	Climate Action Committee Meeting
January 10, 2017	Marrowstone Island Foundation	Discuss effects of a major earthquake on Marrowstone Island; approve letter requesting special consideration in the Hazard Mitigation Plan.
January 23, 2017	Jefferson County Commission Chambers	Jefferson County BOCC to adopt the Hazard Mitigation Plan.

## Item 2: Hazard Mitigation Plan Update Website

In 2004 and 2009, public meetings drew few if any interested citizens. At one meeting, there was one person whose personal mission is to attend all city meetings as a self-elected government oversight committee, but that is it. Since 2009, Jefferson County and the City of Port Townsend have changed the way they access the public. City Council meetings are televised and are also put online for the public to access later. There are electronic blogs for citizens to use to send public messages to city staff, and a public forum on the City website.

There has also been the development and evolution of the Neighborhood Emergency groups – citizens that take their survival in an area known to have significant natural hazards very seriously indeed. These are the members of the public that are most likely to take the time and interest in reviewing an admittedly dry document and make suggestions and enhancements, both to the document and to the strategies therein.

Given the above, we provided a Plan Update Website, [www.jprephazmitplan.org](http://www.jprephazmitplan.org), in which the public could access as we developed the Plan and provide input, both as to editing content and suggesting strategies and concerns that the stakeholders may not have addressed.

This has been very successful compared to previous years' efforts. As of January 22, 2016, we had 1,342 views, as opposed to three or four attendees at individual meetings. Seven hundred views have been on the page that contains the 2016 draft of the Plan. Out of that, ten to fifteen percent are caused by the web master making changes and editing the site. We have received nearly a dozen good ideas and editorial comments that have been used in improving the Plan.

Figures F-1 shows the Home page of the website. Since the topic itself is fairly routine and dry, we have periodically inserted a modicum of humor. The home page has an old photo that has deliberately been mislabeled as a protective suit for some type of hazard. All of the hazards listed have been significant in the media or locally during the period that this iteration of the Plan has been in development.

The website is intended to provide a mechanism for the general public to review and suggest improvements to the *Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Plan)* that is due for its mandatory 5-year update. The current plan, (Rev. 2009), was good until June 6, 2015, at which time, we must have a FEMA approved (Rev. 2016) in place for participating jurisdictions to be eligible to apply for Hazard Mitigation grants. Due to circumstances beyond our control, the deadline passed. The Plan is still good for the participants to use in guiding their own mitigation efforts, but an updated Plan must be in place to be awarded hazard mitigation grants. This does not apply to Public Assistance resulting from disasters.

### Viewing

The Plan is a public document; therefore, the content of this website is public, too. In general, anyone can look at any pages of the website without signing in. Thus, anyone can view the 2009 Plan or the 2016 Revised Plan as it is being developed. Public input is important to the Plan, so we will keep a count of the number of people viewing the site, but will not collect any personal information unless the viewer decides to submit comments – and that will be only to offer appropriate credit for ideas and contributions.

To comment directly about the development of the 2016 Plan, the reader must register and login. This allows him/her to put comments into the “Comments” dialog at the bottom of the “Draft 2016 Plan” page. (See Figure F-2.) An entry indicating that someone made a fresh comment will appear in the “Recent Comments” dialog box. Clicking on any entry in that dialog will take the reader directly to the associated comment.

We will collect contact information so that we can document public participation. The reason for this is that FEMA is very concerned that the public has an opportunity to comment on the Plan. In the past, we have had public meetings where nobody showed up. Now, however, we have a robust Neighborhood Emergency Group network and the ability to interact through the Internet. Therefore, we will collect the names of the people helping to critique the Plan and give them appropriate credit in the Plan, itself. No contact information will be published for contributors so that they will not be subject to unwanted contacts from people who glean such information from public documents. The work contact information of public figures is included if their contact information is already in the public domain.

The Plan is a public document and CD versions of the 2009 Plan are available for viewing at the public libraries.




## **2016 Draft Plan**

This is a PDF version of the 2016 Draft Plan *as it is evolving*. It started as the 2009 Plan and was modified as we worked on updating the Plan. There is a “comments” box at the bottom of the index page that allows someone to enter comments regarding the Plan. Those comments will end up in the “comments blog”, and will be reviewed and acted on, as appropriate. Commentators will be given credit within the Plan, which does have a section that contains public input. The comments are “moderated” before being allowed to post, so that profanity and non-relevant comments from trolls will be excluded. This is a serious work and we hope for and expect considered ideas from motivated public participants.

## **Grants**

The “Grants” page provides an overview of the grant programs that become accessible to the Plan adoptees for the purpose of hazard mitigation.

Figure F-1 Hazard Mitigation Plan Website – Home Page

## Jefferson County - City of Port Townsend Natural Disaster Hazard Mitigation Plan

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Home Page
How 2 Use
Plan Mandate
2009 Plan
2016 Draft Plan
Grants
Contact Us

**Administration:**

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Site Admin  
Log out  
Entries RSS  
Comments RSS  
WordPress.org

### Home Page



**Swine Flu Survival Suit**

**Ebola Survival Suit**

**Cascadia Rising Survival Suit**

**Zika Virus Survival Suit**

Just Be Prepared for Anything!!!

933 total views, 6 views today

**Recent Comments:**


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Ken Horvath on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
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cindyjayne on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
cindyjayne on 2016 Draft Plan  
Ken Horvath on 2016 Draft Plan  
Ken Horvath on 2016 Draft Plan  
jchoncho on 2016 Draft Plan  
Ken Horvath on 2016 Draft Plan  
Ken Horvath on 2016 Draft Plan  
Ken Horvath on 2016 Draft Plan

**Calendar:**

October 2016


M	T	W	T	F	S	S
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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						
◀ Aug						



Jefferson County

Department of Emergency Management




EMERGENCY OPERATIONS CENTER, 81 Elkins Road, Port Hadlock, WA 98339  
Phone: 360.385.9368 - Fax: 360.385.9376 - Email: jcdem@co.jefferson.wa.us  
After hours (urgent): 360-385-3831, x1 - Web site: www.jeffcoec.org



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Copyright © 2016 - GeneratePress

**Figure F-2 Hazard Mitigation Plan Website – 2016 Draft Plan Page**

**Jefferson County - City of Port Townsend  
Natural Disaster Hazard Mitigation Plan**

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**Administration:**

Register  
Log in  
Contact Us  
Comments RSS  
WordPress.org

### 2016 Draft Plan

This document is a work in progress. As each section is drafted, it will be posted for comment. If the section is "closed", comments are allowed. A comment must always be accompanied by the name and e-mail id of the commenter.

The recommended way to use this site is:

- Leave this page open for receiving your comments.
- Open the document you want to review and comment on by right clicking on the link and selecting "open in new window".
- Return to this page for second comments; copy selections of the document text or link the process of the content.

**Recent Comments:**

Rick Horvath on 2016 Draft Plan: On July 26, 2016, Draft Plan...

Rick Horvath on 2016 Draft Plan: On July 26, 2016, Draft Plan...

Rick Horvath on 2016 Draft Plan: On July 26, 2016, Draft Plan...

Rick Horvath on 2016 Draft Plan: On July 26, 2016, Draft Plan...

Rick Horvath on 2016 Draft Plan: On July 26, 2016, Draft Plan...

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**Calendar:**

M	T	W	T	F	S	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

« Aug

- [DRAFT v4 2016 Hazard Mitigation Plan Cover](#)
- [DRAFT v4 2016 10 TAB Contents](#)
- [DRAFT v4 2016 Preface](#)
- [DRAFT v4 2016 Revision Summary](#)
- [DRAFT v4 2016 Executive Summary](#)
- [DRAFT v4 2016 Sect I – Plan Process](#)
- [DRAFT v4 2016 Sect II – Hazards](#)
- [DRAFT v4 2016 Sect III – Natural Haz A-D](#)
- [DRAFT v4 2016 Sect III – Natural Haz E](#)
- [DRAFT v4 2016 Sect III – Natural Haz F-P](#)
- [DRAFT v4 2016 Sect III – Natural Haz Q-Z](#)
- [DRAFT v4 2016 Sect IV – Man-Made Haz A-C](#)
- [DRAFT v4 2016 Sect IV – Man-Made Haz M-Z](#)
- [DRAFT v4 2016 Sect V – Multi-Jurisdictional Hazards](#)
- [DRAFT v4 2016 Sect VI – Port Townsend](#)
- [DRAFT v4 2016 Sect VII – Special Districts](#)
- [DRAFT v4 2016 Sect VIII – Special Districts](#)
- [DRAFT v4 2016 Sect IX – Mitigation Actions](#)
- [DRAFT v4 2016 Section X – Coordinating Entities](#)

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Leave a Comment

Name \*


Email \*

Website

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**Jefferson County**  
Department of Emergency Management  
EMERGENCY OPERATIONS CENTER, 816 Pine Road, Port Hadlock, WA 98126  
Phone: 360-886-8334 • Fax: 360-399-8375 • Email: jcm@jeffco.wa.gov  
After Hours (urgent): 360-886-8331, x1 • Web site: www.jeffco.wa.gov



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### Item 3: Agenda – PTCC – May 19, 2014

Agenda - City Council Meeting Appointing City Manager Applicant Agent  
for the Hazard Mitigation Plan Grant.

#### **PORT TOWNSEND CITY COUNCIL REGULAR BUSINESS MEETING AGENDA CITY HALL COUNCIL CHAMBERS, 540 WATER STREET**

**Business Meeting**

**06:30 p.m.**

**May 19, 2014**

**I. [Call to Order and Pledge of Allegiance](#)**

**II. [Roll Call](#)**

**III. [Changes to the Agenda](#)**

**IV. [Comments from the Public \(re consent agenda items and items not on the agenda\)  
\(Each person has 3 min. to comment - City Clerk will signal at 2 min. 30 sec.\)](#)**

**V. [Consent Agenda](#)**

A. Approval of Bills, Claims and Warrants

B. Approval of Minutes: April 28, 2014 and May 5, 2014

[042814 Minutes](#)

[050514 Minutes](#)

**C. Resolution 14-023 Designating the City Manager as Applicant Agent for the State of Washington Pre-Disaster Mitigation Grant Program Applications**

[AB14-058 Hazard Mitigation Grant Awards](#)

[Attachment 1 - Resolution 14-023](#)

[Attachment 2 - Port Townsend Hazard Mitigation Grant History](#)

[Attachment 3 - Pre-Disaster Mitigation Grant Fact Sheet](#)

[Attachment 4 - Pre-Disaster Mitigation Grant Timeline](#)

## **VI. Unfinished Business**

### **VII. New Business**

#### A. [Resolution 14-024 Amending the Travel Policy of the Personnel Policies Manual](#)

*Action: Move to approve Resolution 14-024 Amending the Travel Policy of the Personnel Policies Manual*

[AB14-060 - Travel Policy](#)

[Attachment 1 - Resolution 14-024](#)

[Attachment 2 - Resolution 14-024 Exhibit A](#)

[Attachment 3 - Resloution 14-024 Exhibit A Showing Changes](#)

[Attachment 4 -OFM Washington State Administrative Manual Chapter 10 Travel Regulations](#)

1. Staff presentation
2. Public comment
3. Council deliberation and action

[Attachment 5 - Draft Travel Policy \(not recommended\)](#)

#### A. [Request by Blue Star Banner Program to Establish a Coordinated Signage Program within the Sims Way \(SR 20\) Right-of-Way between Sheridan and Howard Streets \(This item is Unfinished Business, but was moved to the New Business portion of the agenda in order to allow Ms. Nelson to be present for the discussion\).](#)

*Action: Move to approve the Findings of Fact and Conclusions of Law of the City Council (as amended) for the Blue Star Banner Program request.*

*Action: Direct staff to work with the applicant to address outstanding issues and identify alternative locations for the Blue Star Banner Program to be implemented and return to Council with a recommendation.*

*Action: Direct the Community Development and Land Use Committee to review the issue and recommend to City Council on how best to proceed in this matter.*

[AB14-059 - Blue Star Banner Program](#)  
[Attachment 1 - Draft Findings and Conclusion 12-26-13](#)

[Attachment 2 - Minutes of January 6 2014](#)

1. Staff presentation
2. Public comment
3. Council deliberation and action

B. [Ordinance 3106 Amending PTMC Chapter 3.46 Relating to Purchasing and Contracting](#)

*Action: Move to approve Ordinance 3106 amending PTMC Chapter 3.46 Relating to Purchasing and Contracting.*

[AB14-061 Purchasing and Contracting](#)

[Attachment 1 - Ordinance 3106](#)

[Attachment 2 - Ordinance 3106 Exhibit A](#)

[Attachment 3 - Ordinance 3106 Exhibit B](#)

[Attachment 4 - MRSC Purchasing & Bidding](#)

[Attachment 5 - Finance & Budget Minutes of April 2 2014](#)

[Attachment 6 - Finance & Budget Minutes of April 16 2014](#)

1. Staff presentation
2. Public comment
3. Council deliberation and action

**VIII. [Presiding Officer's Report](#)**

**IX. [City Manager's Report](#)**

**X. [Suggestions for next or future agenda, regular meeting and/or study session](#)**



**XI. Comments from Council**

**XII. [Adjourn](#)**

## Item 4: Minutes – PTCC – May 19, 2014

Minutes - City Council Meeting Appointing City Manager Applicant Agent  
for the Hazard Mitigation Plan Grant.

### **CITY OF PORT TOWNSEND MINUTES OF THE CITY COUNCIL REGULAR BUSINESS MEETING OF MAY 19, 2014**

#### **CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

The Port Townsend City Council met in regular session on May 19, 2014 in the Council Chambers at 540 Water Street. Mayor David King called the meeting to order at 6:30 p.m.

#### **ROLL CALL**

Councilmembers present at roll call were Pamela Adams, Robert Gray, David King, Catharine Robinson, Michelle Sandoval, and Deborah Stinson with Kris Nelson excused.

Staff members present were City Manager David Timmons, City Attorney John Watts, Public Works Director Ken Clow, Community Services Director Rick Sepler, City Clerk Pam Kolacy, and Deputy City Clerk Joshua Stecker.

It was announced by Mayor King that although Ms. Nelson was not present for roll call (thus excused), she would arrive late. She arrived at 6:48 p.m.

#### **CHANGES TO THE AGENDA**

Discussion of the Blue Star Banner Program under Unfinished Business was postponed until the arrival of Ms. Nelson.

#### **COMMENTS FROM THE PUBLIC**

There were no public comments regarding consent agenda items not on the agenda.

## **CONSENT AGENDA**

### **Approval of Bills, Claims and Warrants**

Vouchers 123299 through 123377 in the amount of \$238,241.88

Vouchers 123387 through 123507 in the amount of \$1,009,982.41

Electronic Funds Transfers in the amount of \$22,538.01

### **Approval of Minutes: April 28, 2014 and May 5, 2014**

#### **Resolution 14-023 Designating the City Manager as Applicant Agent for the State of Washington Pre-Disaster Mitigation Grant Program Applications**

Ms. Stinson noted that the year stated in the first paragraph of Page 5 of the minutes of April 28th should be changed from 2105 to 2015.

City Manager David Timmons identified the Pre-Disaster Mitigation Grant Program resolution as a chance to update the City's application and celebrate the program's achievements.

Ms. Adams noted that on Page 4 of the minutes of May 5, the phrase "leaving a kiosk" should be changed to "having a kiosk."

*Motion: Deborah Stinson moved to approve the consent agenda with the changes identified in the minutes of April 28, 2014, and May 5, 2014. Pamela Adams seconded. Vote: motion carried unanimously, 6-0 by voice vote.*

## UNFINISHED BUSINESS

The Unfinished Business discussion on the Blue Star Banner Project was postponed until Ms. Nelson arrived later in the meeting.

## **NEW BUSINESS**

### **Resolution 14-024 Amending the Travel Policy of the Personnel Policies Manual**

Mr. Timmons explained that this resolution was proposed to remedy conflict between current City policy and the Office of Financial Management (OFM) travel policy. Previously proposed changes were redundant and contradictive. All that was needed was to eliminate Attachment B of the City's Personnel Policies Manual. A Council travel policy will be addressed separately in the future.

In response to Mr. Gray's questions, Mr. Timmons informed Council that the City will be developing a travel authorization form.

Mr. Gray expressed concern about a lack of an explicit travel policy for councilmembers. Mr. Watts explained that the standing practice for authorizing councilmember travel was legitimate. Ms. Sandoval noted that councilmember travel is arranged by City staff.

Ms. Nelson arrived at the meeting at 6:48 p.m.

In response to Mr. Gray, Mr. Timmons advised council that City staff will receive training from the State on the OFM policies.

Public Comment:

Todd Wexman informed Council that Mr. Timmons has traveled to several ICMA conferences paid for by the City.

Steve Oakford noted that travel is necessary part of work. The policy should be applied equally to employees and elected officials.

Patrick Moore requested 20 minutes to speak but the extra time was not granted by Council. He expressed concern that the proposed revisions have not been through committee. Mr. Moore provided examples of Mr. Timmons travel receipts.

Mr. Timmons explained that filing a formal complaint with the Council is the proper method to address concerns about employee travel.

Mr. Timmons, Mr. King and Ms. Sandoval expressed support for international travel for employee development. Travel opportunities are considered based on the expected return on the City's investment.

Ms. Nelson found that the revisions drafted by the Finance and Budget Committee were more user friendly than incorporating the entire OFM policy, but added that she would support the revision as proposed. Mr. Timmons and Mr. King responded that there were too many inconsistencies with the previous revision drafts. Mr. Timmons acknowledged that they were trading some user-friendliness for a more comprehensive policy.

Mr. Gray expressed concern over public perception of employee travel.

Mr. Watts reminded the Council that they have already resolved to pre-approve the City Manager's out-of-state travel. He sees the proposed revision as a simpler method of streamlining the travel policy. OFM's policy may not be as clear, but at least it is a standard that can be applied. In response to Ms. Robinson's questions, he clarified that the revision would apply to the personnel policy and therefore only to City employees, not elected officials. A travel policy for Council will be brought forward at a later date.

Ms. Stinson agreed that it made sense to handle travel differently for staff and Council. She sees a need to get a return on money invested in travel. Spending too many staff hours dealing with travel negatively affects that return on investment.

Mr. Gray wants to see better documentation of travel arrangements.

Mr. Timmons explained the meal policies to Ms. Nelson. Employees will designate their travel status as per diem or actual expense travel before departing.

Ms. Adams believes the proposed clarification is a good step forward and stressed increased training on the policy. Ms. Sandoval clarified that the city has a policy in place and this proposal is simply a revision to the existing policy.

In response to questions about budget training opportunities, Mr. Timmons related that the City offered budget training through the University of Washington at over \$2000 a few years ago. He sees a need for more budget training opportunities.

Ms. Sandoval described her travel to California to see their affordable artist housing program on her own money. They had to adapt to the recession and she was able to learn from their experience. She and Mr. King believe frequent travel to Olympia to meet with legislators opened up opportunities for economic stimulus.

*Motion: Catharine Robinson moved to approve Resolution 14-024 Amending the Travel Policy of the Personnel Policies Manual. Robert Gray seconded.*

*Vote: motion carried unanimously, 7-0 by voice vote.*

- 
- Non-relevant items removed for brevity. krh
- 

### ADJOURN

The meeting adjourned at 9:26 p.m.

Attest:

Pamela Kolacy, MMC  
City Clerk

## Item 5: City of Port Townsend Resolution 14-023

*Resolution 14-023*

### RESOLUTION NO. 14-023

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PORT TOWNSEND, WASHINGTON, DESIGNATING THE CITY MANAGER AS APPLICANT AGENT FOR THE STATE OF WASHINGTON PRE-DISASTER MITIGATION GRANT PROGRAM APPLICATIONS**

**WHEREAS**, the City of Port Townsend desires to apply for grants through the State of Washington Hazard Mitigation Grant Programs; and

**WHEREAS**, all grant applications must have Council approval; and

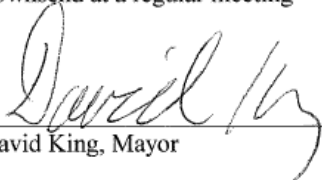
**WHEREAS**, it is a requirement of this grant program to designate an applicant agent and an alternate; and

**WHEREAS**, the City Manager is the customary designated signature for contract, agreements and applications.

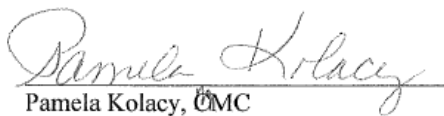
**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Port Townsend as follows:

1. David G. Timmons, City Manager for the City of Port Townsend and Alternate Kenneth Clow, Public Works Director for the City of Port Townsend, are hereby authorized to execute for and on behalf of the City of Port Townsend, a local government entity established under laws of the State of Washington, this application and to file in the Military Department, Emergency Management Division for the purpose of obtaining certain federal and state financial assistance;
2. The City Council of the City of Port Townsend hereby authorizes its agent to provide to the State Emergency Management Division for all matters concerning such state hazard mitigation assistance the assurances and agreements required.

