

Kitsap County Multi-Hazard Mitigation Plan

Kitsap County

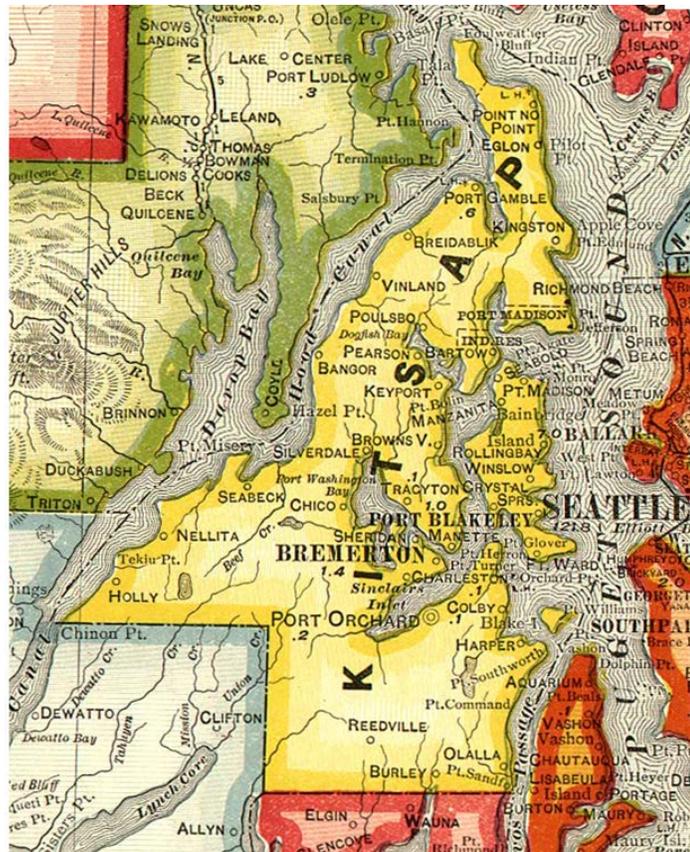
*City of
Bainbridge
Island*

*City of
Bremerton*

*City of Port
Orchard*

*City of
Poulsbo*

*And the
Agencies and
Utilities that
Support
Hazard
Mitigation*



Prepared by Kitsap County Department
of Emergency Management
911 Carver St, Bremerton, Wa.

Kitsap County

Multi-Hazard Mitigation Plan

Revision 2012

Revision prepared by:

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Al Duke	City of Bremerton
Janis Castle	Holly Ridge Facility
Tony Carroll	Kitsap County Public Works
Dave Colombini	South Kitsap School District
Bob Bowling	Kitsap Mental Health

The Multi-Hazard Mitigation Plan update was funded through Kitsap County Department of Emergency Management. Agencies and jurisdictions who participated in this plan used their staff time and resources to make this update possible. The Kitsap County Emergency Management Council appreciates the effort and time devoted in this update.

Change #	Description	Date Entered	Entered By
Revision 2012	Update to the 2005 Mitigation Plan to include the following changes: (refer to matrix of Changes for detailed changes)	December 2012	MSG
Executive Summary	New additions for the plan are shown as: (new in 2012); General grammar and statistical data updates as available and/or as noted or assumed made. Flooding hazard strategies significantly updated (section three) Participating cities, agencies and special purpose districts updated. Although plan format is consistent with the 2004 plan, changes have been instituted for simplicity and clarity. Matrix of Changes added as a new tracking document for the 2010 plan update	December 2012	MSG
Section One	Revised Formatting Add: Plan Review Update Legal Authorities: Expanded to include association with Mitigation planning Plan Maintenance scheduled updated through 2016	December 2012	MSG
Section Two	Revised Formatting Revised Introduction Risk Assessment Reformatted New Exhibits added Table 2.1 Kitsap County Emergency/Disaster History Formatted Kitsap County Profile formatted and updated to 2010 Census Profile add-ons: vulnerability populations, Building structures, housing types Updated geographical/topographical Descriptions Add information on "Earthquake Country" with associated maps.	December 2012	MSG
Section Three	Revised Formatting All Categories have tables on population and building stock information Cat I: New maps and studies added. Cat II: New maps and studies added. Cat III: New maps and studies added.	December 2012	MSG

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Executive Summary

In 2000, the federal government enacted the Disaster Mitigation Act (DMA 2000; P.L. 106-390) requiring states, local jurisdictions and tribal governments to have an approved mitigation plan in place to be eligible for mitigation funding. In 2004, Kitsap County and its Department of Emergency Management committed to providing coordination in an effort to identify possible alternatives and to secure funding for the benefit of the County and its Cities.

The Kitsap County Multi Hazard Mitigation Plan (MHMP) is a living document and is now undergoing its first five-year major update in the winter of 2009/2010. **Administrative Note:** The Kitsap County Department of Emergency Management acknowledges that the process for State Review and Federal approval is two years after the 5 year review of 2010. This delay is due to personnel turnover at the Kitsap County Department of Emergency Management and other mitigating circumstances. Although the revision is two years old, its contents have been reviewed and there has been no changes that may affect the outcome of document approval at this time. Additional information and updates have been provided in each section to include maps, studies and analysis. Formatting has been improved to including page numbers and other changes for ease of review. Do to the quick turnaround time, some statistical or analysis data has not been provided in this plan. Future reviews and plans will incorporate changes as the information becomes available.

The Kitsap County Mitigation Plan is a reflection of Kitsap County. Upon approval by FEMA, this document will be due for its next formal review in 2017.

Most pertinent elements of the 2004 MHMP have retained their integrity in the 2012 MHMP. Most sections of this document did not require significant changes. General updates and updates to documented FEMA declarations and other significant hazard incidents have been updated and included from years 2004 – March 2010. All footnotes/endnotes and links have been reviewed, verified, and updated as needed or possible. This entire document has been reviewed. Again, minor changes have been made. All hazard specific information is based on the updated Kitsap County Hazard Identification Vulnerability Assessment (HIVA 2008) the following information should be considered. **Matrix 1.1**, titled **Kitsap County Multi Hazard Mitigation Plan 2010 Matrix of Changes**, has been created. This document details all major changes made to the updated MHMP. The Matrix is located at the end of this section. Additional changes are indicated within each MHMP section, and are referenced accordingly. During development of this updated document, some duplicated language has been removed, but reference has been made to the existing language in other portions of the 2010 MHMP.

