

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 1st 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

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
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.noprcd.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 profile¹:

- 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.²” 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.³ Some of that has already been included in the Hazard Profiles in this document.

Hazard	Projects	Additional information from Risk Report
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-2.³

Table RR-2 – Jefferson County Recommended Mitigation Strategies ⁵	
Problem Statement	Recommended Strategy
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"> • Develop an outreach strategy to help homeowners, realtors, and insurance agents understand the value of flood insurance. • Use the Risk Report to conduct a Benefit-Cost Analysis and apply for FEMA funding to elevate or relocate structures out of the floodplain.
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"> • Develop priority list for essential facility earthquake retrofit. • Develop an outreach strategy or mitigation program for homeowners or businesses to retrofit older buildings.
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"> • Develop priority list for essential facility earthquake retrofit.

Climate Change Preparedness Plan for the North Olympic Peninsula⁶

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”:

ECOSYSTEMS Adaptation Strategies					
E-1: Enhance efforts to encourage breeding and planting of drought tolerant, resilient plant species					
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

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
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.

Tables – Risk Report for Jefferson County

- RR-1 Jefferson County Hazard Mitigation Plan Analysis
RR-2 Jefferson County Recommended Mitigation Strategies

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