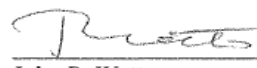
**ADOPTED** by the City Council of the City of Port Townsend at a regular meeting thereof, held this 19<sup>th</sup> day of May, 2014.

  
 \_\_\_\_\_  
 David King, Mayor

**Attest:**

  
 \_\_\_\_\_  
 Pamela Kolacy, OMC  
 City Clerk

**Approved as to form:**

  
 \_\_\_\_\_  
 John P. Watts  
 City Attorney

## Item 6: Press Release Requesting Input to the Plan – March 2016



### Jefferson County

#### Department of Emergency Management

EMERGENCY OPERATIONS CENTER, 81 Elkins Road, Port Hadlock, WA 98339  
 Phone: 360.385.9368 - Fax: 360.385.9376 - Email: [jcdem@co.jefferson.wa.us](mailto:jcdem@co.jefferson.wa.us)

Robert W. "Bob" Hamlin, Program Manager

"Leadership through Partnership"

FOR IMMEDIATE RELEASE

Contact: K. Horvath—360-385-9368

### Hazard Mitigation Plan Seeks Public Input

**PORT HADLOCK**—Jefferson County and the City of Port Townsend seek public input for the 2016 update of the *Jefferson County – City of Port Townsend Hazard Mitigation Plan*. The County, City and sixteen Special Districts are participating in the Plan, including JeffCom 9-1-1-, all fire departments, all school districts, the PUD, the County Library District, the Hospital District, and the Port of Port Townsend.

The purpose of the Plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring. In doing so, and after FEMA approves the Plan, participating organizations become eligible to compete for Hazard Mitigation grants to implement their Plans by adopting the Plan. In the past, the City has received such grants to seismically retrofit the Library, the police station (Cotton Building), the water distribution system at City Lake, the downtown tunnel lids, and to rebuild the fire station at Harrison and Lawrence Streets.

The scope of the 2016 Plan includes both natural and man-made hazards, and thus, is considered an All-Hazards Plan. The major natural hazards to be revised are Damaging Winds, Drought, Earthquake, Flood, Landslides, Public Health Emergencies, Tsunami, Wildfire, and Winter Storms. Significant man-made hazards to be updated are 9-1-1 Outages, long-term Power Outages, Terrorism, and Water Shortage. This year we are adding an introduction addressing Climate Change and adding a section on climate change to each hazard that can be directly affected by it.

Public input is a requisite for the Plan to be approved by FEMA. The existing 2009 Plan and a first draft of the 2016 Plan that is still a work in progress are available at [www.jprephazmitplan.org](http://www.jprephazmitplan.org). You can view the Plan as it is developed and make comments about format, editing, etc. Suggestions for mitigation strategies will be included in the Plan and your name as a contributor. You must register to leave comments and it needs to be vetted the first time so that we can keep the site from being spammed. We will check the site daily to vet new comments and collect ideas that we can use in the Plan. The City library has a CD of the 2009 Plan in their reference areas.



## Item 7: Port Townsend City Newsletter (in with Water Bills) requesting reviews of the Plan

# City of Port Townsend NEWSLETTER

April 2016

360.379.5047 / [citycouncil@cityofpt.us](mailto:citycouncil@cityofpt.us) / [www.cityofpt.us](http://www.cityofpt.us)

### From Mayor Deborah Stinson

Like many of you who are participating in this year's [Community Read](#), I notice that climate change is a topic of interest more frequently and in more venues. For instance, Commissioner Phil Johnson and I had the opportunity to address 25 excited 4th - 8th grade students at Blue Heron as they became Climate Ambassadors as part of [Plant for the Planet](#). PFTP is an international organization, so far impacting 193 countries, started by 9-year-old Felix Finkbeiner in 2007 after a climate change presentation in his classroom. Our students have now joined a group of 33,000 Climate Ambassadors who are working to make their world healthy and sustainable.

The new Ambassadors gave an impressive presentation to their parents after a day of engaging activities involving tree-planting basics, information on climate science and climate justice, and how to engage others in making a difference. Ongoing projects will be planned and implemented by the students, but not before they got their "Stop Talking, Start Planting" photo op with an elected local official. That's me with sixth grader Jeannette Patric. Looks like now is the time to plant those trees that last year's drought discouraged.

The topic surfaced again as we work with Jefferson County's Department of Emergency Management (DEM) to update our Hazard Mitigation Plan. The findings from the recently published [Climate Change Preparedness Plan for the North Olympic Peninsula](#) (see [www.noprce.org](http://www.noprce.org)) will be included along with all other data coming from the various agencies across Jefferson County. The first draft of the Hazard Mitigation Plan is currently under review and you can provide input at [www.jprephazmitplan.org](http://www.jprephazmitplan.org).

Speaking of the DEM, have you heard about the upcoming 'Cascadia Rising 2016 Exercise'? This national level drill provides federal, state and local organizations the opportunity to test a coordinated response to a worst-case scenario of a 9.0 earthquake off the northwest coast. The City of Port Townsend is participating along with the multiple agencies coordinated by the Department of Emergency Management.

The exercise will take place June 6 -10. The most visible part of the exercise in our community will be the possible increased Navy presence as they exercise at Indian Island to test their capability to deliver aid and resources. The bulk of the local exercise will have the Incident Management Team testing alternative communication tools, inter-agency coordination, logistics planning and much more - all while working from tents since the scenario assumes our Emergency Operations Center is inaccessible. You can learn more by reading the very informative newsletters that are being posted on the DEM website – [www.jeffcoeoc.org/current](http://www.jeffcoeoc.org/current). While on that page, also check out the locally produced document, [Think Plan Do Repeat](#), to help you prepare your own household and/or neighborhood for any emergency.

None of what I have mentioned here happens without a robust and engaged core of volunteers. The City of Port Townsend benefits from our own bounty of volunteers who contribute through our various advisory boards and commissions. I'm enjoying the opportunity to meet with each of these boards to craft new operating procedures that can keep them at their most effective while also adhering to the changing regulatory landscape. Each board is enthusiastic about their mission and all have mentioned they always welcome the fresh perspective of new participants. Please read the related article elsewhere in this newsletter to learn more about what they do and consider contributing your own unique skills and insights.

Finally, the council retreat mentioned in earlier newsletters has been scheduled for April 25. Please watch the newspapers or check our home page at [www.cityofpt.us](http://www.cityofpt.us) for details as the date approaches.

# Item 8: Press Release Publication – “The Leader”

## The Port Townsend Leader – 4/20/2016

### ECHHO needs drivers

The Ecumenical Christian Helping Hands Organization (ECHHO) is currently looking for more volunteer drivers to meet the increasing demand for transportation services to medical appointments for local seniors and residents who otherwise would have no means of transport. ECHHO also has a need for office volunteers.

ECHHO is a nonprofit organization that works with volunteers and community organizations to provide transportation, chore, meal, repair and medical equipment services to Jefferson County residents in order to help them continue to live independently. ECHHO helps people of all ages who are in need in the community, but the majority of services are provided to seniors. This year, ECHHO drivers will make more than 1,000 trips in support of Jefferson County residents in need of help with transportation and will incur out-of-pocket costs of \$300,000 for vehicle-related equipment.

For more information, call 206-224-0100 or visit [www.echho.org](http://www.echho.org).

### in health

#### Fault, others talk affordable dental care

A conversation on ways to provide dental care to underserved communities was held on Wednesday, April 20 at the Cape Elizabeth Community Building, 2222 St. John Ave.

Attendees discussed the current dental care system in our area. Dr. 11:30-1:30 p.m. on Wednesday, April 20 at the Cape Elizabeth Community Building, 2222 St. John Ave.

Attendees discussed the current dental care system in our area. Dr. 11:30-1:30 p.m. on Wednesday, April 20 at the Cape Elizabeth Community Building, 2222 St. John Ave.

#### Cochlear implants topic of April 25 talk

The Hearing Loss Association of America (HAAA) Jefferson Chapter, hosts a talk on cochlear implants at 2 p.m. on Monday, April 25 at the Port Townsend Community Center, 201 Tyler St.

The speaker, Dr. Keith Johnson, will discuss the benefits and risks of cochlear implants. The speaker will also discuss the current state of cochlear implants and the future of the technology.

#### Medical equipment loans now available

Jefferson County Health Department (ECHHO) has been working to expand its medical equipment loan services to areas of north Jefferson County.

The medical equipment loan program is now available through four locations throughout East Jefferson County: ECHHO, 1110 Jefferson St., Port Townsend; Port Ludlow Community Center, 10514 14th Ave. S.W., Port Ludlow; Quilness Health Center, 206645 U.S. Hwy. 101, Quilness; Blount Community Church, 32 Church Road, Tenino.



Full bloom: a variety of lupine flowers are in full bloom at the base of a tree at the base of the historic building at the city's Port Townsend Golf Club property. The picture is not a true color photograph. The City's Chief of the Washington Nature Trust Society manages the natural area under a city lease. Visit the picture to see a sea of blue and yellow with red, pink and purple accents. Visitors are encouraged to walk past if going beyond the white fence. Photo by Rick Cook, Tenino.

### Public asked to aid hazard plan

Jefferson County and the City of Port Townsend seek public input for the 2016 update of the Jefferson County – City of Port Townsend Hazard Mitigation Plan. The county, city and 18 special districts are participating in the plan, including Jefferson City, all fire departments, all school districts, Public Utilities District 2, the library and the library.

The purpose of the plan is to provide a structured approach so that participating organizations can document their strategic plans for reducing their vulnerability to a disaster, including secondary impacts, such as power outages, fires, landslides, and water damage. This year, the plan is to include an introduction addressing climate change and making a series of climate change to each hazard that can be directly affected by it, according to a press release from the Jefferson Department of Emergency Management.

Public input is a requisite for the plan to be approved by FEMA. The existing 2009 plan and a first draft of the 2016 plan that is still in work in progress are available at [jeffersoncounty.org](http://jeffersoncounty.org). View the plan and make comments about forward-looking ideas. Share your mitigation strategies as to be included with the coordinator's name. A person must register to have comments that will be vetted the first time; no longer keep the comment site from being approved. Staff will use to check the site. The city library has a CD of the 2009 plan in their reference room.

Comments can also be emailed to [klawson@jeffersoncounty.org](mailto:klawson@jeffersoncounty.org) or sent to Kim Hovorka, City of Jefferson County Emergency Management, Emergency Operations Center, 21 Elkins Road, Port Hadlock, WA 98133.

### Walk in her shoes April 27

Community members of all ages are invited to participate in the annual "Walk in Her Shoes" event, taking place this year from 5:30 to 7 p.m. on Wednesday, April 27.

The walk, which starts at Rotary Park in front of U.S. Bank next to the Port Townsend Ferry Terminal and concludes at the Center Building across from City Hall, is part of an international event encouraging men to walk a mile in high heels.

April is National Menstrual Awareness Month and "Walk in Her Shoes" is meant to raise awareness and foster dialogue about women's health, reproductive choices, and menstrual irregularities and associated risks, such as anemia, osteoporosis, and chronic pain.

Participation in the walk is free. But any donations benefit from the American Red Cross, a 501(c)(3) nonprofit organization.

Donor names are included with the coordinator's name. A person must register to have comments that will be vetted the first time; no longer keep the comment site from being approved. Staff will use to check the site. The city library has a CD of the 2009 plan in their reference room.

Comments can also be emailed to [klawson@jeffersoncounty.org](mailto:klawson@jeffersoncounty.org) or sent to Kim Hovorka, City of Jefferson County Emergency Management, Emergency Operations Center, 21 Elkins Road, Port Hadlock, WA 98133.

**Jefferson Healthcare** Providing medical excellence to every patient, every time.

**We're looking for you!**  
Help us meet the healthcare needs of our communities.

Jefferson Healthcare is looking for healthcare professionals to be part of a vibrant team. Join your talents and skills with others who want to make a difference in the health of our community.

We are currently seeking highly accomplished team players for these positions:

Executive Director	Laboratory Assistant
Medical Group	Endoscopy RN
Certified Medical Assistant	Receptionist – Ortho Clinic
Surgical Technologist	Pharmacy Technician
House Supervisor – RN	Med Tech Coordinator - Laboratory
Medical Lab Technicians/ Medical Technologist	Surgical Technologist
Coder	Cook
Volunteer Coordinator	Respiratory Care Practitioner
Care Coordinator	

Learn more at [JeffersonHealthcare.org/Careers](http://JeffersonHealthcare.org/Careers)

**Jefferson Healthcare**  
224 Sheridan | Port Townsend WA  
360-884-2000  
[JeffersonHealthcare.org/Careers](http://JeffersonHealthcare.org/Careers)





**Full bloom** A camas plant is one of many in full bloom at the 1-acre Kah Tai Prairie Reserve at the city's Port Townsend Golf Club property. The prairie is not a restoration project; the Olympic Chapter of the Washington Native Plant Society manages the natural area under a city lease. Visit the prairie to see a sea of blue and yellow with red, pink and purple accents. Visitors are encouraged to walk gently if going beyond the white fence. Photo by Nicholas Johnson

## Public asked to aid hazard plan

Jefferson County and the City of Port Townsend seek public input for the 2016 update of the Jefferson County – City of Port Townsend Hazard Mitigation Plan. The county, city and 16 special districts are participating in the plan, including JeffCom 911, all fire departments, all school districts, Public Utility District 1, the library district, hospital district and the Port of Port Townsend.

The purpose of the plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring, according to a press release.

In doing so, and after the Federal Emergency Management Agency (FEMA) approves the plan, participating organizations become eligible to compete for hazard mitigation grants to implement their plans by adopting the plan. In the past, the city has

received such grants to seismically retrofit the library, the police station (Cotton Building), the water distribution system at City Lake, the downtown tunnel lids, and to rebuild the fire station at Harrison and Lawrence streets.

The scope of the 2016 plan includes both natural and artificial hazards, and thus is considered an all-hazards plan. The major natural hazards to be revised are damaging winds, drought, earthquake, flood, landslides, public health emergencies, tsunami, wildfire and winter storms.

Significant artificial hazards to be updated are 911 outages, long-term power outages, terrorism and water shortage. This year, the plan is to include an introduction addressing climate change and adding a section on climate change to each hazard that can be directly affected by it, according to a press release from the Jefferson De-

partment of Emergency Management.

Public input is a requisite for the plan to be approved by FEMA. The existing 2009 plan and a first draft of the 2016 plan that is still a work in progress are available at [jprephazmitplan.org](http://jprephazmitplan.org). View the plan and make comments about format, editing, etc. Suggestions for mitigation strategies are to be included with the contributor's name. A person must register to leave comments that need to be vetted the first time so hosts can keep the comment site from being spammed. Staff are to check the site daily to vet new comments and collect ideas. The city library has a CD of the 2009 plan in their reference areas.

Comments can also be emailed to [khorvath@co.jefferson.wa.us](mailto:khorvath@co.jefferson.wa.us) or sent to Ken Horvath, c/o Jefferson County Emergency Management, Emergency Operations Center, 81 Elkins Road, Port Hadlock, WA 98339.

## PORT TOWNSEND LEADER ONLINE – 04/20/2016

# Public input sought for county/city hazard mitigation plan

- Apr 20, 2016

Jefferson County and the City of Port Townsend seek public input for the 2016 update of the Jefferson County – City of Port Townsend Hazard Mitigation Plan. The county, city and 16 special districts are participating in the plan, including JeffCom 911, all fire departments, all school districts, Public Utility District 1, the library district, hospital district and the Port of Port Townsend.

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Public input is a requisite for the plan to be approved by FEMA. The existing 2009 plan and a first draft of the 2016 plan that is still a work in progress are available at [jprephazmitplan.org](http://jprephazmitplan.org). View the plan and make comments about format, editing, etc. Suggestions for mitigation strategies are to be included with the contributor's name. A person must register to leave comments that need to be vetted the first time so hosts can keep the comment site from being spammed. Staff are to check the site daily to vet new comments and collect ideas. The city library has a CD of the 2009 plan in their reference areas.

Comments can also be emailed to [khorvath@co.jefferson.wa.us](mailto:khorvath@co.jefferson.wa.us) or sent to Ken Horvath, c/o Jefferson County Emergency Management, Emergency Operations Center, 81 Elkins Road, Port Hadlock, WA 98339.

## Item 9: Press Release Publication – Peninsula Daily News – 04/20/2016

This is a printer friendly version of an article from [www.peninsuladailynews.com](http://www.peninsuladailynews.com)  
To print this article open the file menu and choose Print.

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Article published Apr 20, 2016

### **NEWS BRIEFS: Public input sought for update of Jefferson County-City of Port Townsend Hazard Mitigation Plan . . . and other items**

Peninsula Daily News

**JEFFERSON COUNTY** — Jefferson County and the city of Port Townsend seek public input on updating the “Jefferson County – City of Port Townsend Hazard Mitigation Plan.”

Jefferson County, the city and 16 special districts will participate in the plan.

This includes JeffCom 9-1-1, all fire departments, all school districts, the Jefferson County Public Utility District, the Jefferson County Library District, the hospital district and the Port of Port Townsend.

“The purpose of the plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring, according to a news release.

Public input is a requisite for the plan to be approved by the Federal Emergency Management Agency (FEMA).

The 2016 plan includes both natural and man-made hazards and is considered an all-hazards plan.

A work in progress is available at [www.jprephazmitplan.org](http://www.jprephazmitplan.org).

Suggestions for mitigation strategies will be included in the plan.

Registration is required to leave comments.

Comments can be sent to [khorvath@co.jefferson.wa.us](mailto:khorvath@co.jefferson.wa.us) or mailed to Ken Horvath, c/o Jefferson County Emergency Management, Emergency Operations Center, 81 Elkins Road, Port Hadlock, WA 98339.

## **Climate and media**

PORT ANGELES — Peninsula College English professor Mark Valentine will present at Studium General “The Climate-Disrupted Culture: Media in the Mess-Age” in Peninsula College’s Little Theater, 1502 E. Lauridsen Blvd., at 12:35 p.m. Thursday.

Valentine will present on “public relations as a front for propaganda, provide insight into the media and discuss a memo calling for the creation of Think Tanks to inflate/deflate issues.”

The presentation will be a prequel to 2016 Writer-in-Residence Dahr Jamail’s Studium presentation “Living on a Climate-Disrupted Planet” on Thursday, April 28.

The event is free and open to the public.

For more information, email Kate Reavey at [kreavey@pencol.edu](mailto:kreavey@pencol.edu).

## **Club open house**

SEQUIM — The Clallam County Gem & Mineral Association will hold its spring open house at the club’s shop, 81 Hooker Road, Unit 5, from 10 a.m. to 3 p.m. Saturday.

Attendees can bring rocks to identify, see and learn how to cut rocks, and learn how to polish stones for use in jewelry or for display.

Club members will be available to show attendees the shop and its facilities as well as answer questions.

There also will be demonstrations on wire-wrapping polished stones and facilities for metal smithing and casting.

For more information, visit [www.sequimrocks.com](http://www.sequimrocks.com) or phone Scott Thornhill, club president, at 360-912-1520.

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## Item 10: Email Blast to Neighborhood Emergency Groups

Wave Webmail

horvaths@cablespeed.com

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### FW: NPREP: Updates and Opportunities

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**From :** Deborah Stinson <debstin@live.com>  
**Subject :** FW: NPREP: Updates and Opportunities

Wed, Apr 20, 2016 07:32 AM

2 attachments

Hello Neighborhood Prep Organizers,

This is just a brief note to pass along some updates and to share some opportunities to participate in new ways.

#### Cascadia Rising

The latest Jefferson County Cascadia Rising 2016 newsletter (April 2016) is now on line at <http://www.jeffcoec.org/current.htm>. Look for document 011.

The attached document was discussed at the March 19 NPREP Training Meeting with the Dept. of Emergency Management (DEM). It provides a good overview of Cascadia Rising and presents some ideas for how you can use this well-publicized drill to take some action in your own neighborhood. This is also a great opportunity for some outreach for those of us who are still getting started or need to restart organizing efforts.

Would you like to personally participate in the drill with the DEM? The team providing the event injects and monitoring our local response, known as the simulation cell or SIMCELL, is in need of some volunteers. Please contact the SIMCELL Coordinator, Pat Garrett, if you have some time to volunteer on this insider team. You can reach him at [gpgarrett15@gmail.com](mailto:gpgarrett15@gmail.com) or (571)215-5134.

#### Hazard Mitigation Planning

Jefferson County and the City of Port Townsend seek public input for the 2016 update of the *Jefferson County – City of Port Townsend Hazard Mitigation Plan*. Please read the attached news release to see what that's all about and then consider investing some time to review and provide comment on this locally important document.

#### All County Picnic

Mark your calendars now for the 4<sup>th</sup> Annual All County Picnic! This year is on Sunday, August 21 at HJ Carroll Park in Chimacum. This event has gotten better with each passing year and this year promises to continue that trend. As always, we are interested in providing a fun and engaging venue for you and your neighbors to deepen your preparedness. Another important goal is to engage more people in preparedness activities.