This document is the culmination of a cooperative County-Wide Planning Team effort and required participation from Kitsap County internal government departments/agencies, local

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government city jurisdictions, fire and utility districts, special purpose districts, school districts, Kitsap County Department of Emergency Management (DEM), State of Washington Emergency Management Division (State EMD), and the U. S. Department of Homeland Security's Federal Emergency Management Agency (FEMA). This MHMP meets the requirement for a Hazard Mitigation Plan under the amended Stafford Act (44 CFR, Part 201). Many local jurisdictions, communities, governmental agencies, and the public were involved in the RHMP development and critical review process. It is vital for the County to have a proactive, coordinated approach to mitigation. Mitigation measures save lives, reduce injuries and prevent or decrease financial losses from the many hazards our region faces. The 2009 MHMP examines efforts that can be applied to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs through prevention and mitigation efforts.

Some projects are being implemented with existing funding sources. As additional funding sources become available, the county-wide plan will guide the selection of eligible projects from the criteria set forth in the Hazard Mitigation Grant Program (HMGP) and from other mitigation funding sources.

The development of this document represents a coordinated effort of many elements in the region. We are indebted to the staff of Washington State Emergency Management, FEMA, technical writers, researchers and contributing members of the participating workgroups. Each local mitigation strategy can stand alone but the combined efforts provide greater return for the region as a whole. The underlying regional mitigation plan goal is to implement the regional strategy through mutually beneficial and cost-effective regional projects

2012 Kitsap County Multi Hazard Mitigation Plan Change Matrix *Summary of Changes*

This Change Matrix documents most of the pertinent changes made from the 2004 Multi Hazard Mitigation Plan (MHMP) to the 2012 MHMP Update. This 2012 matrix represents high level changes made during the planning and update process.

Executive Summary	New additions for the plan are shown as: (new in 2012); General grammar and statistical data updates as available and/or as noted or assumed made. Flooding hazard strategies significantly updated (section three) Participating cities, agencies and special purpose districts updated. Although plan format is consistent with the 2004 plan, changes have been instituted for simplicity and clarity. Matrix of Changes added as a new tracking document for the 2010 plan update	
Planning Context and Time Lines	Defined the plan update process and established the time lines for the required planning documents. Build membership list by inviting those cities, agencies and special purpose districts which participated in the 2004 MHMP. Establish Sub-Committee to serve as basic plan review team.	
<i>Participating Cities / Special Purpose Districts / Agencies</i>		
	2004	2012
Fire Districts	Fire Dist. #7 Fire Dist. #18	Changed to South Kitsap Fire & Rescue Changed to Poulsbo Fire & Rescue
Utility Districts	Karcher Creek Sewer and Annapolis Water Districts	Combined to form West Sound Utility District
	Sunnyslope Water District	Did not participate
Governmental Agencies	Kitsap Regional Library	Kitsap Regional Library (major profile change)
	Kitsap County Consolidated Housing Authority	Did not participate
Not For Profit Agencies	Kitsap Historical Society	Did not participate
Section One Summary of Changes	Revised Formatting Add: Plan Review Update Legal Authorities: Expanded to include association with Mitigation	

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	planning Plan Maintenance scheduled updated through 2016
Section Two <i>Summary of Changes</i>	Revised Formatting Revised Introduction Risk Assessment Reformatted New Exhibits added Table 2.1 Kitsap County Emergency/Disaster History Formatted Kitsap County Profile formatted and updated to 2010 Census Profile add-ons: vulnerability populations, Building structures, housing types Updated geographical/topographical Descriptions Add information on “Earthquake Country” with associated maps.
Section Three <i>Summary of Changes</i>	Revised Formatting All Categories have tables on population and building stock information Cat I: New maps and studies added. Cat II: New maps and studies added. Cat III: New maps and studies added. Cat IV: Updated earthquake maps and information added. Cat V: No change Cat VI: New maps and studies added. Cat VII: Updated information including planning and threats Cat VIII: No Change Cat IX: Addendum added on Mitigation Programs Cat X: No Change Addendum 1 to Section III added. Consolidated Declared Emergencies and Disaster in Kitsap County
Critical Ordinances	
Kitsap County	Revised February 2007
Bainbridge Island	Revised February 2006
Bremerton	Revised March 2006
Port Orchard	Revised December 2009
Poulsbo	Revised July 2007
Hazards	
Kitsap County	Flood Mitigation (Item #7 – Culvert Management and replacement) LIDAR hazard mapping and identification project is now complete. (Start 2000 final mapping 2009)
Section IV <i>Summary of Changes</i>	Revised Formatting
Section V <i>Summary of Changes</i>	Revised Formatting
Appendix B	
Profiles	
Kitsap Regional Library	Totally renovated 2004 profile to better match Special Purpose District template.

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West Sound Utility District	WSUD formed by the joining of Karcher Creek Sewer District and the Manchester Water District. The profiles contains updated content but have been combined into one profile for the new utility.
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Multi-Hazard Mitigation Plan 2012 Participants

Kitsap County Department of Emergency Management wishes to acknowledge the contribution of many individuals for their hard work and dedication that made this 2012 Kitsap County Multi-Hazard Mitigation Plan update possible. We extend our grateful appreciation to the following Sub-Committee members:

Plan Review Sub-Committee:

Representative	Organization
Ed Call	Department of Emergency Management
Al Duke	City of Bremerton
Janis Castle	Holly Ridge
Tony Carroll	Kitsap County Public Works
Cherrie Crowell	Suquamish Tribe
Dave Colombini	South Kitsap School District
Bob Bowling	Kitsap Mental Health

Hazard Mitigation Participants:

Representative	Organization	*Partnership
	County and Cities	
Ed Call and Tony Carroll	Kitsap County	Continuing
Mark Hinkley	City of Bainbridge Island	Continuing
Al Duke	City of Bremerton	Continuing
Mark Dorsey	City of Port Orchard	Continuing
Crystal Ackerman	City of Poulsbo	Continuing
	Tribes	
Cherrie May	Suquamish Tribe	Continuing
	Port Gamble S'Klallam Tribe	Did not participate
	School Districts	
Clayton Mork	Bainbridge Island School District	Continuing
Marco DiCicco	Bremerton School District	Continuing
Patti Woolf/Cheryl Portier	Central Kitsap School District	Continuing
Aaron Leavell	North Kitsap School District	Continuing
Dave Colombini	South Kitsap School District	Continuing
	Fire Districts	
Luke Carpenter	Bainbridge Island Fire District	Continuing
Jay Lovato	Central Kitsap Fire & Rescue	Continuing
Wayne Kier	North Kitsap Fire & Rescue	Continuing
Jeff Russell	Poulsbo Fire & Rescue <i>Formerly Fire District 18</i>	Continuing
Steve Wright	South Kitsap Fire & Rescue <i>Formerly Fire District 7</i>	Continuing
	Water Districts	
Alan Fletcher	Manchester Water District	Continuing
Jim Freeman	North Perry Water District	Continuing
Morgan Johnson/Jeannie	Silverdale Water District	Continuing