To that end, we would like to add your voice to the newspaper and radio publicity. Please

let us know if you would be willing to share your neighborhood's preparedness story by emailing Megan at [meganclaflin@gmail.com](mailto:meganclaflin@gmail.com). We want to hear from all who have a story to share and are particularly interested in hearing from any neighborhoods who can trace their NPREP roots back to the picnic. All story contributions will be appreciated!

That's it for now. As always, thanks for all you do to advance your neighborhood and community resilience.

Your NPREP Team

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 **2016 Hazmit Plan Press Release [255608].pdf**  
150 KB

 **NPREP Cascadie Rising Exrecise.pdf**  
362 KB

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## Item 11: List of Neighborhood Emergency Groups

	<p><b>Neighborhood Preparedness Network (NPREP)</b></p>	
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### Partial List of Organized Neighborhoods

1<sup>st</sup> Street PH  
 29<sup>th</sup> Street  
 29<sup>th</sup> Street East  
 35<sup>th</sup> & Haines  
 Adams Street  
 Admiralty Apartments  
 Aldrich's Condos  
 Bay Way  
 Bell Street  
 Berry Hill Lane  
 Blossom Road  
 Blue Sky  
 Boardwalk (airport)  
 Bridgehaven  
 Brinnon  
 Calling Our Bluff  
 Cape George  
 Cape George (Colman Loop)  
 Castle Hill  
 Castle Hill-Jackson Street  
 Cedar Road  
 Chinese Gardens  
 Cleveland  
 Cook Avenue  
 Cougar Ridge  
 Coyle  
 Discovery Bay Heights  
 Dundee Hill  
 E. Lincoln & Lawrence  
 Eagleview Lane  
 Fir Street  
 Florence St.  
 Franklin Street  
 Gardiner  
 Haines Area  
 Hamilton Heights  
 Hastings and Thomas

High School & Blaine  
 Hill Street  
 Hill Street East  
 Hoh Indian Tribe  
 Hoh River Association  
 Horton St.  
 Irondale Park  
 Irondale Road  
 Kala Point  
 Lake Leland  
 Landes Street & 19<sup>th</sup>  
 Letter Streets  
 Letter Streets-E. W  
 Letter Streets-East V Street  
 Letter Strts. Willow St., A-E  
 Logan Street  
 Lower Umitalla  
 Marrowstone Island  
 McMinn Road (1)  
 McMinn Road (2)  
 Middlepoint Rd.  
 Morgan Hilltop-Maple  
 Morgan Hilltop-Monroe (1)  
 Morgan Hilltop-Monroe (2)  
 Morgan Hilltop-Sather  
 N. Jacob Miller Rd.  
 Near Kala Point  
 New Life Church  
 North Beach  
 Ocean Grove  
 Olympic Terrace Pl.  
 P Street  
 Paradise Bay  
 PL Emerg. Serve-11  
 Polk Street  
 Port Hadlock Heights  
 Port Ludlow 1

Port Ludlow 2  
 Port Ludlow 3  
 Protection Ridge  
 PT Bay Drive  
 PT Schools  
 Quilcene Comm. Ctr.  
 Quilcene School  
 S. Jacob Miller Rd.  
 SeaBreeze  
 SeaView  
 Sheridan & 14<sup>th</sup> St.  
 Shine  
 Skywater  
 So. Discovery Road  
 So. Of North Beach  
 So. Sims Bluff West  
 South Mats-Mats  
 South Sims Bluff  
 Spruce Street  
 St. James Place  
 SW Lincoln St.  
 Swansonville  
 Taylor and Blaine  
 Timberline  
 Treehouse  
 Tremont and Olympic  
 Twenty-sixth Street  
 Umatilla Street  
 Uptown Bluff East  
 Van Buren Street  
 Van Trojen Road  
 Vineyards at Kala Point  
 W. Sims Way  
 West Dundee Hill  
 Windsor Lake

## Item 12: Email Notice for JPREP Meeting on January 30, 2015

(Distribution List has been deleted to protect members of the general public on the list.)

----- Forwarded message -----  
From: Bob Hamlin <[bhamlin@co.jefferson.wa.us](mailto:bhamlin@co.jefferson.wa.us)>  
Date: Thu, Jan 15, 2015 at 11:26 AM  
Subject: JPREP MEETING REMINDER - JAN 30  
To:



### MEETING REMINDER

Jefferson County – Port Townsend Regional Emergency Preparedness Network (JPREP)

Friday, January 30

10:00 am to Noon

Port Townsend Fire Station (Lawrence at Harrison)

#### Agenda:

Update – Natural Hazards Mitigation Plan

After Action Report – December storm series

Briefing – EOC staff reorganization project

Special Presentation – Dr. Robert Bindschadler

(Chief, NASA Hydrospheric and Biospheric Sciences Laboratory [retired])

*“SLOW DISASTER?: The realities of climate change  
and what it means for the increased likelihoods of extreme climatic events”*



the realities of climate change and what it means for the increased likelihoods of extreme climatic events

*Bob H.*

Emergency Management

**Item 13: Email Notice to JPREP – March 28, 2016**

Wave Webmail

horvaths@cablespeed.com

**JPREP MEETING REMINDER - APRIL 1**

**From :** Bob Hamlin <bhamlin@co.jefferson.wa.us> Mon, Mar 28, 2016 01:40 PM  
**Subject :** JPREP MEETING REMINDER - APRIL 1 2 attachments  
**Cc :** Bob Hamlin <bhamlin@co.jefferson.wa.us>



MEETING REMINDER:

**Jefferson County – Port Townsend  
 Regional Emergency Preparedness (J-PREP)**

**This coming Friday, April 1<sup>st</sup>**

10:00 am to NOON(ish)

At East Jefferson Fire Rescue **Station 1-6** (uptown Port Townsend)

Agenda:

1. Hazard Mitigation Plan update (Required public meeting) – Ken Horvath
2. Neighborhood Interactive Mapping Project update – Pete Hubbard
3. Operation "Billy Goat Down" – Foreign animal disease outbreak (After Action Report)
4. Cascadia Rising exercise update (The last update for J-PREP before the June exercise)
5. **WHAT HAPPENS AFTER "CASCADIA RISING"?** (Making the best use of the experience).
6. Special networking opportunity for J-PREP-ers (Classified) – Grin 'n' grip.
7. Operation "**Suspended Reality**" – an interactive disaster tabletop exercise

*J-PREP is a quarterly networking opportunity for local response agencies, organizations and neighborhood groups with a common interest in disaster mitigation, preparedness, response and recovery. It was established in 1999.*

**Bob**

Robert W. Hamlin, Director  
 Jefferson County Department of Emergency Management

***"The ability to deal with a crisis is dependent on the structures and relationships developed before the emergency"***

**Notice: THIS IS A PUBLIC RECORD.** All correspondence to or from this e-mail address is subject to public access under **Public Records Act** (RCW 42.56), and **Jefferson County Records Access Policy** (Resolution No. 39-06).

 Please consider the environment before printing this e-mail

## Item 14: NPREP Newsletter Requesting Public Input

(Run from 06/27/2016 thru 11/01/2016)

Subscribe

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Past Issues

Trans

A weekly listing from Local 20/20.

[View this email in your browser](#)



Local 20/20 Announcements  
October 24, 2016

*Promoting Sustainability and Resilience in East Jefferson County*



photo by Julie Jaman

Please visit our pilot segment — **New2View** — at the end of the announcements — an omnibus of inspiring videos and essays that reflect the mission of Local 20/20. Your submissions and insights are welcome!

### Transportation Lab - Local 20/20 - Mon Oct 24

The Transportation Lab (TLab) meets fourth Mondays from 5 to 6:30pm at 2553 San Juan Ave, PT. For more info contact [Richard Dandridge](#), lead of this Local 20/20 Action Group and visit the TLab Facebook [page](#).



### Climate Change Preparation Action Group - Local 20/20 – Mon Oct 24

Local 20/20 [Climate Change Preparation](#) working group explores how climate change will impact Jefferson County, and what we can do as a community. Meetings are fourth Mondays from 2-4 pm at First Federal Bank, 1321 Sims Way. Questions? [Email](#) Cindy Jayne.

### Health and Wellness Action Group - Local 20/20 - Tues Oct 25

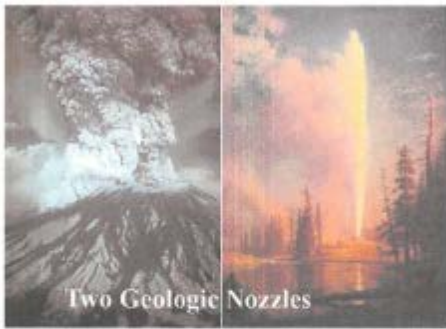
[Citizens for Healthcare Access](#) meets Tuesday, October 25th, 8-9:30am, in the Public Health Conference Room at 915 Sheridan Ave. There will be a report on the joint meeting of the Department of Health and [Jefferson Healthcare](#) to discuss the Community Health Improvement Plans. Also on the agenda are the demographics of the county as pertains to healthcare, and a 5-year assessment of the Affordable Care Act by John Geyman, long-time healthcare professional. For more info, [email](#) Jenifer Taylor or call 360-385-3666.

### Ludlow Creek Water Quality Open House - Wed Oct 26 **\*NEW\***

[Jefferson County Public Health](#) and [Jefferson County Conservation District](#) are hosting a free open house about water quality in Ludlow Creek, and financial assistance programs for homeowners with septic system problems. From 5:30-7pm at the [Bay Club](#), 120 Spinnaker Place (off Paradise Bay Rd), in Port Ludlow. Tea, coffee and water conservation gifts will be provided to attendees. For more info, call 385-9444.

### *Geologic Nozzles Lecture - Sat Oct 29 **\*NEW\****





Want to know what eruptions of Old Faithful Geyser and Mount St. Helens have in common with rapids on the Colorado River in the Grand Canyon? Dr. Susan Kiefer will discuss how some fundamental aeronautical concepts govern flow patterns in three geologic nozzles, which can be rapid agents of change in the geologic record. Dr. Kiefer is a geologist and planetary scientist of international renown. Her research on fluid dynamics of volcanoes, geysers and rivers and her

model of the thermodynamic properties of complex minerals have been widely acknowledged. She hosts a popular blog called [Geology in Motion](#).

From 4-5pm on Saturday, October 29th at the Quimper Unitarian Universalist Fellowship, 2333 San Juan Ave, PT. The talk is sponsored by the [Jefferson Land Trust's](#) Geology Group, and is free and open to the public, although a \$5 donation would be appreciated to defray expenses.

### **Energy Action Group - Local 20/20 - Weds Nov 2 \*NEW\***

The [Energy Action Group](#) meets Wednesday from 3-5pm in the conference room of First Federal, 1321 Sims Way. Please park in the back or ride your bike. For details [email](#) Tom Engel.

### **Public Policy Workshop - Peninsula College - Tues Nov 8**

Working as a team, participants in the public policy workshop will examine an issue of local interest. Students will gather information from the media, public documents and available literature, experts and stakeholders. They will organize and analyze the evidence, develop policy positions, present and defend their findings, and explain the rationale for government involvement. Over the course of the workshop, participants will learn that developing and defending a position on the basis of evidence and analysis tends to raise the level of public discourse.

Beginning Tuesday, November 8th -- Tuesdays and Thursdays, 3:15-4:45pm, at Peninsula College's Fort Worden Campus, course cost is \$114.00. To register, call (360) 417-6340 or go [here](#). Course instructor Geoff Hughes is a public policy analyst with extensive experience in applying scientific evidence in the development of public policy. For more information about the workshop, [email](#) Geoff.

### **Sign up now for *CLIMATE CHANGE: An Overview from Planet to Port Townsend* - begins Sat Dec 3**

Climate change mitigation (reducing greenhouse gases) and adaptation (preparing for climate impacts) are some of the most complex issues we've faced as a society. Learn more about both the global and local aspects through a 6-session course in Port Townsend, this December and January (One Saturday, 1-4pm, Dec. 3, AND 5 Tuesdays, 7:15-8:45pm, Dec. 6 & 13, Jan. 3, 10 & 17). This course is part of the Quimper Unitarian Universalist Fellowship Adult Learning Program, in collaboration with Local 20/20. The course will begin with a three-hour session, where participants can experience the politics and diplomacy of climate negotiations through an engaging, active simulation of the negotiations between countries as they crafted the agreement signed in Paris last December. In the remaining five 90-minute evening sessions, we will look at both mitigation and adaptation from an international, national and local level through readings, active discussion and individual reflections. The class will be taught by Laura Tucker (Laura has worked in science education her entire career, and was trained in 2012 as one of Al Gore's Climate Reality Project presenters) and Cindy Jayne (Cindy was the project manager on the Planning for Climate Change in the North Olympic Peninsula project), with guest speakers. See the full details [here](#), and sign up [here](#).



**Kul Kah Han Native Plant Garden Seeks Volunteers - Weds ongoing**



**Kul Kah Han Native Plant Garden** will continue to do Garden maintenance from 10am-2pm each Wednesday through the end of November. Our main focus will be planting the 50+ new plants (with 15 new species included) recently purchased. Bring your lunch and join in our discussions about

plants and on ideas for an Open House in 2017. The Garden is located at HJ Carroll Park, 9884 Rhody Drive (SR-19), Chimacum. Questions? Call Bekka Bloom, Outreach Coordinator 360-301-6241.

**Quimper Community Harvest - Gleaning - Tues/Sat ongoing**

Come join the gleaners to pick plums, pears and apples and deliver them to the food bank, senior housing and other organizations that can use the fruit. You can take some home too! This year they plan to gather at Seth's house (1039 Jackson St.) on Tuesdays at 3pm and Saturdays at 10am. See





[here](#) for more information about picking fruit and donating your tree this year. Please sign-up for gleaning announcements [here](#).



### Jefferson Transit is Seeking Public Input

Jefferson Transit is working to identify ways of improving transportation options for Jefferson County residents and visitors. To that end, they have planned a series of surveys to assess the transportation needs of the community, define future goals for transit and evaluate service models based on that feedback. JTA will conduct two surveys, each open to public feedback for 5 months. The second survey questions will be based on responses to the first, to further determine the needs of the community. Participation is encouraged from transit riders and non-riders alike. Completed surveys will be entered for a chance to win a \$25 Visa gift card. Pick up a printed version at JTA customer service locations, on board JTA vehicles, from a driver, or online [here](#).

### Red Dog Farm Volunteers Needed!



Red Dog has two volunteer opportunities at the farm — Work Traders and Crew Lunch Chefs. Work traders are needed Thursday mornings from 8:30am - noon, you can help us with whatever project is going on that day. In exchange, at noon, you get to harvest a share of organic produce to take home. Share sizes vary seasonally. This program continues through October. No long-term

commitment is necessary; come once, come weekly! Crew lunch chefs — we need cooks to feed our hungry crew! Any day of the week, cook at your house or our kitchen. Work with our produce and a budget to prepare delicious and filling meals for our employees. In exchange, you get credit at the Farm Stand or Market. No long-term commitment necessary, cook once, daily or weekly! For more information, contact Alice Lee or Dawn Rostad at 360-531-3825.

### Public Input Sought for County/City Hazard Mitigation Plan

Public input is sought for the 2016 update of the *Jefferson County – City of Port Townsend Hazard Mitigation Plan*. The County, City and sixteen Special Districts are participating in the Plan, including JeffCom 9-1-1, all fire departments, all school districts, the PUD, the County Library District, the Hospital District, and the Port of Port Townsend. The scope of the 2016 Plan includes both natural and man-made hazards. This year a section on climate change is being added to each hazard that can be directly affected by it. You can view the plan as it is developed and make comments about format, editing, etc over the next month. Registration is required to avoid spam. Alternately, comments can be emailed to Ken Horvath or

sent to him c/o Jefferson County Emergency Management, Emergency Operations Center, 81 Elkins Road, Port Hadlock, WA 98339.

### A Tool for Neighborhood Organization



Nextdoor is a private social network for neighborhoods. Use this [link](#) to join one of 24 Nextdoor Neighborhoods (NDN) in Jefferson County. Read copies of important NIXLE messages from the Director of Emergency Management and **periodic posts** about emergency preparedness. Currently there are 2574 subscribers with about 4 new members joining each day. Click [here](#) to see the growth in each NDN, [here](#) to learn more. **Email** Pete Hubbard with questions or comments.

### Download the Port Townsend Walking Times Map

Local 20/20 Transportation Lab's popular walking times map is [downloadable here](#). Walking is healthy, social, fun, costs nothing and keeps your carbon footprint small.



### Communication after "The Big One" - Local 20/20



Click [bit.ly/jc-ncs-map](http://bit.ly/jc-ncs-map) to explore NPREP's interactive Neighborhood Communication Systems map. Click <http://bit.ly/l2020-ep> to read a growing collection of activities and information about Emergency Preparedness in your neighborhood and Jefferson County. Questions? **Email Pete** or **Local 20/20 NPREP**.

### North Olympic Exchange

**North Olympic Exchange**, a local currency/barter group, would like to explain how the system works and how you can help build a sustainable community by trading skills, services and goods. An orientation can be scheduled during the day or early evening at a convenient location or over the phone. **Email Mike** or call him at 360.379.2627.

### Tech Tuesdays at Jefferson County Library

Each Tuesday the **Jefferson County Library** offers a free two-part technology training session, beginning with a one hour discussion on a



The rest of the newsletter is not relevant to the documentation of the request for public input, and in the interest of holding the line on an already large tome, has been deleted.


The *Local 20/20* organization is a local umbrella organization for people actively participating in the well-being of the community. It has multiple *Action Groups*, including the Neighborhood Preparedness (NPREP) Action Group. The main focus of the NPREP Action Group is to help neighbors organize so that they may work together when a disaster occurs, thereby enhancing the safety and comfort of all in such difficult times. Working with the Jefferson County Department of Emergency Management (DEM), this effort has facilitated the self-organization of well over 100 neighborhoods since 2006.

Having the “Request for Input” in the *Local 20/20* Newsletter puts the request directly in front of those people in the NPREP Action Group that have shown a particular interest in the topics addressed in the Hazard Mitigation Plan. It is preaching to the choir – and may be one of the reasons that the Plan website received over 1,000 views.

The highlighted request was run from 06/27/2016 to 11/01/2016.

## Item 15: Email Notice JPREP Meeting on September 30, 2016

----- Forwarded message -----  
From: Bob Hamlin <[bhamlin@co.jefferson.wa.us](mailto:bhamlin@co.jefferson.wa.us)>  
Date: Mon, Aug 29, 2016 at 1:29 PM  
Subject: JPREP MEETING REMINDER  
To:



**JPREP MEETING REMINDER**

MARK YOUR CALENDAR for

**Friday, September 30<sup>th</sup> 10:00 am to Noon**

East Jefferson Fire Rescue Station 1-6 (Port Townsend)

**SOME OF THE POSSIBLE AGENDA ITEMS:**

- Preparation for the 2016-2017 Storm Season

- Overview of **Defined Area Evacuation Protocols** (wildland fire, hazardous materials, etc.)
- Hazard Mitigation Planning (update on the 2016 Hazard Mitigation Plan)
- Practical **Long Term Survival Meal Planning** (more than just storing food)
- **Historical Perspective** (a look at the past and preparation for handoff in 2017)
- Emergency Management Program Review Workshop (agency/community dialogue on the future of the program)

PLEASE PLAN TO ATTEND THIS INFORMATIVE SESSION ON **SEPTEMBER 30**

JPREP meetings are always an excellent opportunity to network with emergency response and recovery agencies and organizations, local government leaders, and members of the preparedness community.

*Bob*

Robert W. Hamlin, Director  
Jefferson County Department of Emergency Management  
81 Elkins Road, Port Hadlock, Washington 98339  
Office: [360-385-9368](tel:360-385-9368)

*"The ability to deal with a crisis is dependent on the structures  
and relationships developed before the emergency"*

**Notice: THIS IS A PUBLIC RECORD.** All correspondence to or from this e-mail address is subject to public access under Public Records Act (RCW 42.56), and **Jefferson County Records Access Policy** (Resolution No. 39-06).

 Please consider the environment before printing this e-mail

## Item 16: “Last Chance” Press Release – October 2016



# Jefferson County

## Department of Emergency Management

EMERGENCY OPERATIONS CENTER, 81 Elkins Road, Port Hadlock, WA 98339  
 Phone: 360.385.9368 - Fax: 360.385.9376 - Email: [jcdem@co.jefferson.wa.us](mailto:jcdem@co.jefferson.wa.us)

Robert W. “Bob” Hamlin, Program Manager

“Leadership through Partnership”

FOR IMMEDIATE RELEASE

Contact: Ken Horvath  
 360-531-3054 (NOT FOR PUBLICATION)

### LAST CHANCE FOR PUBLIC INPUT TO THE COUNTY/CITY HAZARD MITIGATION PLAN

**PORT HADLOCK**—Jefferson County and the City of Port Townsend seek public input for the 2016 update of the *Jefferson County – City of Port Townsend Hazard Mitigation Plan*. Version 4 of the Plan is now online at [www.jprephazmitplan.org](http://www.jprephazmitplan.org) for public review and comments. This version has everything except the section on “Public Input,” which is under construction now.

The County, City and sixteen Special Districts are participating in the Plan, including JeffCom 9-1-1, all fire departments, all school districts, the PUD, the County Library District, the Hospital District, and the Port of Port Townsend.

The purpose of the plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring. In doing so, and after FEMA approves the plan, participating organizations become eligible to compete for Hazard Mitigation grants to implement their plans by adopting the plan. In the past, the City has received such grants to seismically retrofit the library, the police station (Cotton Building), the water distribution system at City Lake, the downtown tunnel lids, and to rebuild the fire station at Harrison and Lawrence Streets.

The scope of the 2016 Plan includes both natural and man-made hazards, and thus, is considered an All-Hazards Plan. The major natural hazards revisions are to Damaging Winds, Drought, Earthquake, Flood, Landslides, Public Health Emergencies, Tsunami, Wildfire, and Winter Storms. Significant man-made hazards to be updated are long-term Power Outages, Terrorism, and Water Shortage. This year, we are adding a subsection addressing Climate Change and adding a piece on climate change to each hazard that can be directly affected by it.

Public input is a requisite for the plan to be approved by FEMA. You can view the plan as it is developed and make comments about content, format, editing, etc. Suggestions for mitigation strategies or enhancements to the Plan will be accepted through November 30<sup>th</sup> to guarantee review for inclusion in the Plan.

You must register to leave comments and it needs to be vetted the first time so that we can keep the site from being spammed. We will check the site daily to vet new comments and collect ideas that we can use in the plan. The City library has a CD of the 2009 Plan in their reference areas. Both the County and the City have printed versions of the current Plan at their administration offices for public viewing.

Comments can also be emailed to [khovath@co.jefferson.wa.us](mailto:khovath@co.jefferson.wa.us) or sent to Ken Horvath, c/o Jefferson County Emergency Management, Emergency Operations Center, 81 Elkins Road, Port Hadlock, WA 98339.

###



## ITEM 17: Peninsula Daily News “Eye on Jefferson” Announcement – 10/15/2016

### EYE ON JEFFERSON: Port Townsend council to mull ordinance on pot regulations Monday

Meetings across Jefferson County.

- PENINSULA DAILY NEWS
- Sat Oct 15th, 2016 5:23pm
  - News



The Port Townsend City Council will consider an ordinance adopting permanent zoning regulations and standards relating to both medical and recreational marijuana, including the adoption of buffer reductions for licensed marijuana operations, when it meets Monday. The meeting will begin at 6:30 p.m. in council chambers at historic City Hall, 540 Water St. In addition, the council will consider revisions to the city’s Natural Hazard Mitigation Plan, last approved in 2010.



## Item 18: PTCC Agenda Bill - 10/17/2016 Briefing on Hazard Mitigation Plan



**Agenda Bill AB16-117**  
**Meeting Date: October 17, 2016**  
**Agenda Item: VIII. A.**  
 **Regular Business Meeting**  
 **Workshop/Study Session**  
 **Special Business Meeting**

**Submitted By:** Michael Evans  
**Department:** Police

**Date Submitted:** October 12, 2016  
**Contact Phone:** 344-4613

**SUBJECT:** Briefing on Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan

**CATEGORY:**

- Consent
  - Staff Report
  - Contract Approval
  - Public Hearing (Legislative, unless otherwise noted)
  - 3-Year Strategic Plan: N/A
- Cost Allocation Fund: 171 Fire & EMS

**BUDGET IMPACT:**

Expenditure Amount: \$  
 Included in Budget? Yes  No

**SUMMARY STATEMENT:** In accordance with the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act), the City Council adopted the Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Revised 2009) in May of 2010, thus putting forth hazard mitigation goals and making the City eligible to apply for disaster mitigation grants in support of those goals.

The Act requires that the Plan go through a major revision and re-adoption every five years.

On January 26, 2015, the City Council adopted Resolution 15-010 authorizing City Manager to Execute a Professional Services Agreement with Kenneth R. Horvath for Coordination of the 2015 Hazard Mitigation Plan Updates.

Mr. Hovarth will be delivering the briefing and answering questions. Adoption of the Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Revised 2009) will be brought to Council on the Consent Agenda for the November 7, 2016 Council Business Meeting.

**ATTACHMENTS:**

1. Draft Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan (Revised 2016) – *A hard copy of the section related to the City of Port Townsend will be provided to councilmembers along with a complete copy of the Plan on CD. A complete hard copy is on file with the City Clerk.*

**CITY COUNCIL COMMITTEE RECOMMENDATION:** N/A

**RECOMMENDED ACTION:** None. Discussion only.

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**ALTERNATIVES:**

- Take No Action       Refer to Committee       Refer to Staff       Postpone Action
- Remove from Consent Agenda       Waive Council Rules and approve Ordinance \_\_\_\_\_
- Other:

## Item 19: PTCC Agenda - 10/17/2016 Briefing on Hazard Mitigation Plan

**PORT TOWNSEND CITY COUNCIL BUSINESS MEETING AGENDA  
CITY HALL COUNCIL CHAMBERS, 540 WATER STREET**

**Business Meeting**

**06:30 p.m.**

**October 17, 2016**

**I. Call to Order and Pledge of Allegiance**

**II. Roll Call**

**III. Changes to the Agenda**

**IV. Special Presentation - Code Compliance Awareness Week**

Code Compliance Week Proclamation

**V. Comments from the Public (re consent agenda items and items not on the agenda) (Each person has 3 min. to comment – City Clerk will signal at 2 min. 30 sec.)**

**VI. Consent Agenda**

A. Approval of Bills, Claims and Warrants

B. Appointment of Ann Raymond to the Library Advisory Board (Position 1, Term expires May 31, 2019)

Agenda Bill AB16-116

Advisory Board Members

**VII. Unfinished Business - None**

**VIII. New Business**

C. Referral of a proposed text amendment to allow crop production as an incidental use in commercial zones to the Planning Commission

*Action: Move to refer the proposed text amendment related to crop production as an incidental use in commercial zones to the Planning Commission.*

1. Staff presentation
2. Public comment
3. Council deliberation and action

**Agenda Bill AB16-119**

**A. Briefing on Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan**

*Action: None. Discussion Only.*

1. Staff presentation
2. Public comment
3. Council deliberation and action

Agenda Bill AB16-117

Sect IV-1 - Port Townsend

**B. Briefing on Amendments to PTMC Title 17 on Buffer Reduction for Licensed Marijuana Operations**

*Action: None. Discussion Only.*

1. Staff presentation
2. Public comment
3. Council deliberation and action

Agenda Bill AB16-118

Staff Memo for 10.13.16 Public Hearing

Attachment 1 to Staff Memo - Draft Code Amendments

Attachment 2 to Staff Memo - Illustrative Marijuana Buffer Map

Attachment 3 to Staff Memo - Draft Findings of Fact

D. [Resolution 16-045 Authorizing the City Manager to Execute a Professional Services Agreement with Gray and Osborne, Inc. to Provide Assistance with the Water System Plan Update](#)

*Action: Move to approve Resolution 16-045 Authorizing the City Manager to Execute a Professional Services Agreement with Gray and Osborne, Inc. to Provide Assistance with the Water System Plan Update.*

1. Staff presentation
2. Public comment
3. Council deliberation and action

[Agenda Bill AB16-120](#)

[Resolution 16-045](#)

IX. [Presiding Officer's Report](#)

X. [City Manager's Report](#)

XIV. [Adjourn](#)

*Americans with Disabilities Act*

*In compliance with the Americans with Disabilities Act, those requiring accommodation for this meeting should notify the City Clerks Office at least 24 hours prior to the meeting at (360) 379-5083.*

## Item 20: PTCC Minutes 10/17/2016 Briefing on Hazard Mitigation Plan

### **CITY OF PORT TOWNSEND MINUTES OF THE REGULAR SESSION OF OCTOBER 17, 2016**

#### **CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

The Port Townsend City Council met in regular session on the 17th day of October 2016 in the Council Chambers at 540 Water Street. Mayor Deborah Stinson called the meeting to order at 6:30 p.m.

#### **ROLL CALL**

Councilmembers present at roll call were Pamela Adams, David Faber, Robert Gray, Catharine Robinson, Michelle Sandoval, Deborah Stinson, and Amy Howard.

Staff members present were City Manager David Timmons, City Attorney Steve Gross, Public Works Director Ken Clow, Police Chief Michael Evans, Planning Director Lance Bailey, Senior Planner John McDonagh, and City Clerk Joanna Sanders.

#### **CHANGES TO THE AGENDA**

There were none.

#### **SPECIAL PRESENTATION - CODE COMPLIANCE AWARENESS WEEK**

Police Chief Michael Evans recognized Code Compliance Officers Katie Quesada and Jerry Spiekerman.

#### **COMMENTS FROM THE PUBLIC**

There were none.

#### **CONSENT AGENDA**

##### **Approval of Bills, Claims and Warrants**

Vouchers 155107 through 155192, Voucher 529 and Electronic Fund Transfers in the amount of \$474,414.00.

##### **Appointment of Ann Raymond to the Library Advisory Board (Position 1, Term expires May 31, 2019)**

*Motion: Catharine Robinson moved to approve the consent agenda as written.*

*Pamela Adams seconded.*

*Vote: motion carried unanimously, 7-0 by voice vote.*

#### **UNFINISHED BUSINESS - NONE**

## NEW BUSINESS

### **Referral of a proposed text amendment to allow crop production as an incidental use in commercial zones to the Planning Commission**

Planning Director Lance Bailey gave the staff report on the request to propose a zoning text amendment to PTMC Title 17. He distributed aerial and zoning area maps.

Ms. Sandoval disclosed that owners of the Port Townsend Winery have been friends for 20 years, she has visited the proposed site, and acted as their real estate broker. City Attorney Steve Gross said there was no appearance of fairness issue.

Public Comment:

Larry Costich representing Port Townsend Winery spoke about the winery project and his support for the zoning text amendment.

Ben Thomas of Port Townsend Winery spoke about the winery project and his support for the zoning text amendment.

Responding to a question, Mr. Bailey said he did not see any inconsistencies between this zoning text amendment and Council's upcoming consideration of the Howard Street subarea plan or E.D. Hovee Study.

*Motion: Michelle Sandoval moved to approve referring the proposed text amendment related to crop production as an incidental use in commercial zones to the Planning Commission. David Faber seconded.*

*Vote: motion carried unanimously, 7-0 by voice vote.*

### **Briefing on Jefferson County/City of Port Townsend Natural Disaster Hazard Mitigation Plan**

Consultant Ken Horvath gave a presentation on the scope of the all hazards plan and responded to questions. Appendices and a summary of the public input would be added before it is submitted to FEMA for approval. This matter would come back to Council for final adoption in the coming weeks. He reviewed that in the past, the City received funding from hazard mitigation grants for the downtown tunnel lids, fire station, library, and Cotton Building renovation. City Attorney Steve Gross agreed to coordinate any suggested revisions by Council.

There was no public comment.

### **Briefing on Amendments to PTMC Title 17 on Buffer Reduction for Licensed Marijuana Operations**

Senior Planner John McDonagh gave a briefing on the ordinance to adopt permanent zoning. He noted the Planning Commission recommended reducing buffers down to 100 feet for all facilities/land uses (except for elementary and

secondary schools and playgrounds). He referred to maps that were included in the packet.

Staff responded to questions and discussion ensued regarding buffer restrictions for in-home childcare facilities. When asked about disallowing multifamily restrictions for marijuana cooperatives, Mr. McDonagh said this did not change in the proposed ordinance, but Staff could explore it further if desired. Mr. Gross recalled Council's direction was to bring the PTMC current with the latest version of state law as well as investigating whether to reduce the 1,000 foot buffer that all licensed marijuana operations must maintain.

There was no public comment.

There was additional discussion between staff and Council about the potential to add provisions for commercial outdoor growing given the significant energy consumption associated with indoor grow operations. There was some concern that inconsistent standards apply to marijuana compared to similar dangers to children associated with cigarettes and alcohol. Staff agreed to consider how best to address new concerns raised by Council with the upcoming public hearing on November 7.

**Resolution 16-045 Authorizing the City Manager to Execute a Professional Services Agreement with Gray and Osborne, Inc. to Provide Assistance with the Water System Plan Update**

Public Works Director Ken Clow gave the staff report on the need for an update to the City's water system plan. The State allowed a partial update in 2014 given plans for the new water treatment facility. By hiring a contractor now, the City could meet the September 2017 deadline to complete the water system plan. From the professional services roster, staff reviewed qualifications and submissions and selected Gray and Osborne. This firm has done other work with the City including the wastewater system plan update and Gaines Street pump station project. He also responded to questions about bid requirements and 2016 versus 2017 expenses.

*Motion: Catharine Robinson moved to approve Resolution 16-045 Authorizing the City Manager to Execute a Professional Services Agreement with Gray and Osborne, Inc. to Provide Assistance with the Water System Plan Update. Pamela Adams seconded.*

*Vote: motion carried unanimously, 7-0 by voice vote.*

**PRESIDING OFFICER'S REPORT**

Ms. Stinson gave reminders of the following:

- City Manager evaluations due October 21 by noon.
- Special Business Meeting scheduled for October 27 for purposes of an executive session only.

**CITY MANAGER'S REPORT**



City Attorney Steve Gross reported that the Municipal Equality Index was released today with the City's final score of 85 out of 100.

**ADJOURN**

There being no further business, the meeting adjourned at 7:56 pm.

Attest:

A handwritten signature in cursive script, appearing to read "Joanna Sanders".

Joanna Sanders, CMC  
City Clerk

Item 21: BOCC Agenda Request - 10/24/2016 Briefing on Hazard Mitigation Plan

**JEFFERSON COUNTY  
BOARD OF COUNTY COMMISSIONERS**

**AGENDA REQUEST**

**TO:** Board of County Commissioners  
Philip Morley, County Administrator

**FROM:** Bob Hamlin, Department of Emergency Management

**DATE:** October 24, 2016

**SUBJECT:** FIRST REVIEW - HAZARD MITIGATION PLAN

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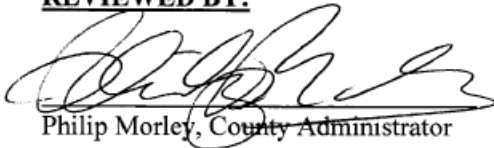
**STATEMENT OF ISSUE:** In accordance with the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act), the Board of County Commissioners adopted the Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Revised 2009) in May of 2010, thus putting forth hazard mitigation goals and making the County eligible to apply for disaster mitigation grants in support of those goals. The Federal Emergency Management Agency requires revision of the plan every five years.

**ANALYSIS/STRATEGIC GOALS :** A current Hazard Mitigation Plan an objective for the Department of Emergency Management for 2016. A planning grant was received for that purpose, and a digital copy of the first draft is available for review prior to adoption. The proposed plan is meets standards of the Federal Emergency Management Agency.

**FISCAL IMPACT:** Application for hazard mitigation grants by any of the participating jurisdictions is dependent on adoption of the plan.

**RECOMMENDATION:** Review contents of the digital copy of the Hazard Mitigation Plan in preparation for future discussion and adoption.

**REVIEWED BY:**

  
Philip Morley, County Administrator

10/24/16  
\_\_\_\_\_  
Date

## Item 22: BOCC Agenda - 10/24/2016 Briefing on Hazard Mitigation Plan



# Agenda

Regular Meeting – October 24, 2016

## MONDAY

9:00 a.m. Meeting Called to Order by Chairman

9:01 a.m. PUBLIC COMMENT PERIOD - Up to 30 Minutes

*This is an optional time period dedicated to listening to the public. We want to hear your ideas or concerns. To ensure equal opportunity for the public to comment, all comments shall be limited to three minutes per person and each person may address the Board one time during the public comment period. When the green light is on it means proceed to speak; the yellow light will go on when the speaker has 30 seconds remaining; the red light illuminated means stop. Please start by stating your name and address.*

**APPROVAL AND ADOPTION OF THE CONSENT AGENDA:** (Items listed below have been distributed to the Commissioners in advance for study and will be enacted by one motion. If separate discussion is desired on an item, that item may be removed from the Consent Agenda and placed on the Regular Agenda, at a specific time, at the request of any of the Commissioners.)

1. [AGREEMENT re: Comprehensive Plan Update: Transportation Element and Urban Growth Area Element: Transportation](#); In the Amount of 65,500; Jefferson County Public Works; Transpo Group USA, Inc.
2. [AGREEMENT re: Inmate Relapse Prevention Program available at Jefferson County Jail](#); In the Amount of \$15,163.80 from 'Hargrove' Fund; Jefferson Mental Health/Discovery Behavioral Healthcare
3. [Payment of Jefferson County Vouchers/Warrants](#) Dated October 17, 2016 Totaling \$765,078.95 (Records of all claims submitted for payment along with vouchers approved and signed by the Board of Jefferson County Commissioners are retained by the Jefferson County Auditor and Public Works Department.)
4. [Payment of Jefferson County Payroll](#) Warrants Dated October 20, 2016 Totaling \$83,467.01 and A/P Warrants Done by Payroll Dated October 6, 2016 Totaling \$125,951.90 and Dated October 20, 2016 Totaling \$18,785.08 (Records of all claims submitted for payment along with A/P Warrants approved by the Payroll Services Manager are retained in the Jefferson County Auditor's Office.)

THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS  
NOT LISTED ON THIS AGENDA.

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request

Agenda: October 24, 2016

COMMISSIONERS BRIEFING SESSION

REGULAR AGENDA:

10:00 a.m.      [HEARING re: Proposed Ordinance Amending Ordinance No. 05-0709-07 to Change the Expiration Date of the Collection of Rural County Sales and Use Tax in Jefferson County](#)  
Anne Sears, Budget Consultant

**11:00 a.m.**      [RECOGNITION of PROCLAMATION re: Proclaiming the Week of October 3, 2016 as Mental Illness Awareness Week \(Approved on September 26, 2016\)](#)  
Darlene Grunke, National Alliance of Mental Illness (NAMI)

-      [BRIEFING re: Jefferson County - Port Townsend Natural Hazards Mitigation Plan](#)  
**Bob Hamlin, Emergency Management Director**

Noon              Quarterly Elected Officials/Department Head Meeting              Chambers

1:30 p.m.      County Administrator Briefing Session              Chambers

-      [Update re: Parks and Recreation](#)  
Matt Tyler, Jefferson County Parks & Recreation Director

-      [Update and Possible Action re: Letter of Support: 2017-19 Capital Budget Funding for the Floodplains by Design Program](#)  
Tami Pokorny, Environmental Health Specialist II

-      Miscellaneous Items

-      Calendar Coordination

-      Future Agenda Items

THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS  
 NOT LISTED ON THIS AGENDA.

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request

**Agenda: October 24, 2016**

**NOTICE OF ADJOURNMENT**

**CORRESPONDENCE:**

See Attached [Correspondence Log](#)

<b>COMMISSIONERS MEETING SCHEDULE</b>			
Week of October 24, 2016			
<b><u>Monday – October 24, 2016</u></b>			
		See Agenda	
Noon	Board	Quarterly Elected Official/Department Director’s Meeting	Chambers
1:30 p.m.	Board	County Administrator Briefing Session	Chambers
<b><u>Tuesday – October 25, 2016</u></b>			
8:30 a.m.	David	Jefferson County Finance Committee Meeting	First Floor Conf. Room
Noon	Phil	Hood Canal Coordinating Council Briefing	Courthouse
<b><u>Wednesday – October 26, 2016</u></b>			
9:00 a.m.	Phil	Parks and Recreation Advisory Board Special Meeting and Tour	Jefferson Co.
9:00 a.m.	Kathleen	The Construction Industry Sector Gathering	Port Ludlow
3:00 p.m.	David	Jefferson Shelter 2 Housing Program (JS2HP) Meeting	Tri-Area CC
<b><u>Thursday – October 27, 2016</u></b>			
8:00 a.m.	Phil	PTSW Board of Directors Meeting	Fort Worden, Dunbar Room, Bldg 200
11:00 a.m.	David	FEMA Board Meeting	UGN Offices, Port Hadlock
1:00 p.m.	David	North Olympic Development Council Meeting	John Wayne Marina, Sequim
3:00 p.m.	Kathleen	Solid Waste Advisory Committee Meeting	Public Works
<b><u>Friday – October 28, 2016</u></b>			
10:00 a.m.	Board	JC - PT Regional Emergency Preparedness (J-PREP) Meeting	PT Fire Station

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**THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS  
NOT LISTED ON THIS AGENDA.**

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request



## Item 23: BOCC BOB - 10/24/2016 Briefing on Hazard Mitigation Plan

# Board's Official Business

Highlights from Monday's Commissioner Meeting October 25, 2016



**PUBLIC COMMENT PERIOD:** The following is a summary of comments made by citizens in attendance at the meeting and reflect their personal opinions:

- Two citizens spoke regarding the timber harvesting in Port Ludlow done by Port Ludlow Associates; and
- A citizen stated: 1) There will be a presentation this week regarding reversing Alzheimer's Disease and 2) He has concerns about the length of time it takes to obtain a permit in Jefferson County.