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Screws		
Larry Curles/Sue Fowler	West Sound Utility District <i>Formerly Karcher Creek and Annapolis Water Districts</i>	Continuing
	Sunnyslope Water District	Did Not Participate
	<i>Other Government Agencies/Organizations</i>	
Ed Call/Phyllis Mann	Kitsap County Department of Emergency Management	Continuing
Jessica Guidry	Kitsap Public Health	Continuing
Chris Keogh	Kitsap Community Resources	New
Susan Whitford	Kitsap Regional Library	New
John Clauson	Kitsap Transit	Continuing
Jason Nutsford	Kitsap Public Utility District	New
	Consolidated Housing Authority	Did Not Participate
Bob Bowling	Kitsap Mental Health	Continuing
	<i>Not-For-Profit Agencies</i>	
David Rasmussen	American Red Cross (King and Kitsap Counties)	Continuing
Janis Castle	Holly Ridge Center	New
	Kitsap County Historical Society Museum	Did Not Participate
Chuck Russell/Kevin Kilbridge	Peninsula Services	New
	<i>Ports</i>	
Fred Salisbury	Port of Bremerton	Continuing
Kevin VanVliet	Port of Kingston	Continuing
Ed Scholfield	Port of Silverdale	New
	Port of Poulsbo	Did Not Participate

***Partnership: Continuing**-continued support and adoption from original plan. **New**-new partner. **Did not participate**-organization dissolved or did not have a desire to continue participation in the plan.

SECTION ONE: Introduction

I. DEFINITION OF HAZARD MITIGATION

Hazard Mitigation is any action taken to eliminate or reduce the risk to human life, property and the environment +posed by a hazard.

Hazard Mitigation may occur during any phase of a threat, emergency or disaster. Mitigation can and should take place during preparedness (before), response (during), and recovery (after) phases.

II. PURPOSE OF PLAN

The purpose of the Kitsap County Multi-Hazard Mitigation Plan is to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from all 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, more sustainable community.

The plan identifies and evaluates specific Hazard Mitigation strategies to be considered by Kitsap County and its political subdivisions, agencies, and organizations.

The strategies presented are deemed appropriate and effective by recommendation of the Kitsap County Hazard Mitigation Planning Team.

Upon acceptance by the participating jurisdictions' governing bodies, the selected strategies will be further developed for funding and implementation by the lead agencies.

The plan is based upon the Kitsap County Hazard Identification Vulnerability Analysis (HIVA – October 2008) that considers the natural, technological and human-caused (including terrorism) risks to which Kitsap County and its political subdivisions are vulnerable. The plan describes strategies that government and the private sector may utilize as their capabilities to mitigate those hazards.

It is understood the mitigation strategies adopted in this plan are recommendations only, as they must be approved and funded to be designated as official Hazard Mitigation Strategies to be implemented by Kitsap County and its political subdivisions.

III. PLANNING PROCESS

LEAD AGENCY AND STEERING COMMITTEE PARTICIPATION

The Kitsap County Department of Emergency Management shall be the lead agency coordinating the efforts of the Kitsap County Hazard Mitigation Planning Committee in formulating and supporting the Kitsap County Hazard Mitigation Strategy Identification and Plan promulgation and maintenance.

HAZARD MITIGATION PLANNING COMMITTEE TASKS

1. Coordinate with the Department of Emergency Management to oversee planning process.
2. Prioritize hazards vs. resources.
3. Select highest and best mitigation recommendations.
4. Review planning drafts, recommendations and updates.
5. Develop and implement long and short term goals.
6. Integrate the plan with all phases of Comprehensive Emergency Management Planning.
7. Provide for the implementation of committee decisions.
8. Encourage, coordinate, and provide a methodology for the implementation of input from the public, elected officials and agency personnel.
9. Establish committee tasks:
 - Determine implementation ability and constraints for proposed Hazard Mitigation planning steps and measures.
 - Bring forward community concerns.
 - Identify implementation resources.
 - Provide for the update of Comprehensive Emergency Management Plans on a scheduled basis.
 - Evaluate and carry out mitigation activities.
 - Assist in identification of funding sources and procurement of funds to support hazard mitigation.

STEERING COMMITTEE HAZARD MITIGATION STRATEGY IDENTIFICATION ACTIVITIES

1998-99 Planning Process – Overview

Members of the Steering Committee met with representatives from each City and County in the Community to identify Local Hazard Mitigation Strategy recommendations (see Table A. - 1998-1999 Steering Committee previous).

The Steering Committee, starting in August of 1998 through April of 1999, met on a monthly basis to identify additional Hazard Mitigation Strategy recommendations and to develop those recommendations received from the political subdivisions.

In January of 1999 the Steering Committee assisted in the facilitation of a Community-Wide Planning Team full day meeting to introduce the community to the Hazard Mitigation Strategies identified and

receive input and prioritization from the Community-Wide Planning Team. Over 80 community participants attended the day-long working session and examined, prioritized, and recommended acceptance or rejection of the Hazard Mitigation Strategies presented.

Following the January meeting the Steering Committee again examined and prioritized the Hazard Mitigation Strategies incorporating the result from the Community-Wide Planning Team meeting. The Steering Committee further estimated implementation costs for those strategies where possible.

The Kitsap County Multi-Hazard Mitigation Plan and Recovery Plan were formally adopted in October 1999 by the Kitsap County Emergency Management Council (includes the three county commissioners and the mayors of each city).

2003-04 Plan Development – Overview

Members of the Planning Committee met on a bi-monthly/monthly basis from February of 2003 through July of 2004 to review and update the 1999 plan.

The Planning Committee broke into sub-groups by expertise to review, assess and evaluate current recommendations, strategies and priorities and to develop new recommendations, strategies and priorities as needed. The sub-groups broke down as follows:

- Community Groups (Not-for-Profits)
- City Community Development
- Fire Agencies
- School Districts
- Ports
- Water Purveyors

The outcome of these sub-groups was as followed:

1. Schools – Natural Hazards – Earthquake mitigation and preparedness is still a number one issue for schools. School violence is the terrorist threat that now requires more attention and mitigation activities.
2. Ports reviewed all strategies but the newest threat is terrorism and port security will need to be included in the planning process.
3. Fire Agencies confirmed all mitigation strategies for drought were still effective.
4. All other agencies reviewed all strategies and assessed most were current for there organizations.
5. The Planning Committee designed the public outreach process for May of 2004.
6. The Planning Committee further developed an ongoing Planning Committee comprised of one representative from each discipline to meet annually (in April) to evaluate ongoing strategies,

update the plan as needed, determine ways to add additional strategies as identified by either the community at large and/or an event that took place in the community that identified areas for mitigation (i.e., earthquake).