**CONSENT AGENDA:** The Board approved all the items on the Consent Agenda as presented:

**2 AGREEMENTS:** 1) Comprehensive Plan Update: Transportation Element and Urban Growth Area Element: Transportation; Transpo Group USA, Inc.; and 2) Inmate Relapse Prevention Program available at Jefferson County Jail; Discovery Behavioral Healthcare

**Payment of Jefferson County Vouchers/Warrants Dated October 17, 2016** Totaling \$765,078.95

**Payment of Jefferson County Payroll Warrants Dated October 20, 2016** Totaling \$83,467.01 and A/P Warrants Done by Payroll Dated October 6, 2016 Totaling \$125,951.90 and Dated October 20, 2016 Totaling \$18,785.08

**COMMISSIONERS' BRIEFING SESSION:** The Commissioners reported on their meeting schedules. A citizen commented that Port Ludlow is holding Roadway Safety meetings.

**HEARING:** After the Board held a hearing, they approved **ORDINANCE NO. 04-1024-16** Amending Ordinance No. 05-0709-07 To Amend the Expiration Date of the Collection of Rural County Sales and Use Tax in Jefferson County.

**RECOGNITION of PROCLAMATION:** The Board met with a representative of the National Alliance on Mental Illness who thanked the Commissioners for proclaiming the Week of October 3, 2016 as Mental Illness Awareness Week during a Board of County Commissioner meeting on September 26, 2016.

**BRIEFING:** The Board met with the Emergency Management Director who presented the Jefferson County-Port Townsend Natural Hazards Mitigation Plan for review.

**Quarterly Elected Officials/Department Directors Meeting:** The Elected officials and department directors of Jefferson County met and discussed various County issues.

**UPDATE:** The Board met with the Parks and Recreation Director who briefed them on the status of the Parks and Recreation programs, facilities and budget.

**LETTER:** The Board reviewed a request by Environmental Health staff regarding a Floodplains by Design Program grant. After review, the Commissioners approved sending a letter to Governor Inslee in support of the Department of Ecology's Floodplain by Design Grant Program.

**COUNTY ADMINISTRATOR BRIEFING:** The Board discussed various topics with the County Administrator.



## Item 24: BOCC Minutes - 10/24/2016 Briefing on Hazard Mitigation Plan



**District No. 1 Commissioner: Phil Johnson**  
**District No. 2 Commissioner: David W. Sullivan**  
**District No. 3 Commissioner: Kathleen Kler**

County Administrator: Philip Morley  
 Clerk of the Board: Erin Lundgren

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**MINUTES**  
**Week of October 24, 2016**

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Madam Chair Kathleen Kler called the meeting to order at the appointed time in the presence of Commissioner David Sullivan and Commissioner Phil Johnson.

**PUBLIC COMMENT PERIOD:** The following is a summary of comments made by citizens in attendance at the meeting and reflect their personal opinions:

- Two citizens spoke regarding the timber harvesting in Port Ludlow done by Port Ludlow Associates; and
- A citizen stated: 1) There will be a presentation this week regarding reversing Alzheimer's Disease and 2) He has concerns about the length of time it takes to obtain a permit in Jefferson County.

**APPROVAL AND ADOPTION OF THE CONSENT AGENDA:** Commissioner Johnson moved to approve all the items on the Consent Agenda as presented. Commissioner Sullivan seconded the motion which carried by a unanimous vote.

1. **AGREEMENT** re: Comprehensive Plan Update: Transportation Element and Urban Growth Area Element: Transportation; In the Amount of \$65,500; Jefferson County Public Works; Transpo Group USA, Inc.
2. **AGREEMENT** re: Inmate Relapse Prevention Program available at Jefferson County Jail; In the Amount of \$15,163.80 from 'Hargrove' Fund; Jefferson Mental Health/Discovery Behavioral Healthcare
3. **Payment of Jefferson County Vouchers/Warrants** Dated October 17, 2016 Totaling \$765,078.95
4. **Payment of Jefferson County Payroll Warrants** Dated October 20, 2016 Totaling \$83,467.01 and A/P Warrants Done by Payroll Dated October 6, 2016 Totaling \$125,951.90 and Dated October 20, 2016 Totaling \$18,785.08

**COMMISSIONERS BRIEFING SESSION and CALENDAR COORDINATION:** The Commissioners reported on their meeting schedules.

**Calendar Coordination:**

Below is a list of the upcoming meetings and events the Commissioners will be attending in the near future:

- Parks and Recreation Advisory Board Special Meeting and Parks Tour
- School of Woodworking and Preservation Trades meeting
- Port Ludlow Open House sponsored by the Public Health Department



## Commissioners Meeting Minutes of October 24, 2016



- Jefferson-Port Townsend Response Emergency Planning meeting
- Olympic Workforce Development Council; Construction Industry Sector meeting
- Washington State Department of Natural Resources Public Hearing on Dabob Natural Area Expansion
- Tour of the new Bullitt Center in Seattle
- Salish Behavioral Health Organization Advisory Board meeting
- There will be no Board of County Commissioners meeting on October 31, 2016

Madam Chair Kler allowed a citizen to address the Board who stated that Port Ludlow will be holding public forums regarding roadway safety.

***HEARING re: Proposed Ordinance Amending Ordinance No. 05-0709-07 to Change the Expiration Date of the Collection of Rural County Sales and Use Tax in Jefferson County:*** The Rural County Sales and Use Tax was originally authorized by the Board of County Commissioners (BOCC) in 1998 at 0.04 percent and raised in 1999 to 0.08 percent prior to increasing to 0.09 percent in 2007. The tax is credited against the Washington State portion of the sales and use tax, thus does not increase the overall sales and use tax for the citizens of Jefferson County. Over the years, this tax has also been referred to as the Distressed County Sales Tax or the Public Infrastructure Tax.

In 2007, an amended ordinance stated that the expiration date of the tax was June 30, 2023. RCW 82.14.370.4(b) states the expiration date may be as follows:

*“For counties imposing the tax at the rate of 0.09 percent before August 1, 2009, the tax expires on the date that is twenty-five years after the date that the 0.09 percent tax rate was first imposed by that county.”*

The 0.09 percent tax was imposed August 1, 2007, twenty-five years after that date is July 31, 2032. By law, Jefferson County’s tax could expire on July 31, 2032. The proposed amended ordinance changes the expiration date of this tax from 2023 to 2032.

Budget Consultant Anne Sears stated that since 1998, Jefferson County has been imposing this tax, which resulted in \$5 Million dollars available to spend on projects all over the County. She added that this tax is an excellent source for funding projects such as the Quilcene Water System and other public infrastructure projects. County Administrator Morley stated this funding source was discussed at a recent Economic Development Council (EDC) meeting.

Madam Chair Kler opened the hearing for public testimony. Hearing no comments for or against the proposed ordinance, Madam Chair Kler closed the hearing.

Commissioner Johnson moved to adopt **ORDINANCE NO. 04-1024-16** Amending Ordinance No. 05-0709-07 To Amend the Expiration Date of the Collection of Rural County Sales and Use Tax in Jefferson County to July 31, 2032. Commissioner Sullivan seconded the motion which carried by a unanimous vote.



Commissioners Meeting Minutes of October 24, 2016



The meeting was recessed at 10:09 a.m. and reconvened at 11:03 a.m. with all three Commissioners present.

**RECOGNITION of PROCLAMATION re: Proclaiming the Week of October 3, 2016 as Mental Illness Awareness Week (Approved on September 26, 2016):** National Alliance on Mental Illness (NAMI) President Valerie Phimister was present to thank the Commissioners for approving the Proclamation and to inform the Board of the group's activities and report on Jefferson County's mental illness statistics. At a recent NAMI State Conference held in Clallam County, Senator Hargrove received a Lifetime Achievement Award for his work on the 1/10<sup>th</sup> of 1% program; also known as the Hargrove Fund. She noted that Jefferson County was the first county to use the Hargrove Fund tax to start the Mental Health Court. NAMI is currently seeking a permanent meeting space at Mountain View Commons in Port Townsend.

NAMI member Darlene Grunke thanked the Commissioners for the proclamation.

**BRIEFING re: Jefferson County – Port Townsend Natural Hazards Mitigation Plan:**

In accordance with the Disaster Mitigation Act of 2000, the Board of County Commissioners adopted the Jefferson County-City of Port Townsend Natural Hazard Mitigation Plan in May of 2010, thus putting forth hazard mitigation goals and making the County eligible to apply for disaster mitigation grants in support of those goals. The Federal Emergency Management Agency (FEMA) requires revision of the plan every five years. Emergency Management Director Bob Hamlin stated that the proposed plan meets FEMA standards. He distributed electronic copies of the plan on CD's to the Commissioners and County Administrator and noted that the plan is also located on the internet at [www.jprephazmitplan.org](http://www.jprephazmitplan.org)

Director Hamlin stated contractor Ken Horvath created the Hazard Mitigation Plan and is working with local agencies on the plan's adoption. The City of Port Townsend is in the same phase of review as Jefferson County. Director Hamlin suggesting holding a work session in the near future with the Commissioners to review the plan.

The meeting was recessed at 11:48 a.m. and reconvened at 11:59 a.m. for the Quarterly Elected Officials/Department Directors lunch meeting with all three Commissioners present. The meeting was recessed at 1:29 p.m. and reconvened at 1:38 p.m. Madam Chair Kler and Commissioner Sullivan were present for the afternoon session. Commissioner Johnson joined the meeting at 1:46 pm.

**UPDATE re: Parks and Recreation:** Jefferson County Parks and Recreation Manager Matt Tyler briefed the Board on the status of the Parks and Recreation programs, facilities and budget. At existing funding levels, revenues in outlying years are approximately \$100,000 per year less than the cost for maintaining existing programs and facilities. Starting in 2018, the Parks and Recreation fund balance cannot cover the projected shortfall.

Public Works Department staff feel that parks and recreation in Jefferson County is a strategic solution to support the economic development, health, well-being and security of the community. Continuing to

Commissioners Meeting Minutes of October 24, 2016



provide the current basic level of parks and recreation service is a low-cost, high-impact way to promote the goals of Jefferson County.

Mr. Tyler's power point presentation highlighted each County park's unique features and included statistical data.

Public Works Director/County Engineer Monte Reinders stated that when Prop1 funding ended a few years ago, the County's recreation programs were significantly reduced. He added that the Parks and Recreation department is currently operating with only three full-time staff members, including Mr. Tyler. There is a part-time person who was hired to work Memorial Field, but that person is working on more than just that field. Director Reinders stated that since staff cannot be cut more than it already has, park facilities will need to start closing if funding continues to decrease.

Director Reinders stated that they are not seeking additional funds for Parks and Recreation in order to do a better job, they are asking for funds to maintain the current level of services. Their budget does not include capital projects.

The Commissioners, County Administrator and Public Works staff discussed the potential for a levy lid lift. County Administrator Philip Morley will be working with Public Works in creating their 2017 Budget.

***LETTER of SUPPORT re: 2017-2019 Capital Budget Funding for the Floodplains by Design Program including Discussion re: Port Hadlock Wastewater System Project:*** Environmental Health Specialist Tami Pokorny was unable to attend the Commissioner's meeting, but had requested the Commissioners approve sending a letter in support of the Floodplains by Design grant program to Governor Jay Inslee.

Madam Chair Kler stated that the proposed letter touches on the hazard mitigation work Emergency Management Director Bob Hamlin briefly discussed with the Board. The letter refers to climate change and increased flood risk. County Administrator Philip Morley noted that the grant would help fund the Lower Big Quilcene Floodplains Acquisition project.

County Administrator Philip Morley noted that while advocating for smaller projects like this one is certainly well-deserved, it may be time to strengthen the County's focus on the Port Hadlock Wastewater System (PHWS) project. He added that to get the PHWS up and running may take years of mono-focus.

Commissioner Sullivan stated that every two years during the election cycle, the topic of the PHWS project surfaces and the citizens ask why the County isn't doing anything. He explained that at this time, there are no programs to apply to at the state or federal level that will fund this type of project. He added that our delegates have to first lobby for a program, and then Jefferson County would be able to compete for funding, along with others across the country. County Administrator Morley noted that there has been instances where projects have been earmarked for funding, such as the Worthington House in Quilcene, but he added that project was approximately \$500,000. Commissioner Sullivan stated that when he has talked about the PHWS with people, they get excited about the possibility of making it

Commissioners Meeting Minutes of October 24, 2016



happen, until he informs them the cost will be around \$23 Million. He noted that the PHWS is a shovel-ready project. The Commissioners and County Administrator discussed the possibility of a levy lid lift.

Commissioner Sullivan moved to send a **LETTER** to Governor Jay Inslee in support of the Washington State Department of Ecology’s Floodplain by Design Grant Program. Commissioner Johnson seconded the motion which carried by a unanimous vote.

**COUNTY ADMINISTRATOR BRIEFING SESSION:** County Administrator Philip Morley reviewed the following with the Board.

**Miscellaneous Items:**

- Washington State Department of Natural Resources (DNR); Land acquisition proposal: The Commissioners reviewed the boundary lines and what the potential impacts would be.

The meeting was recessed at 3:18 p.m. and reconvened at 3:33 p.m. with Madam Chair Kler and Commissioner Sullivan present. Commissioner Johnson was not present.

**Miscellaneous Items – continued:**

- DNR Land acquisition proposal – continued: The proposal will create a .5% shift for the Junior Taxing Districts.
- Hiring status re: Department of Community Development Planning Manager, Emergency Management Director, Civil Deputy Prosecuting Attorney and Central Services Director.

**NOTICE OF ADJOURNMENT:** Commissioner Sullivan moved to adjourn the meeting at 3:44 p.m. until the next regular meeting or special meeting as properly noticed. Madam Chair Kler seconded the motion. The motion carried.



JEFFERSON COUNTY  
BOARD OF COMMISSIONERS

Kathleen Kler, Chair

David Sullivan, Member

Phil Johnson, Member

ATTEST:

Carolyn Avery  
Deputy Clerk of the Board



## Item 25: Request for Input in the Leader Online – 11/02/2016

# Public input sought for county/city hazard mitigation plan

## 'Climate change' a new category as potential hazard

- Nov 2, 2016

Jefferson County and the City of Port Townsend seek public input for the 2016 update of the Jefferson County – City of Port Townsend Hazard Mitigation Plan. Version 4 of the Plan is online at [jprephazmitplan.org](http://jprephazmitplan.org) for public review and comments. This version has everything except the section on “Public Input,” which is under construction, according to a press release.

The county, city and 16 special districts are participating in the plan, including JeffCom 911, all fire departments, all school districts, the public utility district, the county library district, the public hospital district, and the Port of Port Townsend.

The purpose of the plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring. In doing so, and after the Federal Emergency Management Agency (FEMA) approves the plan, participating organizations become eligible to compete for Hazard Mitigation grants to implement their plans by plan adoption. In the past, the city has received such grants to seismically retrofit the library, the police station when it was in the Cotton Building, the water distribution system at City Lake, the downtown tunnel lids, and to rebuild the fire station at Harrison and Lawrence streets.

The scope of the 2016 plan includes both natural and man-made hazards, and thus, is considered an All-Hazards Plan. The major natural hazards revisions are to damaging winds, drought, earthquake, flood, landslides, public health emergencies, tsunamis, wildfire, and winter storms. Significant man-made hazards to be updated are long-term power outages, terrorism, and water shortage. This year, a subsection is being added to address climate change along with adding a piece on climate change to each hazard that can be directly affected by it.

Public input is a requisite for the plan to be approved by FEMA. People may view the plan as it is developed and make comments about content, format, editing, etc. Suggestions for mitigation strategies or enhancements are accepted through Nov. 30.

People must register to leave comments and it needs to be vetted the first time so the site can be kept spam-free, according to a press release. The site is to be checked daily for public comments.

The city library has a CD of the 2009 plan in their reference area. Both the county and the city have printed versions of the current plan at their administration offices.

Comments can also be emailed to

[khorvath@co.jefferson.wa.us](mailto:khorvath@co.jefferson.wa.us) or sent to Ken Horvath, c/o Jefferson County Emergency Management, Emergency Operations Center, 81 Elkins Road, Port Hadlock, WA 98339.

# Item 26: Request for input in the Port Townsend Leader – 11/02/2016

Port Townsend & Jefferson County Leader

Wednesday, November 2, 2016 • A-5

## OlyCAP starts taking applications for heating help

Applicants asked to come prepared with ID, information

ALLISON ARTHUR  
ARTHUR@PTLEADER.COM

Olympic Community Action Programs (OlyCAP) has \$500,548 this year to help people in Jefferson and Clallam counties with their heating bills, which includes helping low-income people pay for electricity, wood, wood pellets, fuel oil and propane.

The Low-Income Home Energy Assistance Program (LIHEAP) funds are split between the two counties with Clallam getting 71 percent of the revenue and Jefferson getting 29 percent, said Mark Lockhart, community services director for OlyCAP. The numbers are based on county population and determined by the state Department of Commerce.

Last year, the average participant – and there were 515 clients served in Jefferson County – received \$218, OlyCAP had 337 scheduled appointments. Those appointments started on Tuesday, Nov. 1.

People who haven't made an appointment can still go online at

And on Oct. 17, OlyCAP began making online appointments for November, December and January.

"The first day we opened we had over 100 messages" from people seeking appointments, Lockhart said. "The calendar is very full for November and December. There are still a few online appointments available in January," she said.

Appointments beyond January depend on how much funding is available. Because of concerns, some people in outlying areas might have difficulty making those online appointments, Lockhart said staff were sent to the Brimton and Quilness community centers to help people make the online appointments.

"We also have folks who are not homebound," she said. "We realize there are barriers to appointments and appointments are limited based on funding. We strive to improve accessibility each season."

As of Thursday, Oct. 27, OlyCAP had 337 scheduled appointments. Those appointments started on Tuesday, Nov. 1.

People who haven't made an appointment can still go online at



Anita Baker (left) and Malina Lang of Olympic Community Action Programs look over OlyCAP's website Monday, Oct. 31 as they prepare to help more than 300 people in Jefferson County apply for help through the Low-Income Home Energy Assistance Program (LIHEAP) this winter. Photo by Allison Arthur

How to get heating help

Appointments for help with heating bills for those with income limits above can be made by going online at [olycap.org](http://olycap.org). People also can get help at the Port Townsend office of Olympic Community Action Programs (OlyCAP), 823 Commerce Loop, Port Townsend. Call 360-385-2571 and leave a message for the energy assistance program. Calls are returned in order received.

### Income guidelines for LIHEAP

Household size	1	2	3	4
Gross monthly income	\$1,228	\$1,869	\$2,190	\$2,531
Gross yearly income	\$14,850	\$22,025	\$25,200	\$29,375

Source: Olympic Community Action Programs

olycap.org and do so, or call 385-2571.

The two employees who do the intake – in Port Townsend started helping clients Tuesday, Nov. 1.

"The more prepared they are for their appointment, the smoother the appointment will go," Lockhart said

of clients seeking help. People should bring documentation of the following with them when applying in person:

- Social Security numbers for all household members and proof of that. A photo ID also is requested for all household members 18 and older. A driver's license, passport or state ID or school ID are acceptable as a medical card. A birth certificate is OK for verification of children under 18.
- People who are 18 years and older with no income must present to sign a no-income statement.
- Income information also needs to be verified. That includes earned income, unemployment, SSI, Social Security, veteran's benefits, child support and pensions.
- For those who heat with any source other than

wood, a current utility bill indicating account number and address is required. Proof of an address is required for help with wood. OlyCAP has a vendor and does not reimburse clients for vehicles paid before a LIHEAP appointment.

### OTHER HELP

For those who have large power bills with Jefferson County Public Utility District, Lockhart said the goal is to help people access the LIHEAP and the PUD's Power Boost program funds, if necessary, at one appointment. "We are quite comfortable with the Power Boost program," Lockhart said, adding that there are a few clients who may owe a lot. Power Boost funds can only be accessed once in a 10-month period by a household, she noted. "Our philosophy is to help now, eliminating the need for additional appointments."

## Public input sought for county/city hazard mitigation plan

Jefferson County and the City of Port Townsend seek public input for the 2016 update of the Jefferson County – City of Port Townsend Hazard Mitigation Plan. Version 4 of the Plan is online at [jeffhazmitplan.org](http://jeffhazmitplan.org) for public review and comments. This version has everything except the section on "Public Input," which is under construction, according to a press release.

The county, city and 16 special districts are participating in the plan, including Jefferson County, all fire departments, all school districts, the public utility district, the county library district, the public hospital district, and the Port of Port Townsend.

The purpose of the plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring. In doing so, and after the Federal Emergency Management Agency (FEMA) approves the plan, participating organizations become eligible to compete for Hazard Mitigation grants to implement their plans by plan adoption. In the past, the city has received such grants to retroactively retrofit the library, the police station when it was in the Cotton Building, the water distribution system at City Labs, the downtown tunnel lift, and to rebuild the fire station at Harrison and Lawrence streets.

The scope of the 2016 plan includes both natural and man-made hazards, and thus, is considered an All-Hazards Plan. The major natural hazards revisions are to damaging winds, drought, earthquake, flood, landslides, public health emergencies, tsunami, wildfire, and winter storms. Significant man-made hazards to be updated are long-term power outages, terrorism, and water shortages. This year, a subsection is being added to address climate change along with adding a piece on climate change to each hazard that can be directly affected by it.

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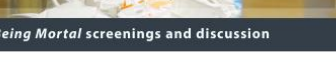
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### DOCUMENTS TO BRING

People should bring documentation of the following with them when applying in person:

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- People who are 18 years and older with no income must present to sign a no-income statement.
- Income information also needs to be verified. That includes earned income, unemployment, SSI, Social Security, veteran's benefits, child support and pensions.
- For those who heat with any source other than



Being Mortal screenings and discussion

## BEING MORTAL: Medicine and What Matters in the End

November 11, 2016  
5:30 pm to 7:30 pm  
Northwest Maritime Center

November 12, 2016  
3:00 pm to 5:00 pm  
Port Ludlow Beach Club

Being Mortal is a documentary based on a best-selling book by Atul Gawande, MD, and explores the hopes of patients and families facing terminal illness and their relationships with the physicians who treat them. The film investigates the practice of caring for the dying, and shows the doctors, including Dr. Gawande, are often uncomfortable talking about chronic illness and death with their patients.

The film is part of a national conversation bringing medical professionals and community members together around the shared responsibility of discussing what matters most when facing difficult treatment decisions. After the film, there will be a discussion with the audience about advance planning and the available resources.



## Comment needed by Nov. 7 on economic development strategy

The North Olympic Peninsula Resource Conservation & Development Council (NOP-RCDC), a nonprofit council of governments in Jefferson and Clallam counties, seeks input on their draft comprehensive economic development strategy (CEDS) for 2016-2020.

The strategy seeks to align the goals of economic development efforts in the region and is a required planning document for governments and businesses to seek certain grant funding, according to a press release.

The draft CEDS for 2016-2020 includes input from more than 100 stakeholders from private business and government to set priorities and goals for the region. The document would translate into a work plan for the NOP-RCDC, as well as helping economic development councils, chambers of commerce, business associations and funders determine which efforts have broad support. The CEDS is funded by the U.S. Department of Commerce Economic Development Administration. The 2016-2020 draft CEDS is available at [noprcdc.org/economic-development](http://noprcdc.org/economic-development).

To provide input by Monday, Nov. 7 or to request a hard copy contact Kate Dean, NOP-RCDC region and director, at 301-1750 or [info@noprcdc.org](mailto:info@noprcdc.org). The shared strategy seeks to find common ground among diverse opinions regarding how this region can create more prosperity and economic resilience. To identify this common ground, 30-40 business and community leaders in each county were asked to answer the questions such as: Why do people choose to do business here? What is our region's "value proposition"? What unique assets can be leveraged? "I expected much more dissenting opinion," said Dean in a press release. "In both counties the responses were remarkably clear and consistent: whether it's the natural resources or the scenic beauty or the sense of community, people and businesses are here because they want to be here, and that drives a particular kind of investment and engagement that goes beyond 'keeping the lights on.'"

Place-based economy is a theme throughout the CEDS. "Businesses here are deeply invested in the workers and families they support, in helping their neighbors, in improving schools, in managing resources responsibly. This 'investment to place' makes the region unique and can help tailor economic development efforts toward a collaborative, triple-bottom-line approach of economic, environmental and social prosperity," reads the executive summary, co-written by Dean and Brian Kah, economic development consultant.

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**Newsroom:** news@ptleader.com  
**Managing Editor:** Allison Arthur, assistant editor  
**Art Editor:** Katie Kowalski, arts editor

**Copy Editor:** Sorey Parsons  
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# Public input sought for county/city hazard mitigation plan

11.02.16

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## **ITEM 27: Peninsula Daily News “Eye on Jefferson” Announcement – 11/05/2016**

### **EYE ON JEFFERSON: Port Townsend council to consider pot shop zoning**

- PENINSULA DAILY NEWS
- Sat Nov 5th, 2016 6:55pm
  - News

The Port Townsend City Council will conduct a public hearing on Ordinance 3158, which would amend zoning regulations and standards for medical and recreational marijuana sales, when it meets Monday.

The meeting will begin at 6:30 p.m. in council chambers at historic City Hall, 540 Water St.

Council members also will consider approving emergency repairs of the boilers at Mountain View Commons after the pressure relief valve on the water heater failed and allowed water into the boiler room.

Expenses are estimated at \$27,000 for parts and about \$13,000 for labor.

The council also will consider a preliminary budget for 2017 and five-year capital improvement plan.

It will consider a 1 percent increase for 2017 property tax levies and an approximate 6.67 percent increase in the emergency medical services levy.

The council will consider a draft legislative agenda for 2017.

Other city committee meetings, which are in conference rooms at City Hall at 250 Madison St. unless otherwise noted, are:

- Civil Service Commission — 3 p.m. Wednesday, second-floor conference room.
- Lodging Tax Advisory Committee — 3 p.m. Thursday, third-floor conference room.

City offices will be closed Friday for Veterans Day.

#### **County commissioners**


The three Jefferson County commissioners will consider adoption of the Jefferson County-City of Port Townsend All-Hazards Mitigation Plan (2016) when they meet Monday.

The meeting will begin at 9 a.m. in commissioners’ chambers at the Jefferson County Courthouse, 1820 Jefferson St., Port Townsend.

Items on the consent agenda include:

- Scheduling a hearing for 10 a.m. Nov. 21 on setting ad valorem tax levies.
- An agreement regarding the Quimper Wildlife Corridor Addition for \$30,814.
- An agreement for the Jefferson County Marine Resources Committee for \$73,000.
- Acceptance of a number of resignations on county boards and councils

Item 28: PTCC Agenda Bill – 11/07/2016 Adoption of Hazard Mitigation Plan

	<b>Agenda Bill AB16-121</b> <b>Meeting Date: November 7, 2016</b> <b>Agenda Item: V. A.</b> <input checked="" type="checkbox"/> <b>Regular Business Meeting</b> <input type="checkbox"/> <b>Workshop/Study Session</b> <input type="checkbox"/> <b>Special Business Meeting</b>
	<hr/> <b>Submitted By:</b> Michael Evans <b>Department:</b> Police <hr/> <b>Date Submitted:</b> October 31, 2016 <b>Contact Phone:</b> 344-4613
<hr/> <b>SUBJECT:</b> Resolution 16-046 Adopting the Jefferson County/City of Port Townsend Natural Hazard Mitigation Plan (Revised 2016)	
<b>CATEGORY:</b> <input checked="" type="checkbox"/> Consent <input checked="" type="checkbox"/> Resolution <input type="checkbox"/> Staff Report <input type="checkbox"/> Ordinance <input type="checkbox"/> Contract Approval <input type="checkbox"/> Other: <input type="checkbox"/> Public Hearing (Legislative, unless otherwise noted) <input type="checkbox"/> 3-Year Strategic Plan: N/A Cost Allocation Fund: 171 Fire & EMS	<b>BUDGET IMPACT:</b> Expenditure Amount: \$ Included in Budget? Yes <input type="checkbox"/> No <input type="checkbox"/>
<hr/> <b>SUMMARY STATEMENT:</b> This matter is coming back to Council for adoption. Following a brief discussion on October 17, there were no additional recommended changes by Council.  [The following is copied from the October 17, 2016 Agenda Bill]:  In accordance with the Disaster Mitigation Act of 2000 (44CFR 201.6) (the Act), the City Council adopted the Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Revised 2009) in May of 2010, thus putting forth hazard mitigation goals and making the City eligible to apply for disaster mitigation grants in support of those goals.  The Act requires that the Plan go through a major revision and re-adoption every five years.  On January 26, 2015, the City Council adopted Resolution 15-010 authorizing City Manager to Execute a Professional Services Agreement with Kenneth R. Horvath for Coordination of the 2015 Hazard Mitigation Plan Updates.  Mr. Horvath will be delivering the briefing and answering questions. Adoption of the <i>Jefferson County – City of Port Townsend Natural Hazard Mitigation Plan (Revised 2016)</i> will be brought to Council on the Consent Agenda for the November 7, 2016 Council Business Meeting.	
<hr/> <b>ATTACHMENTS:</b> 1. Resolution 16-046	



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**CITY COUNCIL COMMITTEE RECOMMENDATION: N/A**

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**RECOMMENDED ACTION:** If adopted as part of the Consent Agenda, no further action is needed; this effectively represents unanimous approval of Resolution 16-046 Adopting the Jefferson County/City of Port Townsend Natural Hazard Mitigation Plan (Revised 2016).

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**ALTERNATIVES:**

- Take No Action       Refer to Committee       Refer to Staff       Postpone Action  
 Remove from Consent Agenda       Waive Council Rules and approve Ordinance \_\_\_\_\_  
 Other:



Pages 2 – 4 skipped for brevity.

**A. Resolution 16-048 Declaring an Emergency and Ratifying the City Manager’s Approval of all Applicable Documents to Allow for the Repair of the Boilers at Mountain View Commons**

*Action: Move to approve Resolution 16-048 Declaring an Emergency and Ratifying the City Manager’s Approval of all Applicable Documents to Allow for the Repair of the Boilers at Mountain View Commons.*

1. Staff presentation
2. Public comment
3. Council deliberation and action

[Agenda Bill AB16-128](#)

[Resolution 16-048](#)

[Resolution 16-048 Exhibit A](#)

**IX. Presiding Officer’s Report**

**X. City Manager’s Report**

**XI. Suggestions for next or future agenda, regular meeting and/or study session**

**XII. Comments from Council**

**XIII. Executive Session**

**XIV. Adjourn**

*Americans with Disabilities Act*

*In compliance with the Americans with Disabilities Act, those requiring accommodation for this meeting should notify the City Clerks Office at least 24 hours prior to the meeting at (360) 379-5083.*

**Item 30: PTCC Minutes – 11/07/2016 Adoption of Hazard Mitigation Plan**  
(Pages 2-4 deleted for brevity)

**CITY OF PORT TOWNSEND  
MINUTES OF THE REGULAR SESSION OF NOVEMBER 7, 2016**

**CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

The Port Townsend City Council met in regular session on the 7th day of November, 2016, in the Council Chambers at 540 Water Street. Mayor Deborah Stinson called the meeting to order at 6:30 p.m.

**ROLL CALL**

Councilmembers present at roll call were Pamela Adams, Robert Gray, Michelle Sandoval, and Deborah Stinson, with Amy Howard, David Faber and Catharine Robinson excused.

Staff members present were City Manager David Timmons, City Attorney Steve Gross, Public Works Director Ken Clow, Finance Director Nora Mitchell, Planning Director Lance Bailey, Police Chief Michael Evans, Finance Manager Sheila Danielson, Senior Planner John McDonagh and Deputy City Clerk Joshua Stecker.

**CHANGES TO THE AGENDA**

There were none.

**COMMENTS FROM THE PUBLIC**

Karma Tenzing Wangchuck commented on conditions at Winter Shelter.

**CONSENT AGENDA**

**Approval of Bills, Claims and Warrants -  
Vouchers 155193 through 155421, Vouchers 530 through 532 and Electronic  
Fund Transfers in the amount of \$1,413,549.18.**

**Approval of Minutes: October 3, October 10, 2016**

**Resolution 16-046 Adopting the Jefferson County/City of Port Townsend  
Natural Hazard Mitigation Plan (Revised 2016)**

**Motion: Michelle Sandoval moved to approve the consent agenda. Pamela Adams  
seconded.**

**Vote: motion carried unanimously, 4-0 by voice vote.**

**PUBLIC HEARING**

Ken Clow gave an overview of the boiler repair situation at the Mountain View Commons. He reported that parts were ordered under the direction of the City Manager and that staff is now asking Council to ratify the emergency. David Timmons clarified that \$50,000 is the deductible for the insurance policy on the facility.

*Motion: Pamela Adams moved to approve Resolution 16-048 Declaring an Emergency and Ratifying the City Manager's Approval of all Applicable Documents to Allow for the Repair of the Boilers at Mountain View Commons. Robert Gray seconded.*

*Vote: motion carried unanimously, 4-0 by voice vote.*

#### **PRESIDING OFFICER'S REPORT**

Deborah Stinson reported on the Olympic Peninsula Tourism Summit at Fort Worden and the East Jefferson Fire and Rescue interview process for three open positions.

#### **CITY MANAGER'S REPORT**

David Timmons reported on:

- Positive results from increased Human Resources staffing
- Water treatment plant ceremony will be scheduled for around 1st of year
- Status of CDBG grant for Mountain View
- Planned demolition of the Surf Building
- Planned improvements for the Adams Street end and the Clapp Building

#### **ADJOURN**

There being no further business, the meeting adjourned at 9:19 p.m.

Attest:



Joanna Sanders, CMC  
City Clerk

## Item 31: Neighborhood.com Request for Input to the Hazard Mitigation Plan (11/04/2016)

Activity

My agency ▾

VIEWING:

Jefferson County Department of Emergency Management ▾



### Public input sought for county/city 2016 Hazard Mitigation Plan

Site Administrator (Volunteer) Pete Hubbard from Jefferson County Department of Emergency Management · Just now

(Posted for Ken Horvath, Project Coordinator, Jefferson County-City of Port Townsend, Hazard Mitigation Plan Update Project)

"The purpose of the (2016 Hazard Mitigation) plan is to provide a structured approach so that participating organizations can document their strategic plans for improving their resiliency prior to a disaster occurring, according to a press release.

In doing so, and after the Federal Emergency Management Agency (FEMA) approves the plan, participating organizations become eligible to compete for hazard mitigation grants to implement their plans by adopting the plan. In the past, the city has received such grants to seismically retrofit the library, the police station (Cotton Building), the water distribution system at City Lake, the downtown tunnel lids, and to rebuild the fire station at Harrison and Lawrence streets." (PT Leader - <http://www.ptleader.com/news/public-inpu...> )

The final draft of the 2016 Hazard Mitigation Plan is at <http://www.jprephazmitplan.org> where you can look at it and leave ideas and critiques - or send them to [khovath@co.jefferson.wa.us](mailto:khovath@co.jefferson.wa.us). Public input is encouraged and will be accepted through 11/30 to get into this draft, which then goes to the State and FEMA for review.

Shared with Jefferson County Department of Emergency Management in Crime & Safety

REPLY ▾

## Item 32: Climate Action Committee Agenda – 11/30/2016

### Agenda

Climate Action Committee (CAC)  
 Wednesday, November 30th, 2016, 3:30 - 5:30 PM  
 Cotton Building, 607 Water Street, Port Townsend, WA

**Homework:** Review minutes from August meeting, consider Goals for 2017 item below

#### AGENDA

- 3:30 p.m. Call to Order [5]
- 3:35 Approval of Agenda and Minutes (August 24, 2016), and Recap [5]
- 3:40 Public Comment [5 minutes, limited to 3 minutes/person]
- 3:45 CAC Structure for the Future – Deb Stinson [10]
- 3:55 Goals for 2017 – Cindy [15]
- Discuss idea of each organization setting one goal on climate mitigation and one goal on climate adaptation for 2017
  - Goals could come from Matrix of Climate Mitigation Opportunities (attached), from Appendix B - Adaptation Strategy Matrix Sorted By Lead Group (attached), or elsewhere
- 4:10 Review Matrix of Climate Mitigation Opportunities – Judy Surber [30]
- 4:40 Adaptation and Mitigation Status and Future Work [30] – CAC Organizational Representatives
- What is currently underway with your organization regarding climate adaptation and mitigation, and what is planned for the future?
  - How can the CAC help you in this work?
  - What opportunities are there for collaboration with other organizations?
- 5:10 Brief Update on Recent and Upcoming Events [5] - All
- King Tide event on Nov 18, other?
- 5:15 Elections [5]
- 5:20 Public Comment [5 minutes, limited to 3 minutes/person]
- 5:25 Next Steps & Agenda Planning [5]  
 Seventh Power Plan?
- 5:30 Adjourn

For More information, please see the Climate Action Committee's web page on the County's website at: <http://www.co.jefferson.wa.us/commdevelopment/ClimateChange.htm>



## Item 33: Climate Action Committee Minutes – 11/30/2016



*Jefferson County/City of Port Townsend*  
**Climate Action Committee**



**Meeting Minutes**  
 November 30, 2016  
 Cotton Building  
 Port Townsend, WA

**Members Present:** Eric Toews, Deborah Stinson, Scott Walker, Laura Tucker, Cindy Jayne, Kevin Scott, Barney Burke  
**Absent:** Tammi Rubert, Kathleen Kler  
**Staff:** Judy Surber, City of Port Townsend  
**Guests:** Sonja Hammar, Celene Regueria (sp?), Steve Moyer, Jeff Gallant, Mike Doherty, Matt Ready  
**Scribe:** Barney Burke

Topic	Recommendation/Action
<b>Call to order</b>	3:37 p.m.
<b>Approval of Agenda &amp; Minutes</b>	<b>Motion</b> to approve Agenda by Deborah Stinson, second by Barney Burke, approved. <b>Motion</b> to approve Aug. 24 minutes by Barney Burke, second by Deborah Stinson, approved.
<b>Public Comment</b>	Jeff Gallant spoke about the value of public outreach. He recently conducted an informal survey with local builders and found that approximately 90 percent of builders believe that climate change is real and human-caused, although only 50 percent see it as solvable and only about 10% are optimistic about the ability to reduce emissions.  Sonja Hammar talked about starting the local energy LLC, and the upcoming energy lunch presentation by J.J. McCoy on electric vehicles on Dec. 15.
<b>CAC Structure for the Future</b>	Deborah Stinson said the city and county are planning to make some changes to the CAC's enabling legislation in January to make it easier to appoint new members.
<b>Goals for 2017</b>	Cindy Jayne introduced two matrices related to local climate change activities. She provided an overview of the first matrix which is derived from Appendix B of Planning for Climate Change on the North Olympic Peninsula, produced by the North Olympic Peninsula Resource Conservation and Development District; it identifies ways to adapt to climate change.



	<p>Judy Surber provided an overview of the second matrix which stems from Phase I of the CAC Work Plan. The City and County jointly adopted a work plan for the CAC in 2011. The adopted Work Plan outlines three phases</p> <p>Phase I community outreach and government leading by example (the second matrix relates to this phase and includes measures from the Climate Action Plan)</p> <p>Phase II transportation and land use policy including recommended changes to the Comp Plan and</p> <p>Phase III Preparation and Adaptation strategies (See Cindy’s matrix).</p> <p>There was a discussion about having local governments and others each focus on one mitigation goal and one adaptation goal. Matt Ready said the hospital may reconstitute its green committee. Eric Toews noted that the Port needs to grow its business, which will increase its carbon impact. Deborah Stinson suggested a CAC presentation could help organizations identify realistic goals. Scott Walker suggested that since transportation was about 39 percent of the local carbon footprint (prior to JPUD providing BPA electricity and Port Townsend Paper Corp. investing in new equipment), and now maybe 50 percent, it might make sense for several organizations to adopt complementary goals on transportation. This might include electric vehicles, bikes and utility trucks.</p> <p><b>Motion</b> by Cindy Jayne to ask each organization to come back with one mitigation goal and one adaptation goal, possibly focusing on transportation, second by Deborah Stinson. Judy Surber and Cindy Jayne offered to provide a one page summary to ensure that the process is clear to everyone, and it was suggested that input be sought from the Chamber of Commerce, Main Street, and Local 20/20. Motion passed unanimously.</p>
<p><b>Review Matrix of Climate Mitigation Opportunities</b></p>	<p>Judy Surber gave a more detailed overview of the matrix on mitigation, which serves as a way of tracking (1) what is being done and by whom, (2) possible goals for 2017 and (3) a running list of ideas that have been discussed via the CAC.</p> <p>Deborah Stinson said the city is planning on looking at the issue of downtown parking in 2017.</p> <p>Eric Toews, Cindy Jayne and Kevin Scott talked about their effort to help the Port develop an analytical tool for evaluating capital projects in the context of climate change, perhaps analogous to the checklist used</p>

	<p>for determining SEPA (State Environmental Policy Act) compliance.</p>
<p><b>Adaptation and Mitigation Status and Future Work</b></p>	<p>Scott Walker said the Nonmotorized Transportation Committee has published and distributed its walking and bicycling map.</p> <p>Cindy Jayne said Local 20/20 had reviewed the pending update of the County's Hazard Mitigation Plan (<a href="http://jprephazmitplan.org/wp-content/uploads/A30-V4-Draft-2016-Sect-II-Hazards.pdf">http://jprephazmitplan.org/wp-content/uploads/A30-V4-Draft-2016-Sect-II-Hazards.pdf</a>), which primarily focuses on natural disaster. She said a section had been added on the topic of "forcing mechanisms" in regard to climate change (starting on page 97). Retired NASA scientist Robert Bindshadler was asked about that section, and he reportedly indicated that he had serious concerns about the scientific validity of that section, and noted that its references were primarily Wikipedia. Barney Burke surmised that most reviewers just looked at the section related to their own facilities and operations and didn't read that section. Deborah thought the city had already approved the plan but agreed to check into it.</p> <p><b>Action:</b> Deborah Stinson said she would follow up with Cindy</p> <p>Cindy Jayne mentioned how some communities such as Oberlin, Ohio have energy plans, and Local 20/20's Energy Action Group is looking at drafting what might be an energy conservation chapter for such a plan. Scott Walker said the Transportation Lab would like to be involved.</p> <p><b>Action:</b> It was agreed that a draft would be sent for the next CAC meeting.</p> <p>There was a discussion of the Feb. 25 Home Show and whether it's an opportunity to reach out to businesses about climate change.</p> <p>Laura Tucker reported on a public health conference in October. The state health department has a climate change employee and there was interest in the king tides documentation project. The Enviro Stars program is evolving, she said, with an emphasis on carbon reduction that would launch in 2017. The climate outreach group might augment the Taming Bigfoot model for businesses.</p>
<p><b>Brief Update on Recent and Upcoming Events</b></p>	<p>Cindy Jayne said she and Laura Tucker are teaching a class through QUUF on climate change, starting from International (to local level).</p> <p>Cindy Jayne reported on the king tide project coordinated by Washington Sea Grant. About 60 people attended a presentation at the Maritime Center on Nov. 18; the next king tide is Dec. 17.</p> <p><b>Action:</b> Cindy Jayne will forward the link to the king tides project. Here</p>

	<p>it is: <a href="https://www.anecdata.org/posts/view/55920">https://www.anecdata.org/posts/view/55920</a> (for the local photos), and <a href="http://washington.kingtides.net/">http://washington.kingtides.net/</a> (for information on WA King Tides.)</p> <p>Judy Surber said the city is updating its Critical Areas Ordinance and will be drafting the Stormwater Functional Plan.</p>
<b>Elections</b>	Cindy Jayne said the CAC would elect a chair and vice chair at its first meeting in 2017.
<b>Public Comment</b>	Jeff Gallant said the CAC had covered just about everything today.
<b>Next Steps &amp; Agenda Planning</b>	<p>It was agreed that the next meeting would probably be Wednesday, March 8, at 3:30.</p> <p>Anticipated agenda items include elections, goals for 2017, update on the matrices, home show, draft text of energy efficiency chapter, work plan update, and Hazard Mitigation Plan update.</p> <p>Action items:</p> <ul style="list-style-type: none"> <li>• Judy Surber will confirm meeting date by email.</li> </ul>
<b>Adjourn</b>	The meeting was adjourned at 5:30 p.m.
<b>Next Meeting</b>	Next meeting is tentatively scheduled for March 8, 2017, 3:30-5:30 pm, at the Cotton Building.