2012 Plan Review and Update

All City and Special Purpose District planning partners were contacted in October 2009 to advise them of the periodic update to this plan. All were asked to review their current profile, update profile information and supplemental documents and place the planning meetings on their calendars for December 2009 through March 2010.

The kick off meeting was held on December 17th, 2009 and the attending partners agreed on the deadlines for agency specific documentation delivery. Planning partners unable to attend the meeting on December 17th, 2009 attended a second kick off meeting on December 28th, 2009. All partners agreed to the delivery deadlines.

The progress of the MHMP Update was verified at a meeting held on January 21st, 2010. In addition to verifying progress a sub committee was formed to review the basic plan from 2004 to determine if the basic plan, process, strategies and recommendations all remain valid for Kitsap County and associated Cities and Special Purpose Districts based on the HIVA (October 2008). The volunteers for this sub committee represented a cross section of all of the planning partners including representatives from Public Works, Schools, Water/Utility, Tribal, City and County Government. These volunteers would review the basic plan in its entirety and provide feedback before the next planning partner meeting.

The planning partners met again on February 18th, 2010 for final verification of progress. By this time each partner had made public notice (if applicable), held a hearing on their profile input for the MHMP update, and provided minutes of those board meetings / hearings for inclusion into the plan. All documents were to be electronically submitted for the plan one week from this meeting so that the update of the MHMP could be completed.

Each Planning Partner was tasked to:

- Review the 2004 Multi-hazard Mitigation Plan
- Update their jurisdiction/agency profile
- Evaluate and update their profiles to reflect changes in hazard risk assessments
- Evaluate strategies and update profiles for potential terrorism threats and mitigation strategies
- Report on completed mitigation strategies to the Committee
- Report any concerns that may warrant further action by the Hazard Mitigation Planning Sub-Committee
- Collaborate with other functional organizations on mitigation strategies

As noted in the Executive Summary, plan submission and approval has been delayed due to personnel changes both at the Washington State Emergency Management Division and Kitsap Department of Emergency Management (DEM). At DEM, due to the downturn in the economy, the department suffered personnel losses including the Planner position. As such this plan is submitted using 2012 as the Revision year and beginning a new maintenance cycle for the plan.

Table 1.1- Kitsap County Multi-Hazard Mitigation Plan Development-2010

Date	Activity	Subject	Action Items
October 29 th , 2009	Notification of MHMP Update, kick off meeting date and timeline for update	Review Current HIVA (October 2008), MHMP (December 2004) and schedule meeting dates	Team to review HIVA, MHMP and begin on updates to profiles
December 17 th , 2009	Meeting	Action Items – Review Plan Profile Public Notice Meeting Notice Meeting Minutes Follow up MHMP meeting dates	Continue development of required elements and updated profile
December 28 th , 2009	Meeting	Action Items – Review Plan Profile Public Notice Meeting Notice Meeting Minutes Follow up MHMP meeting dates	Continue development of required elements and updated profile
January 21 st , 2010	Meeting	Review Project Timeline Provide Planning Assistance Establish Sub-committee	Continue development of required elements and updated profile. Sub-committee to review basic plan for necessary updates.
February 18 th , 2010	Meeting	Finalize documents and timeline for submission. Sub-committee reports no significant changes to plan, only minor updates to text, data and fiscal info.	Final deadline for submission of all notices, agenda, minutes and profiles is one week. All planning partners on schedule.
February 25 th , 2010	Partner documents	Deliver all electronic documents for plan update	Await draft plan finalization and approval
March 11 th , 2010	Draft Plan Review	Draft Plan to Director	Corrections as needed
March 12 th , 2010	Draft Plan Delivery	Delivery of Draft Plan to WA EMD	Await approval and forwarding to FEMA for final approval.

PLAN REVIEW AND ADOPTION PROCESS

Thirty-five jurisdictions participated in the updating and promulgation of the Kitsap County Multi-Hazard Mitigation Plan. Each jurisdiction participating is governed by rules for public involvement. The Planning Committee took the following steps to assure that the public was involved in the development of the plan:

1. Community meetings were held throughout Kitsap County for citizens to comment on the plan. See Table 1.1 – Kitsap County Multi-Hazard Mitigation Plan Review and Appendix A – Public

Notices/Meeting Records. This was facilitated by each participating City or Special Purpose District through their approved public notice and meeting processes. (Appendix B)

2. Governmental agencies and participating organizations reviewed the plan as required by their governing bodies during the months of October 2009 through February 2010. See Table 1.2 – Kitsap County Multi-Hazard Mitigation Plan Review Agency Process.
3. Kitsap County Department of Emergency Management placed the Mitigation Plan on its web page for public review and comment. (Appendix B).

Table 1.2 – Kitsap County Multi-Hazard Mitigation Plan Review Agency Adoptions-2010

Organization	Adopting Authority	Adoption Date(s)
Cities:		
Bainbridge Island	Bainbridge Island City Council	02/24/2010
Bremerton	Bremerton City Council	02/10/2010
Port Orchard	Port Orchard City Council	02/09/2010
Poulsbo	Poulsbo City Council	02/02/2010
Fire Districts:		
Bainbridge Island Fire District	Bainbridge Island Fire District Board of Commissioners	02/03/2010
Central Kitsap Fire & Rescue	Central Kitsap Fire & Rescue Board of Commissioners	02/08/2010
South Kitsap Fire and Rescue	South Kitsap Fire and Rescue Board of Commissioners	01/14/2010
Poulsbo Fire Department	Poulsbo Fire Department Board of Commissioners	01/27/2010
North Kitsap Fire & Rescue	North Kitsap Fire and Rescue Board of Fire Commissioners	01/25/2010
Bremerton Fire Department	Bremerton City Council	
Kitsap County Government	Kitsap County Board of County Commissioners	02/16/2010
Kitsap County Public Health	Kitsap County Public Health Board of Health	02/02/2010
Kitsap County Regional Library	Kitsap County Rural Library District Board of Directors	01/26/2010
Kitsap Public Utilities District	Kitsap Public Utilities District Board of Commissioners	01/26/2010
Kitsap Transit	Kitsap Transit Board of Commissioners	02/16/2010

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Table 1.2 – Kitsap County Multi-Hazard Mitigation Plan Review Agency Process-2010 – Cont'd

Organization	Adopting Authority	Adoption Dates
Not-for-Profit Agencies:		
American Red Cross of King & Kitsap Counties Holly Ridge Center	American Red Cross Executive Director	01/24/2010
Kitsap Community Resources	Holly Ridge Center, Board of Directors	01/28/2010
Kitsap Mental Health Services	Kitsap Community Resources, Board of Directors	01/19/2010
Peninsula Services	Kitsap Mental Health Services Board of Directors Peninsula Services Board of Directors	02/24/2010
Ports:		
Port of Bremerton	Port of Bremerton Board of Commissioners	02/09/2010
Port of Kingston	Port of Kingston Board of Commissioners	01/19/2010
Port of Poulsbo	Port of Poulsbo Board of Commissioners	Non-Participant
School Districts:		
Bainbridge Island School District	Bainbridge Island School District Board of Directors	01/14/2010
Bremerton School District	Bremerton School District Board of Directors	02/04/2010
Central Kitsap School District	Central Kitsap School District Board of Directors	02/10/2010
North Kitsap School District	North Kitsap School District Board of Directors	02/24/2010
South Kitsap School District	South Kitsap School District Board of Directors	02/03/2010
Tribes:		
Suquamish Tribe Removed August 2013 from the Plan	Suquamish Tribal Council	01/25/2010
Water Districts:		
Kitsap Public Utility District	Kitsap Public Utility District Board of Commissioners	01/26/2010
Manchester Water District	Manchester Water District Board of Commissioners	02/09/2010
North Perry Water District	North Perry Water District Board of	02/03/2010

Silverdale Water District	Commissioners Silverdale Water District Board of Commissioners	02/04/2010
Sunnyslope Water District	Sunnyslope Water District Board of Commissioners	Non-Participant
West Sound Utilities District	West Sound Utilities District Board of Commissioners	02/16/2010

IV. LEGAL AUTHORITY

FEDERAL LAWS

1. "The Federal Civil Defense Act of 1950"

Provides general information to mitigation planners on the history of emergency planning response in the United States. Although it does not focus on natural mitigation strategies, it provides a background read on threats and the protection of life and property in the U.S.

2. Public Law 96-342 "The Improved Civil Defense Act of 1980"

Provides general information to mitigation planners on the history of emergency planning response in the United States. Although it does not focus on natural mitigation strategies, it provides a background read on threats and the protection of life and property in the U.S. This bill enhanced the Federal Civil Defense Act of 1950 to improve emergency warning systems, establishment of better command and control through emergency operations, and improvements in preparing for potential threat (mostly hostile). The document provides a background in the history of mitigation measures in the U.S.

3. Public Law 91-606 "Disaster Relief Act"

Public Law 91-606 was enacted in 1970 and a prelude to the Stafford Act. It provided provision for public relief after a disaster and provided federal support from agencies to respond during disasters. The document provides general background information on disaster relief. It assists locals in understanding the history and provision of disaster relief.

4. Public Law 93-288 "The Robert T. Stafford Disaster Relief Act of 1988"

The Disaster Act of 1974 was amended in 1988 as the Robert T. Stafford Act which provided provision for disaster relief to include pre-disaster mitigation plans and strategies. This document sets the stage in defining this mitigation plan for local and its mitigation strategists.

5. "Disaster Mitigation Act of 2000"

This document amended the Robert T. Stafford Relief Act of 1988 to include among other revisions; "encouraging hazard mitigation measures to reduce losses from disasters, including development of land use and construction regulations." Along with the Robert T. Stafford Act, these documents are essential to local planners in defining mitigation strategies for their jurisdictions.

6. FEMA’s Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000-Revision 2007

FEMA’s Guide on Multi-Hazard mitigation planning is designed to help interpret the rules in the Disaster Mitigation Act of 2000. It defines requirements of original and updated plans to insure rules are met. This guidance is essential for mitigation planning and the core document for processing the development and adoption of the plan

STATE LAWS

1. Revised Code of Washington (RCW) 34.05 Administrative Procedure Act

The legislature intends, by enacting this 1988 Administrative Procedure Act, to clarify the existing law of administrative procedure, to achieve greater consistency with other states and the federal government in administrative procedure, and to provide greater public and legislative access to administrative decision making. Used as a proceeding for administrative law in such areas as rule making, adoption rules, plan format, and public participation.

2. Revised Code of Washington (RCW) 38.52

Defines the roles and responsibilities of Emergency Management to include hazard mitigation planning. It requires the adoption of the Comprehensive Emergency Management Plan which includes provides for hazard mitigation planning. These measures are the foundation of the Kitsap County Multi-Hazard Mitigation Plan.

2. RCW 37.70A.040/050/120 “Regulations and Implementation Guidance for Comprehensive Plans

Define the requirements for jurisdictions’ comprehensive planning to include classifying agriculture, forest, mineral lands, and critical areas. Comprehensive planning begins with defining critical to insure areas can be mitigated to reduce natural hazard risks.

3. WAC 246-290 “Public Water Supplies”

Governs the main regulations for water systems in the State of Washington. Provides regulations for engineering requirements, ownership, variances and planning. Essential to land use and critical area reviews. Local use this document for mitigating risks to water systems.

LOCAL CODES AND ORDINANCES

1. Kitsap County, 1980. Ordinance No. 80 - Flood Damage Prevention Regulations

Assist local in define flood and storm water mitigation measures. Use to evaluate flood risk and mitigation strategies to prevent public and private damage during flooding events.

2. Kitsap County Ordinance No. 109, March 24, 1986

Ordinance No. 109 provided for the inception of County Emergency Management including the roles and responsibilities to include hazard mitigation and prevention.

3. Kitsap County critical Areas Ordinance, December, 2005

City of Bainbridge Island Critical Area Ordinance, February, 2006

City of Poulsbo Chapter 16.20 Critical Area Ordinances, July, 2007

Port Orchard Critical Ordinance, December, 2009

City of Bremerton Critical Lands Ordinance, March 2006

Critical area Ordinances define areas with potential risks or hazardous to the public. These areas may require mitigation efforts for land use. Strategies are defined at the city or county level to improve these areas for developers. These plans will define such hazards as flood plain areas, hazardous materials to include defined superfund sites, and those areas known for ancient ground movement. These plans are essential to mitigation strategies and developing long term land use plans.