## Item 34: BOCC Minutes – 01/09/2017 Discussion of Hazard Mitigation Plan



District No. 1 Commissioner: Kate Dean  
 District No. 2 Commissioner: David W. Sullivan  
 District No. 3 Commissioner: Kathleen Kler

County Administrator: Philip Morley  
 Clerk of the Board: Erin Lundgren

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**MINUTES**  
**Week of January 9, 2017**

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Madam Chair Kathleen Kler called the meeting to order at the appointed time in the presence of Commissioner David Sullivan and Commissioner Kate Dean.

**PUBLIC COMMENT PERIOD:** The following is a summary of comments made by citizens in attendance at the meeting and reflect their personal opinions:

- A citizen stated he is the Chimacum School District Superintendent and reminded voters the school has an upcoming levy for Education, Maintenance and Operations on February 14, 2017. The levy replaces the expiring 2014 levy and is not a bond. He thanked County departments and staff for their work with the school district;
- A citizen urged the Commissioners to support Phase 1 of creating a Human Rights Commission;
- A citizen stated: 1) A seminar on prolonging life will be held this week at the Chimacum Grange; and 2) Jefferson County needs to meet the needs of people living here by providing more jobs. He gave statistics on the amount of fuel used to travel outside the County for work and commerce; and
- A citizen stated in light of social media posts, he is happy to see the Commissioners will be affirming that Jefferson County is a place where everyone can live.

**APPROVAL AND ADOPTION OF THE CONSENT AGENDA:** Commissioner Sullivan moved to approve all the items on the Consent Agenda as presented. Commissioner Dean seconded the motion which carried by a unanimous vote.

1. **CALL FOR BIDS** re: Publication of County Legal Notices; Bids Accepted Until 9:30 a.m. and Opened and Read Publicly at 10:00 a.m. on Monday, March 6, 2017 in the Commissioners' Chambers; Jefferson County Courthouse
2. **AGREEMENT** re: Strategic Plan Development Services; In an Amount not to Exceed \$23,500; Jefferson County Sheriff; Roger Baker Consulting
3. **AGREEMENT** re: Health Insurance Portability and Accountability Act (HIPAA) Requirement to Provide Compliance for the Access of Protected Health Information; No Dollar Amount; Jefferson County Public Health; Marc Bolan Consulting
4. **AGREEMENT, Interlocal** re: On-line Food Worker Training, Testing and Card Issuance to Jefferson County Residents or Out-of-State Residents Working in Jefferson County; In the Amount of \$7.00 per Card Issued; Jefferson County Public Health; Tacoma-Pierce County Health Department
5. **AGREEMENT NO. 13-1221C, Amendment No. 1** re: Duckabush Floodplain Acquisition 2013; Extension of Project Period Only; Jefferson County Public Health; Washington State Recreation and Conservation Office (RCO)



Commissioners Meeting Minutes of January 9, 2017



6. **AGREEMENT NO. 12-1384C, Amendment No. 2** re: Quilcene Acquisitions 2012; Increase AA&E to Maximum Allowed Due to Additional Properties and Restoration Deliverables; The Admin Limit will Increase an Additional Amount of \$3,400 for a Total of \$11,400 and the A&E Limit will Increase an Additional Amount of \$3,269.23 for a Total of \$4,269.23; Jefferson County Public Health; Washington State Recreation and Conservation Office (RCO)
7. **MEMORANDUM OF UNDERSTANDING (MOU)** re: To Create a High School Transition Program Titled Achieving Community Employment in Transition (ACE-IT); No Fund Exchange; Jefferson County Public Health; Fort Worden Public Development Authority (PDA) and Port Townsend School District
8. **Payment of Jefferson County Vouchers/Warrants** Dated December 24, 2016 Totaling \$1,866.54
9. **Payment of Jefferson County Payroll Warrants** Dated December 29, 2016 Totaling \$1,355.80 and A/P Warrants Done by Payroll Dated January 5, 2017 Totaling \$787,458.30

**COMMISSIONERS BRIEFING SESSION and CALENDAR COORDINATION:** The Commissioners reported on their meeting schedules.

**Calendar Coordination:**

Below is a list of the upcoming meetings and events the Commissioners will be attending in the near future:

- Chamber of Commerce meeting
- Workforce Development Conference Call
- Tourism Coordinating Council meeting
- Substance Abuse Advisory Board meeting
- Brinnon Parks and Recreation District meeting
- The Governor's Ball
- Behavioral Health Organization meeting
- Hood Canal Coordinating Council meeting
- Chimacum Prevention Coalition meeting
- Olympic Region Clean Air Agency meeting
- Meeting with the City Manager regarding Affordable Housing
- Economic Development Council Team Jefferson Director Peter Quinn's farewell party
- Strait Ecosystem Recovery Network meeting
- Sheriff's Office Strategic Plan work session

The meeting was recessed at 9:43 a.m. and reconvened at 10:02 a.m. with all three Commissioners present.

**EXECUTIVE SESSION:** An Executive Session was scheduled from 10:00 a.m. to 10:30 a.m. with the Commissioners regarding personnel, hiring/discipline/performance review under exemption RCW42.30.110(1)(g) as outlined in the Open Public Meetings Act. The actual period of time the Board met in Executive Session on this topic was from 10:05 a.m. to 11:26 a.m. At the conclusion of the Executive Session the Board resumed the regular meeting.

Commissioners Meeting Minutes of January 9, 2017



The meeting was recessed at 11:27 a.m. and reconvened at 1:33 p.m. with all three Commissioners present.

**DISCUSSION re: County Strategic Planning:** Madam Chair Kler stated that during the Executive Session, the Commissioners discussed issues exempt from the Open Public Meetings Act. While discussing those issues, the desire to take the steps towards having a County-wide Strategic Plan was noted as something to discuss during open session. Madam Chair Kler stated the Commissioners' interest in hiring a consultant to assist with a Strategic Plan for the offices of the Board of County Commissioners and County Administrator. The Commissioners stated they did not wish to create more work for the County Administrator, but they will need his assistance with carrying out the process to obtain a consultant. Commissioner Sullivan added that in fulfilling the obligations of the Board to conduct a performance review for the County Administrator, it led the Commissioners to take a look at how the County is functioning as a whole. The Commissioners would like the consultant to also look into the possible efficiencies that might be gained in the Board of County Commissioner's Office and County Administrator's Office.

Commissioner Dean will work with County Administrator Morley in obtaining a consultant and she stated the goal of the Commissioners is to support the County Administrator in his duties. Madam Chair Kler stated that last year the County Administrator experienced abnormally high workloads and demands. She would like to not only support him, but make sure they are not working him too hard.

County Administrator Philip Morley stated that with a new board, the Commissioners may wish to implement the use of technology enhancements to improve and streamline how Board agenda packets are submitted and produced. The Commissioners agreed this was something they all would like to explore further. County Administrator Morley proposed a January 23, 2017 afternoon session to discuss tablets, software platforms and televising the Board of County Commissioner meetings among other possible technology enhancements to create efficiencies and enhance transparency to the public. He will invite Central Services Information Services staff and the Clerk of the Board Erin Lundgren to attend the meeting.

**COUNTY ADMINISTRATOR BRIEFING SESSION:** County Administrator Philip Morley reviewed the following with the Board.

**Miscellaneous Items:**

- Hiring update: Prothman will be advertising for Chief Civil Deputy Prosecuting Attorney and Central Services Director this month.
- Central Services: The County Administrator would like to discuss strengthening certain aspects of the Central Services department with the future Central Services Director.
- Sheriff's Office Strategic Plan: The Commissioners and County Administrator received questionnaires as part of the Sheriff's Office Strategic Plan process. County Administrator Morley explained the budgeting requests and accommodations the County has made in recent years for the Sheriff's Office.
- Washington State Association of Counties (WSAC): County Administrator reviewed WSAC's assessment fees for Jefferson County as information only.





- Hazard Mitigation Plan: Commissioner Sullivan is in the process of reviewing the plan. County Administrator Morley will check Jefferson Transit's progress in reviewing the plan and will work with Emergency Management Director Lynn Sterbenz and Ken Horvath to prepare the plan for adoption.
- Proposed Proclamation: The Commissioners are working on formulating a proclamation regarding Anti-Hate in Jefferson County. Commissioner Sullivan noted that the Governor has declared Washington a Hate-Free zone, and the Commissioners could state they support the Governor. Madam Chair Kler and Commissioner Dean would like to make a declaration and will continue to work on a proclamation.
- Human Rights Commission: A citizen has requested the Commissioners support of "Phase One" of a Human Rights Commission. County Administrator Morley stated that he explained to the citizen that there is already a state function for this. He suggested possibly adding a statement regarding Human Rights into the proposed proclamation.
- Navy Growlers: Madam Chair Kler read from a letter she signed along with Island County Commissioner Helen Price Johnson, San Juan County Commissioner Jamie Stephens and Skagit County Administrator Ken Holloran regarding Navy Growler noise. Commissioner Sullivan stated a citizen suggested using GIS mapping technology to track noise complaints.
- Chimacum Creek No-Shoot Zone complaints: Commissioner Sullivan and Sheriff Stanko are addressing a shooting complaint in that area.
- Port Hadlock Sewer: Commissioner Dean requested a work session with Public Works to review the sewer plan and pass the information along to the public.
- Affordable Housing: Commissioner Dean is meeting with City Manager David Timmons regarding affordable housing. The City Manager is proposing a new affordable housing group.
- County Website and Newsletter: Commissioner Dean is interested in starting a newsletter which she can email to the community to relay the current issues of County Government, the work they do and the challenges they face.
- Climate Action Committee (CAC): Madam Chair Kler read from a letter the CAC group is sending to the Port Townsend Paper Company for their work on reducing their greenhouse gas emissions by 60%. The Board previously approved the letter. CAC has requested that all members provide a mitigation strategy prior to their next meeting in February 2017. Madam Chair Kler will report back on how the County has been taking steps to make their Courthouse lights more efficient. She will speak to other County departments as well.
- Legislative Session: Madam Chair Kler will be attending the Legislative Steering Committee (LSC) meetings next week. County Administrator Morley noted the Hirst Decision, LAMIRDs, sewer and Timber Harvest within Master Planned Resorts are all issues to be looking out for.
- On the Road Meetings: Commissioner Dean expressed interest in resuming the Board of County Commissioners' On the Road Meetings. Other Elected Officials and Department Supervisors would be welcome to join. Commissioner Dean would like the meetings to also be a platform to hear presentations or reports from the community.

**Calendar Coordination - continued:**

- Port Ludlow Settlement Agreement Community meeting
- Madam Chair Kler will be out of the office January 24, 2017.
- Commissioner Dean will be out of the office January 20, 2017.

Commissioners Meeting Minutes of January 9, 2017



**NOTICE OF ADJOURNMENT:** Commissioner Dean moved to adjourn the meeting at 3:27 p.m. until the next regular meeting or special meeting as properly noticed. Commissioner Sullivan seconded the motion which carried by a unanimous vote.



ATTEST:

*Carolyn Avery*  
Carolyn Avery, CMC  
Deputy Clerk of the Board

JEFFERSON COUNTY  
BOARD OF COMMISSIONERS

Kathleen Kler, Chair

*David Sullivan*  
David Sullivan, Member

*K. Dean*  
Kate Dean, Member



## Item 35: Marrowstone Island Foundation Support Request – 01/09/2017

### THE CHALLENGE OF PROVIDING EMERGENCY SERVICES

#### TO MARROWSTONE ISLAND, Jefferson County, WA

#### Fire, Rescue, Medical and Emergency Subsistence Supplies

Marrowstone Island enjoys unique geographical separation from the mainland of Washington. However, peaceful and scenic benefits pale when considering challenges of providing emergency services to the more than 750 homes. Connected by a single 50+ year old bridge which also carries all utilities of water, power and communications, the separation poses the threat of not only being cut-off from help, but potentially not being able to communicate that help is needed. Cell phone coverage of the island is less than 50% meaning that calling for help in such a circumstance is severely limited. A windstorm two years ago provided real demonstration of this potential by downing power, phone and cable lines on the mainland side of the bridge for several days and blocking the sole access road for a number of hours due to a downed tree. Simply stated, it is highly likely that in the event of a severe storm, or earthquake and subsequent tsunami, Marrowstone Island residents will be unreachable for an extended period of time. Therefore, specific consideration should be given to Marrowstone Island when building the Jefferson County – City of Port Townsend All Hazard Mitigation Plan.

Marrowstone Island has responded to this challenge for many years by taking local initiative to provide on-island services. Residents raised money and purchased their own ambulance 30+ years ago and established trained volunteer emergency medical and firefighter personnel. They built a small “fire station” to house the ambulance and later, a water tanker truck. More recently they have established a 2-way radio network of ham and FRS radio equipped residents to enable contact with the 911 emergency dispatch center on the mainland. Further, there is an active emergency preparedness committee on the island to help residents be individually prepared to help themselves and their immediate neighbors.

The “fire station” on Marrowstone Island was transferred to Chimacum Fire Department in 1980 and later absorbed by East Jefferson Fire and Rescue Department (EJFR). However, with primary response provided by this station located on the mainland, the Marrowstone station has been minimally maintained and is not staffed. Provision of emergency services following a major natural disaster may be dependent on resources located on the island or brought to the island by boat. There have been discussions with EJFR regarding upgrading the Marrowstone Station and providing resident staff and equipment at least during the summer months when there is an influx of tourists to Fort Flagler State Park. There is strong interest by all parties, but funding has not allowed realization of this much needed improvement. Marrowstone Island requests inclusion of a commitment for upgrade to the island fire station, and disaster preparations such as radio communications, water, food and medical supplies, when finalizing the Jefferson County Natural Disaster Hazard Mitigation Plan.

Source: Email to Project Coordinator from representatives of Marrowstone Foundation, dtd 01/09/2017.

## Item 36: Marrowstone Island Foundation Board Meeting Agenda – 01/10/2017

Jan 10, 2017 MIF Board of Directors Meeting

### Agenda

Minutes of Dec 13, 2016 Meeting - Beckie

Treasurers Report - Owen

Committee Reports:

Fundraising committee – Rita

Shirt sales status to date

Confirm repayment to Cynthia Row

Nominating committee – All

4 candidates for March election

Investment management committee – Rita et al

Proposal to invest along with Jefferson County Foundation

Communications and Publicity committee – All

Election reminder email (both systems)

Repeat email announcement of need for board candidates

Email announcement of upcoming Open MIF Board Meeting

MICA meeting presentation

Scholarship committee -

Volunteer EMT recruitment committee – Mike Z

Rick Tracer not available in 2017 as volunteer recruit for EMT

Ambulance committee – Bruce

Discussion of MIF “public Comment” submission to Jefferson County  
Natural Disaster Hazard Mitigation Plan

Discussion of draft MIF presentation to Fire District Commissioners

Other Business:

Sheriff’s Office Survey (due Jan 14<sup>th</sup>) - volunteer

Annual Open Meeting – Bruce et al

Select a monthly meeting to be open to island residents - All

Presentation to MICA Meeting - Bruce

Annual Financial Audit - Gladys

CPR/AED class to be scheduled – Bruce or ?

Volunteer Recognition – All

Retiring EMT *MIKE COFFEEN*

Recognition Monument – Rita Kepner

Proposal - 911 dispatch of community volunteer responders

Next Meeting – Feb 14

Adjournment

## Item 37: Marrowstone Island Foundation Board Meeting Minutes – 01/10/2017

**MIF BOARD OF DIRECTORS MEETING****January 10, 2017**

Attendees: Bruce Carlson, Sandy Barrett, Rita Kepner, Owen Mulkey, Mike Zimmerman and Gladys Heinzinger

The meeting was called to order at 6:40 pm by President Bruce.

Minutes of the previous meeting were approved as written.

The Treasurer's Report was approved showing a \$100 income donation and a \$512.10 increase in the USAA Portfolio to give a \$124,403.56 balance on hand as of today's date.

Fundraising Committee: Owen reported Cynthia has a spreadsheet and will request Cynthia provide MIF with a copy showing the inventory available along with the shirt bank statement. Confirmation repayment to Cynthia is unknown. Rita will contact Cynthia for a copy of the current spreadsheet.

Nominating Committee: Mike Z reported two possible candidates, Beth Brown and Jan ? who will come to the MICA meeting. Bruce suggested Jim Surgent and Gladys mentioned Bill Wolf (sp?). Mike and Bruce will personally follow up.

Investment Management Committee: The Jefferson County Foundation folks did not show. Hopefully they will make our next meeting to learn of their investment strategy.

Communications and Publicity Committee: Bruce is on MICA's January 16 meeting agenda. Sandy will help with follow up on NextDoor and Yahoo Groups. Bruce will update and give a power point presentation at the MICA meeting. In addition, he will announce MIF's annual, open meeting scheduled for February 14 at Bruce's home. Emphasis will be placed on the need for volunteer EMT's, volunteer board member candidates, reduce Fire District response times for 911 calls and the importance of upgrading building and staff at Station 12 located on Flagler Rd. The annual MIF Board of Directors election date will be March 21 and that date will also be announced at the MICA meeting.

Scholarship Committee: No report

Volunteer EMT Recruitment Committee: Robin Fitch has responded to Mike Coffeen and Katherine Caldwell replied to Rita's email and is seriously considering. A discussion followed as to when the next EJFR training begins and ended with Mike Z volunteering to contact EJFR to learn if these possible recruits could join the next class.

**Ambulance Committee:** Bruce shared his “public comment” submittal to the Jefferson County Natural Disaster Hazard Mitigation Plan, and draft Presentation to Fire District Commissioners with the board. The Fire District Commissioners presentation was prepared after the affirmative response to the Hazard Mitigation Plan, which definitely found Marrowstone vulnerable, and gained Chief Pomeroy’s attention. Bruce will contact Gordon Pomeroy and let him know we are preparing a presentation for the Commissioners and set up the presentation date. Each board member was given a copy and we discussed all four sections. Marrowstone taxation and Good Samaritan, Indian Island Fire Station, were additional suggestions. Sandy will contact the county to learn the Marrowstone taxation rates, the amount EJFR received from Marrowstone and the total EJFR collected from the county to determine our percentage. Mike Z will contact the Indian Island Commander to learn what response they will offer Marrowstone in a disaster.

Meeting adjourned at 8:35 pm

Next Meeting: February 14, Tuesday, at 6:30 pm at Bruce’s home.