4. Kitsap County Comprehensive Emergency Management Plan, March 2010

Adopted as the basis for the Multi-Hazard Mitigation plan and strategy in Kitsap County. Each City and the County have an adopted plan which defines the importance of mitigation and includes as an Annex, the Hazard Identification and Vulnerability Assessments 2008.

A list of Studies, technical information, and reports can be found in Appendix D and noted in Sections of this plan.

V. PLAN MAINTENANCE

EVALUATION, UPDATE AND MAINTENANCE OF THE PLAN

The Kitsap County Multi-Hazard Mitigation Plan will be evaluated on an annual basis, (historically during April) and after every major emergency/disaster that impacts Kitsap County and/or its cities, to determine the effectiveness of the mitigation strategies, programs or other related activities. Every five years starting in September 2004, the plan will be updated and forwarded to the Washington State Division of Emergency Management, Hazard Mitigation Officer for review and subsequently forwarded to the Federal Emergency Management Agency, Region 10 per the requirements of the Disaster Mitigation Act 2000.

During the annual review process, the Department of Emergency Management will facilitate the annual review process with the Planning Committee made up of the Sub-Committee and agency participants noted in the introduction section (page xii-xiii). The committee will review the current strategies to determine their relevance to changing situations within Kitsap County as well as known changes in State or Federal policy. Upon completion of the initial review by the Sub-Committee, Kitsap County Emergency Management will convene a meeting with jurisdiction and agency mitigation plan representatives. This review will discuss as a minimum:

- Validate jurisdiction/agency representatives and changes to the Sub-committee
- Changes to local policies or strategies that warrant a local revision to the plan

- Updates on overall and jurisdictional/agency strategies
- Changes to federal and state mitigation programs
- Lessons learned from emergencies/disasters; local and national
- Hazard Mitigation Grants

The committee will also review the recommended implementation process of each mitigation strategy identified.

After the annual review process, the committee, through the Department of Emergency Management, will develop a written report describing its findings. The “annual report” will be sent to the governing bodies of participating organizations that developed the plan. Table 1.3 outlines the Mitigation Plan evaluate and revision schedule through 2016.

Table 1.3 – Plan Evaluation and Update Schedule – 2005-2016

Activity Date	Required Activity To Be Completed
April 2005	Annual Review, develop and submit findings by September
April 2006	Annual Review, develop and submit findings by September
April 2007	Annual Review, develop and submit findings by September
April 2008	Annual Review, develop and submit findings by September
April 2009 – June 2009	5-year update begins
July 2009	Conduct Public Forum(s) for review process
October 2009	Plan Revision Began
March 2010	Plan sent to State Mitigation Officer for acceptance (not accepted and returned to meet FEMA’s Crosswalk)
April 2013	Annual Review, develop and submit findings by September
April 2014	Annual Review, develop and submit findings by September
April 2015	Annual Review, develop and submit findings by September
April 2016– June 2016	5-year update begins

CONTINUED PUBLIC INVOLVEMENT

The Emergency Management Council, as well as all of the entities that participated in this plan, are committed to continued public involvement and education. It will be important that all hazards mitigation becomes integrated into existing programs and becomes part of the way jurisdictions makes decisions about land use and facilities planning. As updates occur, copies of the Plan and any proposed changes will be posted on both the County’s and participating agency’s websites. These sites have a direct email link to the Department of Emergency Management’s website to allow the public and other interested parties the opportunity to address any comments and/or concerns they have relating to the Plan.

A public meeting will also be held after each annual evaluation or when deemed necessary by the Hazard Mitigation Planning Committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The Kitsap County Department of Emergency Management will be responsible for using County resources to publicize the annual public meetings and maintain public involvement through the webpage and newspapers.

SECTION TWO: Planning Process

I. MITIGATION PLANNING

Hazard mitigation planning identifies and prioritizes sustained measures that if enacted, will reduce or eliminate long-term risk to people and property from natural hazards and their effects. This plan briefly discusses man-made hazards, like terrorism, but will generally focus on natural hazards. Mitigation measures can reduce personal loss, save lives, and reduce the cost to locals, state, and federal governments for response and recover actions. In the long run, mitigation, whether preparing citizens for disasters, training responders, or infrastructure protection, takes the burden off responders to concentrate on problems that can not be mitigated, and/or reduces the effect on social and economic recovery.

FEMA identified six broad categories of actions that constitute natural hazard mitigation:

1. Prevention- government administrative or regulatory actions to mandate or influence land use and developments that help to minimize hazard losses. Items like zoning, building codes and space preservation.
2. Property Protection-Modifications of existing buildings or structures to protect persons from hazards including elevation, retrofits, fire systems.
3. Public Education and Awareness-programs to inform the public about self-mitigation methods to minimize the effects on their residences.
4. Natural Resource Protection-actions taken to restore natural systems to include erosion control, stream corridor restoration, watershed management and other preservation methods that reduce loss of natural resources.
5. Emergency Services-Systems like emergency response systems, warning systems and protection of critical facilities in order to effectively respond and recover from catastrophic event.
6. Structural projects-construction projects that help to mitigate a potential issue from getting worse during a disaster. For example, seawalls, levees, and retrofit systems to protect communication infrastructures.

These categories become the core competencies for developing an effective mitigation program. Planners use the competencies to assess organizational mitigation efforts, develop processes that include these efforts, and select mitigation projects. As part of this assessment it must involve other pertinent information that define risk assessments and the value of mitigation to a jurisdiction and/or Kitsap County.

Risk Assessments involve historical information on hazards, studies on geological/topographical information, community profiles, and the value to Kitsap County. This section discusses the assessment process in Kitsap County including hazard identification and assessments, the Community profile, and the planning process.

II. HAZARD MITIGATION PROCESS FOR KITSAP COUNTY

HAZARD MITIGATION PLANNING PROCESS – REVIEWED AND UPDATED 2010

In Kitsap County, the planning process defines goals and objectives to assist in mitigation planning, evaluation of mitigation strategies and identification of mitigation projects. The process includes hazard identification and assessment, community identification, and understanding of the geological history and its affects on land use and development.

1. Goals

These goals form the basis for the objectives detailed below. These goals are shown from the highest priority, at the top of the list, to those of lesser importance.

- Protection of life during and after the occurrence of disasters from identified hazards
- Preventing loss of life and reducing the impact of damage where problems cannot be eliminated
- Protection of emergency response capability including:
 - Communication and Warning systems
 - Emergency Medical Services and Medical Facilities
 - Mobile Resources
 - Critical Facilities
 - Government Continuity
- Protection of developed property, homes and businesses, industry, educational opportunities and the cultural fabric by combining hazard loss reduction with the community's environmental, social and economic needs.
- Promoting public awareness of community hazards and mitigation measures and encouraging public participation in the planning objectives.
- Preserving or restoring natural mitigation values such as flood plains.
- Protection of natural resources and the environment.