Submitted by:

Gladys Heinzinger, Co-Secretary





# Item 39: BOCC Agenda – 01/23/2017 Adoption of Hazard Mitigation Plan



# Agenda

Regular Meeting – January 23, 2017

**MONDAY**

9:00 a.m. Meeting Called to Order by Chairman

9:01 a.m. PUBLIC COMMENT PERIOD - Up to 30 Minutes

*This is an optional time period dedicated to listening to the public. We want to hear your ideas or concerns. To ensure equal opportunity for the public to comment, all comments shall be limited to three minutes per person and each person may address the Board one time during the public comment period. When the green light is on it means proceed to speak; the yellow light will go on when the speaker has 30 seconds remaining; the red light illuminated means stop. Please start by stating your name and address.*

**APPROVAL AND ADOPTION OF THE CONSENT AGENDA:** (Items listed below have been distributed to the Commissioners in advance for study and will be enacted by one motion. If separate discussion is desired on an item, that item may be removed from the Consent Agenda and placed on the Regular Agenda, at a specific time, at the request of any of the Commissioners.)

1. **RESOLUTION NO. \_\_\_\_\_** re: Adoption of the Jefferson County-City of Port Townsend All Hazards Mitigation Plan (Rev. 2016)
2. **RESOLUTION NO. \_\_\_\_\_** re: Cancellation of Uncollectable Personal Property Taxes
3. **AGREEMENT NO. GCB 2021** re: Construction of Olympic Discovery Trail Project, South Discovery Bay Segment A; No Dollar Amount; Jefferson County Public Works; Washington State Department of Transportation (WSDOT)
4. **AGREEMENTS (4)** re: 2017 Community Services Grant Funding; 1) In the Amount of \$13,620; Port Townsend Senior Association; 2) In the Amount of \$4,910; Jefferson County Fair Association; 3) In the amount of \$137,150; Olympic Community Action Program (OlyCAP); and 4) In the Amount of \$3,120; Gardiner Community Center

THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS NOT LISTED ON THIS AGENDA.

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request

Agenda: January 23, 2017

APPROVAL AND ADOPTION OF CONSENT AGENDA – Continued

- 5. [AGREEMENTS](#) (11) re: 2017 Hotel Motel Grant Funding; 1) In the Amount of \$20,000; Centrum; 2) In the Amount of \$64,076; Jefferson County Historical Society (JCHS); 3) In the Amount of \$65,000; Jefferson County Historical Society (JCHS) - Gateway Visitor's Center; 4) In the Amount of \$29,535; Forks Chamber of Commerce; 5) In the Amount of \$7,714; Jefferson County Public Works, Olympic Discovery Trail; 6) In the Amount of \$5,000; WSU-Jefferson County Extension Farm Tour; 7) In the Amount of \$28,140; Jefferson County Parks & Recreation; 8) In the Amount of \$15,985; Quilcene Historical Museum; 9) In the Amount of \$53,800; North Hood Canal Chamber of Commerce; 10) In the Amount of \$135,000; Tourism Coordinating Council (TCC); 11) In the Amount of \$3,500; Quilcene Fair & Parade Association
- 6. [2017 DIGITAL SUBMITTAL OF CERTIFICATION OF ROAD LEVY](#) re: Jefferson County Public Works; County Road Administration Board (CRAB)
- 7. [Payment of Jefferson County Vouchers/Warrants](#) Dated December 28, 2016 Totaling \$637,971.22 (Records of all claims submitted for payment along with vouchers approved and signed by the Board of Jefferson County Commissioners are retained by the Jefferson County Auditor and Public Works Department.)

COMMISSIONERS BRIEFING SESSION

- [Approval of Minutes](#): Regular Meeting Minutes of December 12 and 19, 2016

REGULAR AGENDA:

OPEN

Noon	Quarterly Elected Officials/Department Head Meeting	Chambers
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THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS  
NOT LISTED ON THIS AGENDA.

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request

Agenda: January 23, 2017

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1:30 p.m. County Administrator Briefing Session Chambers

- **DISCUSSION** re: Using BOCC/CAO Technology to Enhance Efficiency and Transparency

Philip Morley, County Administrator  
Erin Lundgren, Clerk of the Board

2:30 p.m. - **UPDATE** re: Noxious Weed Control Board Summary of Summer Symposium

Joost Besijn, Noxious Weed Control Board Coordinator

- Miscellaneous Items
- 2017 Legislative Session
- Calendar Coordination
- Future Agenda Items

**NOTICE OF ADJOURNMENT**

**CORRESPONDENCE:**

See Attached [Correspondence Log](#)

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THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS  
NOT LISTED ON THIS AGENDA.

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request



Agenda: January 23, 2017

<b>COMMISSIONERS MEETING SCHEDULE</b>			
Week of January 23, 2017			
<b><u>Monday – January 23, 2017</u></b>			
		See Agenda	
Noon	Board	Quarterly Elected Official/Department Head Meeting	Chambers
1:30 p.m.	Board	County Administrator Briefing Session	Chambers
<b><u>Tuesday – January 24, 2017</u></b>			
All Day	Kathleen	Out of Office	
3:15 p.m.	David	Developmental Disability Advisory Board	Public Health Conf. Room
5:00 p.m.	David	OlyCAP Special Finance Committee Meeting	OlyCAP Office
<b><u>Wednesday – January 25, 2017</u></b>			
		OPEN	
<b><u>Thursday – January 26, 2017</u></b>			
9:00 a.m.	David	JeffCom Administration Board Meeting	Port Ludlow Fire Station
1:00 p.m.	Kate	North Olympic Development Council Meeting	John Wayne Marina Conf. Rm
3:00 p.m.	Kathleen	Solid Waste Advisory Committee (SWAC) Meeting	Public Works Conf. Room
<b><u>Friday – January 27, 2017</u></b>			
1:00 p.m.	Kate	Public Works Solid Waste Landfill Tour	Jefferson County Public Works
1:00 p.m.	David	OlyCAP Appointment	OlyCAP Office, PT
1:30 p.m.	Kathleen	Legislative Steering Committee Webinar	Conference Call

THE COMMISSIONERS MAY ADD AND TAKE ACTION ON OTHER ITEMS  
NOT LISTED ON THIS AGENDA.

Americans with Disabilities Act (ADA) Accommodations Provided Upon Request

# Item 40: BOCC BOB – 01/23/2017 Adoption of Hazard Mitigation Plan

## Board's Official Business

Highlights from Monday's Commissioner Meeting
January 24, 2017

**PUBLIC COMMENT PERIOD:** The following is a summary of comments made by citizens in attendance at the meeting and reflect their personal opinions:

- A citizen stated that since President Trump's administration is promising to fund infrastructure, Jefferson County should make sure everything is up-to date with the Tri-Area Sewer project. He asked if the PUD will be operating the sewer;
- Three citizens spoke about their local group called Beyond Waste and explained how they are educating the public on food waste and other types of waste;
- A citizen stated it was nice to live in an island of sanity;
- A citizen: 1) Stated he is not in favor of President Trump's Cabinet choices; 2) Stated Jefferson County needs to be self-sufficient; 3) Stated he is unhappy with the Republican Healthcare program; 4) Gave information on how to live a healthier life; 5) Stated that when he went to school, there were no kids with autism; 6) Stated Weed and Feed should come with a Material Data Safety Sheet; and 7) Stated he would like the Washington State Toxic Coalition to speak in Jefferson County; and
- A citizen stated: 1) The Women's March was spectacular and four busloads of Jefferson County residents marched in Seattle; and 2) The Jefferson County Democrats will be defending federal programs that assist senior citizens.

**CONSENT AGENDA:** The Board approved the items on the Consent Agenda as presented:

**RESOLUTION NO. 04-17 re: Adoption of the Jefferson County-City of Port Townsend All Hazards Mitigation Plan (Rev. 2016)**

**RESOLUTION NO. 05-17 re: Cancellation of Uncollectable Personal Property Taxes**

**AGREEMENT NO. GCB 2021 re: Construction of Olympic Discovery Trail Project, South Discovery Bay Segment A; Washington State Department of Transportation (WSDOT)**

**AGREEMENTS (4) re: 2017 Community Services Grant Funding;** 1) Port Townsend Senior Association; 2) Jefferson County Fair Association; 3) Olympic Community Action Program (OlyCAP); and 4) Gardiner Community Center

**AGREEMENTS (11) re: 2017 Hotel Motel Grant Funding;** 1) Centrum; 2) Jefferson County Historical Society (JCHS); 3) Jefferson County Historical Society (JCHS) - Gateway Visitor's Center; 4) Forks Chamber of Commerce; 5) Olympic Discovery Trail; 6) WSU-Jefferson County Extension Farm Tour; 7) Jefferson County Parks & Recreation; 8) Quilcene Historical Museum; 9) North Hood Canal Chamber of Commerce; 10) Tourism Coordinating Council (TCC); 11) Quilcene Fair & Parade Association

**2017 DIGITAL SUBMITTAL OF CERTIFICATION OF ROAD LEVY** re: Jefferson County Public Works; County Road Administration Board (CRAB)

**Payment of Jefferson County Vouchers/Warrants Dated December 28, 2016** Totaling \$637,971.22

**APPROVAL of MINUTES:** The Board approved the Regular Meeting Minutes of December 12 and 19, 2016 as presented.

**COMMISSIONERS' BRIEFING SESSION:** The Commissioners reported on their meeting schedules and Calendar Coordination. Madam Chair Kler notified the public of the following events:

- **Mercy Missions Mobile Dental Van** will be at the Pope Marine Building in Port Townsend on January 27 and 28, 2017 from 10:00 a.m. to 4:00 p.m.
- **West End Emergency Management Meeting** will be held February 9, 2017 from 12:00 p.m. to 4:00 p.m. at the Hoh Village Gymnasium

**Quarterly Elected Officials/Department Directors Meeting:** The Elected officials and department directors of Jefferson County met and discussed various County issues.

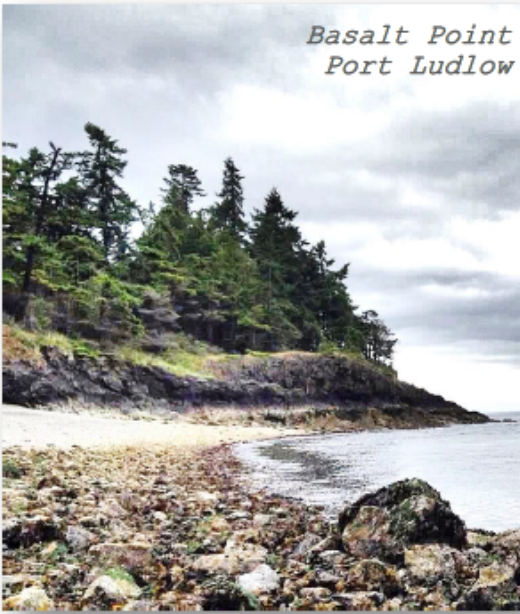
**TECHNICAL BRIEFING:** The Board was briefed by Central Services I.T. staff and the Clerk and Deputy Clerk of the Board on technology to enhance efficiency and transparency. Staff will conduct further research and report back at a later date.

**BRIEFING:** The Board met with the Noxious Weed Control Board (NWCB) Coordinator who gave a presentation on the NWCB program and goals for 2017.

**BOARDS and COMMITTEES LIST:** The Board approved a motion to amend the 2017 Boards and Committees List to include Commissioner Dean as alternate on the Olympic Area Agency on Aging (O3A) Board.

**COUNTY ADMINISTRATOR BRIEFING:** The Board discussed various topics with the County Administrator.

*Basalt Point  
Port Ludlow*



## Item 41: BOCC Minutes – 01/23/2017 Adoption of Hazard Mitigation Plan

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# **SECTION VIII**

## **FEMA CROSSWALK**

**(Local Hazard Mitigation Plan Review Tool)**

## Plan Review Tools

The following Plan Review Tools are based on the *Local Mitigation Plan Review Guide*, published by FEMA, dated October 1, 2011. This Plan Review Tool is consistent with the *Disaster Mitigation Act of 2000* (P.L. 106-390), enacted October 30, 2000 and *44 CFR Part 201 – Mitigation Planning, Interim Final Rule* (the Rule), published February 26, 2002.

The crosswalks are placed here to assist the reviewer in determining that the plan meets the requirements of the above legislation, and to provide a tool for the planners to use in continuously evaluating and improving the plan and, more importantly, using the plan to effect changes in policy and property to minimize the impacts of both natural and man-made disasters.

# LOCAL MITIGATION PLAN REVIEW TOOL

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The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA’s evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan’s strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

<b>Jurisdiction: Jefferson County, the City of Port Townsend, and 21 Special Purpose Districts</b>	<b>Title of Plan: Jefferson County – City of Port Townsend Multi-Jurisdiction Hazard Mitigation Plan</b>	<b>Date of Plan:</b>
<b>Local Point of Contact:</b> Ken Horvath	<b>Address:</b> Jefferson County Dept of Emergency Management Emergency Operations Center 81 Elkins Road Port Hadlock, WA 98368	
<b>Title:</b> Hazard Mitigation Plan Project Coordinator		
<b>Agency: Jefferson County Department of Emergency Management</b>		
<b>Phone Number:</b> (360) 385-9368 (Jefferson County EOC)		
	<b>E-Mail:</b> khorvath@co.jefferson.wa.us	

<b>State Reviewer:</b>	<b>Title:</b>	<b>Date:</b>

<b>FEMA Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
<b>Date Received in FEMA Region</b> <i>(insert #)</i>		
<b>Plan Not Approved</b>		
<b>Plan Approvable Pending Adoption</b>		
<b>Plan Approved</b>		

**SECTION 1:  
REGULATION CHECKLIST**

**INSTRUCTIONS:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been ‘Met’ or ‘Not Met.’ The ‘Required Revisions’ summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is ‘Not Met.’ Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan (section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT A. PLANNING PROCESS</b>				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section I – p.53-68 Appendix B – p.705-733			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section I – p.59-64			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section I – p. 63-64			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section I – p.61 Section IV – p.406 & p.457			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section I – p.66-68			
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section I – p.66-68			
<b>ELEMENT A: REQUIRED REVISIONS</b>				



<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section II – pp.69-372			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Section II – p.93-372; Each hazard has future probability and previous occurrences.			
B3. Is there a description of each identified hazard’s impact on the community as well as an overall summary of the community’s vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Section II p.69-372; each hazard profile contains a HIVA pertinent to the area and a conclusion.			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section II – Floods – pp.164-167; Section IV – pp.407-408 & pp.458-459.			
<b>ELEMENT B: REQUIRED REVISIONS</b>				
<b>ELEMENT C. MITIGATION STRATEGY</b>				
C1. Does the plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section IV - City – pp.389-454; County – pp.455-524; Special Purpose Districts – pp.525-626.			
C2. Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section IV – City pp.407-408; County pp.458-459.			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section V – Mitigation Actions – pp.627-662			
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section V – Mitigation Actions – pp.627-662			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section III – Multi-Jurisdiction Hazard Mitigation p.305-387			
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Section I – p.66			

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b><u>ELEMENT C: REQUIRED REVISIONS</u></b>				
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Revisions Summary – p.1-10			
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section V – Mitigation Actions pp.627-662			
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section IV – Jurisdictions p.402-404.			
<b><u>ELEMENT D: REQUIRED REVISIONS</u></b>				
<b>ELEMENT E. PLAN ADOPTION</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Preface – p.xvii; Section I – p.65; Appendix F –p.751.			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Appendix F – Adoption Resolutions pp. 749-772.			
<b><u>ELEMENT E: REQUIRED REVISIONS</u></b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				
<b><u>ELEMENT F: REQUIRED REVISIONS</u></b>				

## SECTION 2: PLAN ASSESSMENT

**INSTRUCTIONS:** The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

***Plan Strengths and Opportunities for Improvement*** is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

***Resources for Implementing Your Approved Plan*** provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

## **A. Plan Strengths and Opportunities for Improvement**

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

### **Element A: Planning Process**

*How does the Plan go above and beyond minimum requirements to document the planning process with respect to:*

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

### **Element B: Hazard Identification and Risk Assessment**

*In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:*

- 1) *A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
- 2) *The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
- 3) *A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

*How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:*

- *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- *Identification of any data gaps that can be filled as new data became available.*

### Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

### Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

## B. Resources for Implementing Your Approved Plan

*Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:*

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

**SECTION 3:**

**MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)**

**INSTRUCTIONS:** For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were ‘Met’ or ‘Not Met,’ and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/township/village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A.	B.	C.	D.	E.	F.
							Planning Process	Hazard Identification & Risk Assessment	Mitigation Strategy	Plan Review, Evaluation & Implementation	Plan Adoption	State Requirements
0	Multi-Jurisdiction	All Jurisdictions	Ken Horvath Project Coordinator	Jefferson County Dept of Emergency Management 81 Elkins Road Port Hadlock, WA 98338	khorvath@co.jefferson.wa.us	(360) 385-9368						
1	Jefferson County, WA	County	Lynn Sterbenz, Director	Jefferson County Dept of Emergency Management 81 Elkins Road Port Hadlock, WA 98338	lsterbenz@co.jefferson.wa.us	(360) 385-9368						
2	City of Port Townsend	City	Michael Evans, Chief of Police	Port Townsend Police Dept 1925 Blaine St Port Townsend, WA 98368	mevans@cityofpt.us	(360) 382-2322						

MULTI-JURISDICTION SUMMARY SHEET							Requirements Met (Y/N)					
#	Jurisdiction Name	Jurisdiction Type (city/township/village, etc.)	Plan POC	Mailing Address	Email	Phone	A.	B.	C.	D.	E.	F.
							Planning Process	Hazard Identification & Risk Assessment	Mitigation Strategy	Plan Review, Evaluation & Implementation	Plan Adoption	State Requirements
3	East Jefferson Fire & Rescue	Fire District (JCFD1)	Ted Krynski Deputy Fire Chief	24 Seton Road Port Townsend, WA 98368	tkrynski@ejfr.org	(360) 385-2626						
4	Quilcene Fire - Rescue	Fire District (JCFD2)	Larry Karp Chief	70 Herbert St Quilcene, WA 98376	chief@qvfd.org	(360) 765-3333						
5	Port Ludlow Fire - Rescue	Fire District (JCFD3)	Brad Martin Chief	7650 Oak Bay Road Port Ludlow, WA 98365	brad.martin@plfr.org	(360) 437-2236						
6	Brinnon Fire - Rescue	Fire District (JCFD4)	Tim Manly Chief	272 Schoolhouse RD P.O. Box 42 Brinnon, WA 98320	tmanly@brinnonfire.org	(360) 796-4450						
7	Discovery Bay Fire & Rescue	Fire District (JCFD5)	Willie Knoepfle Chief	12 Bentley Pl Port Townsend, WA 98368	wknoepfle@dbvfr.org	(360) 379-6839						
8	JeffCom 9-1-1	Special Purpose District	Karl Hatton Director	81 Elkins Road Port Hadlock, WA 98339	khatton@jcpsn.us	(360) 344-9779						
9	Jefferson HealthCare Medical Center	Public Hospital District No. 2	Bill Hunt	824 Sheridan St Port Townsend, WA 98368	bhunt@jgh.org	(360) 385-2200						
10	Jefferson County Library	Public Library District	Meredith Wagner Director	620 Cedar Ave Port Hadlock, WA 98339	mwagner@jclibrary.info	(360) 385-6544						
11	Port of Port Townsend	Port District	Sam Gibboney Exec Director	2701 Jefferson St Port Townsend, WA 98368	samg@portoftpt.com	(360) 385-0656						
12	Port Townsend School District No. 50	Public School District	John Polm Superintendent Of Schools	450 Fir St Port Townsend, WA 98368	jpalm@ptschools.org	(360) 379-4501						
13	Brinnon School District No. 45	Public School District	Patricia Beathard Superintendent Of Schools	46 Schoolhouse Rd Brinnon, WA 98320	pbeathard@bsd46.org	(360) 796-4646						



MULTI-JURISDICTION SUMMARY SHEET							Requirements Met (Y/N)					
#	Jurisdiction Name	Jurisdiction Type (city/township/village, etc.)	Plan POC	Mailing Address	Email	Phone	A.	B.	C.	D.	E.	F.
							Planning Process	Hazard Identification & Risk Assessment	Mitigation Strategy	Plan Review, Evaluation & Implementation	Plan Adoption	State Requirements
14	Chimacum School District No. 49	Public School District	Rick Thompson Superintendent Of Schools	P.O. Box 287 Chimacum, WA 98325	rick_thompson@csd49.org	(360) 302-5896						
15	Queets / Clearwater School District No. 20	Public School District	Scott M. Carter Superintendent Of Schools	146000 Hwy 101 Forks, WA 98331	scarter@qcsd.wednet.edu	(360) 962-2395						
16	Quilcene School District No. 48	Public School District	Wally F. Lis Superintendent Of Schools	P.O. Box 40 Quilcene, WA 98376	wlis@qsd48.org	(360) 765-3363						
17	Quillayute Valley School District No. 402	Public School District	Diana Reaume Superintendent Of Schools	P.O. Box 60 Forks, WA 98331	diana.reaume@qvschools.org	(360) 374-6262						
18	Public Utility District No. 1 of Jefferson County	Public Utility District	James Parker General Manager	310 Four Corners Rd Port Townsend, WA 98368	jparker@jeffpud.org	(360) 385-5800						
19	Jefferson Transit Authority	Public Transportation District	Tammi Rubert General Manager	63 Four Corners Rd Port Townsend, WA 98368	trubert@jeffersontransit.com	(360) 385-4777						
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