2. Objectives

The following objectives are meant to serve as a “measuring stick” upon which individual Hazard Mitigation projects can be evaluated. These criteria for evaluation become especially important when two or more projects are competing for limited resources. Project criteria objectives may include, but are not limited to, the following:

- Assuring the Hazard Mitigation Plan is a functional document that identifies short and long-term strategies and describes each measure including:

- Identification of person, agency or organization responsible for implementation.
- Projecting a time frame for implementation.
- Explanation of how the project will be financed including the conditions for financing and implementation as information is available.
- Identifying alternative measures, should financing not be available.
- Be consistent with, support, and help implement the goals and objectives of Hazard Mitigation plans already in place for the geographic area in question.
- Be based on the Kitsap County Hazard Identification Vulnerability Analysis.
- Have significant potential to reduce damages to public and/or private property or reduce the cost of Local, State and Federal recovery from future disasters.
- Be the most practical, cost-effective, and environmentally sound alternative after consideration of the options.
- Address a repetitive problem, or one that has the potential to have a major impact on an area, reducing the potential for loss of life, loss of essential services and personal property, damage to critical facilities, economic loss, hardship or human suffering.
- Meet applicable permit requirements.
- Discouragement of development in hazardous areas.
- Contribute to both the short and long term solution to the hazard vulnerability risk problem.
- Assure the benefits of a mitigation measure are equal to or exceed the cost of implementation.
- Have manageable maintenance and modification costs.
- When possible, be designed to accomplish multiple objectives including improvement of life-safety risk, damage reduction, restoration of essential services, protection of critical facilities, security of economic development, recovery, and environmental enhancement.
- When possible, use existing resources, agencies and programs to implement the project.

With approximately 35 organizations participating in this effort, there are other structures of government besides those shown above.

Other Factors Impacting Community:

- Existing Hazard Mitigation/Management/ Damage Reduction Plans.

- Existing County Agencies and Programs.
- Hazard Mitigation Measures currently implemented.
- Financial constraints and ability to implement mitigation strategies.
- State and Federal lands contained within Kitsap County impacting upon County resources.
- State and Federal transportation links serving Kitsap County and impacting upon County resources.

3. Benefit/Cost Analysis and Prioritization for Natural Hazard Mitigation

Much of the loss from a natural disaster is a result of property and contents damage, additional living and business interruption costs, and the cost of the response to the disaster itself. The challenge for both governmental entities and the private sector is to determine the economic feasibility of preventive actions (mitigation) that may lessen future losses. The issue often raised by elected officials is whether the benefits of mitigation exceed the costs, especially if no regulation or standard is required. Conversely, if a minimum standard were in place at the time of the event, through a benefit cost analysis, it could demonstrate that exceeding such minimums would still be economically defensible (reference Kona Village Fire – Kitsap County Fire & Life Safety Ord. 12/6/99).

The goal of each strategy is reduction or prevention of damage from a hazard event. In order to determine a strategy's effectiveness in accomplishing this goal and prioritizing each strategy, a set of criteria is applied to each proposed strategy.

The Planning Committee is broken down into sub groups by agency type. Each sub group identifies potential strategies for their specific type of agency and prioritizes each strategy taking the following considerations into account:

- Plan goals and objectives: How does the mitigation action address the goals and objectives of the plan? Does it reduce disaster damage?
- Equity: Does the strategy benefit most, if not all the communities within the County? Is there an equitable distribution of strategies by each participating agency?
- Countywide impacts: How does it affect Kitsap County as a whole?
- Ease of implementation: Can this action be easily implemented first? Does the agency(ies) have the capability (funding, regulatory authority, staff) in place now to implement the strategy?
- Multi-objective strategies: Does this strategy achieve multiple goals?
- Time: Can this strategy be quickly accomplished compared to those that would take a long time to obtain the necessary approvals or funding?

- Post-disaster mitigation: Is this strategy more feasible in a post-disaster setting? Would the extent of damages, political will, and access to State and Federal mitigation funds dramatically alter the feasibility of implementation?
 - After each sub group completes this process, recommended strategies are presented to and reviewed by the entire Planning Committee. The Planning Committee rates the strategies in order of overall priority based on the same considerations above and considers the STAPLEE criteria listed below.
- Social: Is the proposed strategy socially acceptable to the community? Are there equity issues involved that would mean that one segment of the community is treated unfairly?
- Technical: Will the proposed strategy work? Will it create more problems than it solves?
- Administrative: Can the community implement the strategy? Is there someone to coordinate and lead the effort?
- Political: Is the strategy politically acceptable? Is there public support both to implement and to maintain the project?
- Legal: Is the community authorized to implement the proposed strategy? Is there a clear legal basis or precedent for this activity?
- Economic: What are the cost and benefits of this strategy? Does the cost seem reasonable for the size of the problem and the likely benefits?
- Environmental: How will the strategy impact the environment? Will the strategy need environmental regulatory approvals?

Strategies are classified as either Priority One which are recommended for funding and implementation or Priority Two which are suited to serve the community's needs and may be considered in the future should the opportunity arise and funding become available. (Refer to the *Strategies by Participating Organizations 2013* at the end of this section)

Detailed benefit-cost analysis' are conducted using FEMA's BCA methodology prior to scheduled implementation and are considered in the final prioritization of strategies/projects. Those which do not receive a benefit-cost ratio of at least a one will not be considered for FEMA funding

SEPA, Historic Preservation Act, and benefit to cost requirements and guidance will be met by the participating agencies.

III. RISK ASSESSMENT

Risk Assessment Overview

In order to identify, plan for and respond to any hazard in a community, a risk assessment can provide information on the types of hazards, the location of hazards, the value of existing land and property in hazard locations, and an analysis of risk to life, property, and the environment that may result from any hazardous event. Specifically, the three levels of a risk assessment are as follows:

1. Profiling Hazard Events – describes the causes and characteristics of each hazard, how it has affected Kitsap County in the past (disaster history), and how the community’s population, infrastructure and environment has been impacted by the hazard.
2. Vulnerability Assessment– explains those factors that make the hazard a threat to the community or increase the threat and define those areas most susceptible to the threat.
3. Probability of Occurrence: – An adjective description (High, Medium, or Low) of the probability of a hazard impacts Kitsap County within the next 25 years.
 - **High** – There is great likelihood that a hazardous event will occur within the next 25 years.
 - **Medium** – There is moderate likelihood that a hazardous event will occur within the next 25 years.
 - **Low** – There is little likelihood that a hazardous event will occur within the next 25 years.

The Multi-Hazard Mitigation Plan Planning Committee lead by the Department of Emergency Management, reviewed the Hazard Identification and Vulnerability Assessment (HIVA) to determine the hazards that most likely would impact Kitsap County and, based on the disaster history of Kitsap County and its cities, determined the need to address those hazards identified in Table 2.1 Kitsap County Emergency Disaster History. The HIVA was revised in 2008 and included the integration of Terrorism into the assessment.

Section Three provides individual hazards information for Kitsap including assessments and strategies. In order to properly frames risk assessment, the following paragraphs define the elements of assessment; history of disasters, geographical/topographic information, and community profile.

History of Disasters in Kitsap County

The frequency of historic events determines the prioritization of the mitigation strategies and recommendations. Table 2.1 shows the history of emergencies/disasters in Kitsap County. Some general conclusions can be made from Kitsap’s disaster history.

- Since 1962, earthquakes have the most effect on the entire county relative to costs and community disruptions. Earthquakes are also the most costly of events in Kitsap.

- Winter storm events represent 77% of the historical declaration at the local level. Some significant events have occurred, but in most cases probably did not affect disruptions in the entire county or cause significant damages.
- Mt. St. Helens catastrophic event in 1980 is listed although Kitsap was not significantly affected by the event or part of the Presidential Declaration. It is a reminder, like the events of 9/11, that national catastrophic events can affect regional jurisdictions. For example, A Mt. Rainer eruption would certainly have an effect on Kitsap County as would a radiological event in Kitsap, effect the surrounding Puget Sound Region. In the case of a volcano, prevailing winds to the northeast would send ash to eastern Washington State Counties and have minor hazardous effects on Kitsap.
- From an historical prospective, mitigation planning should concentrate its efforts by reducing the effects of winter storms, flooding and earthquakes, the priorities listed in the *Hazard Identification and Vulnerability Assessment 2008*.

Additional information on the history of disasters can be found in Section Three. Although over time, projects to mitigate winter storm events had a significant impact on future damages from storms and improve the quality of life in Kitsap. Historically, winter storms and their impact are more predictable; therefore, the cause, effect and mitigation can be quantified and therefore justified for improvements. As such, in the last 10 years, the numbers of declarations have declined due to these minor mitigation efforts to control flooding, run off, and other issues caused by winter storms.

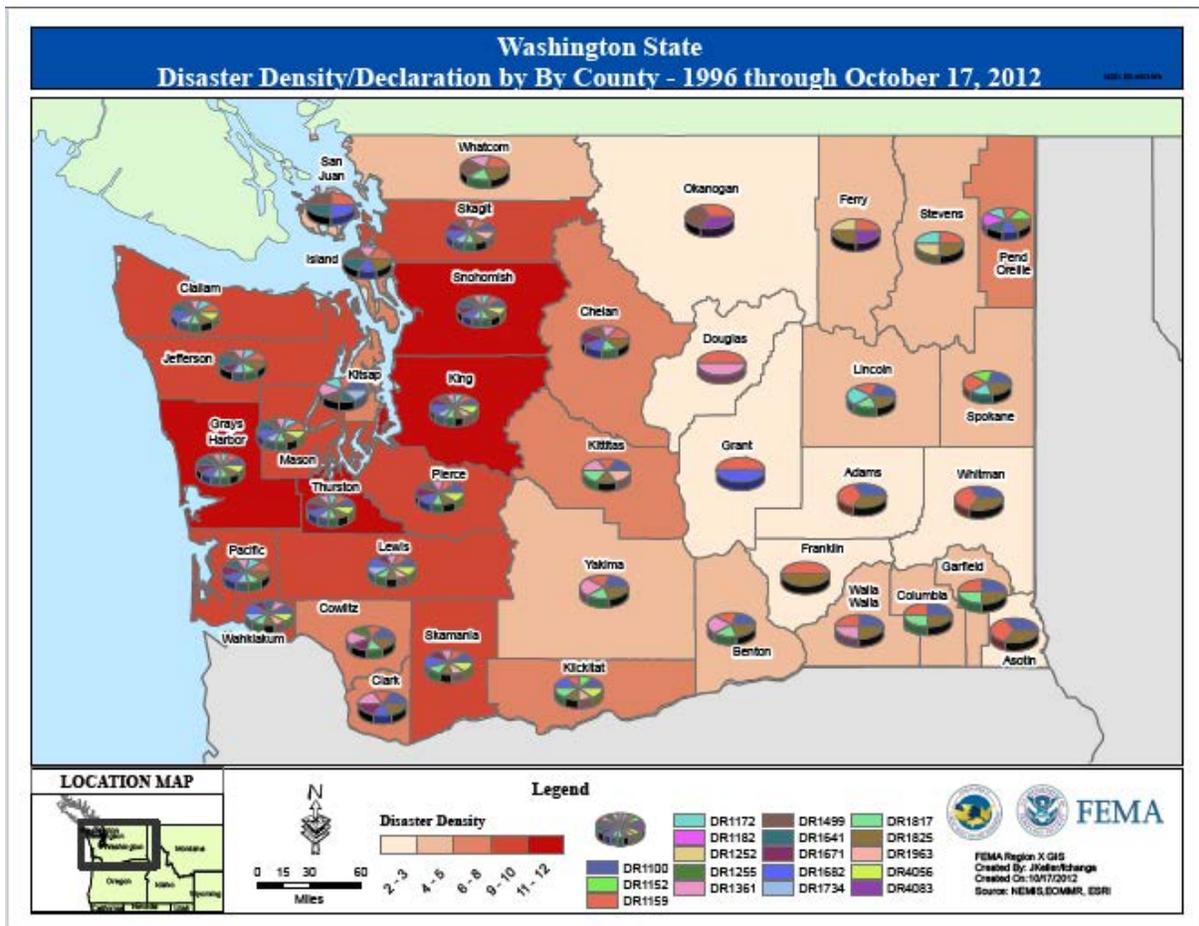


Exhibit 2.1: Washington Disasters by County as of October 2012 courtesy FEMA Region 10

Table 2.1 – Kitsap County Emergency/Disaster History

Date of Incident	Type	Declared	Comments
December 2008	Severe Winter Shelter	Local	Severe cold weather. No assistance Requested
December 2007	Severe Winter Storm	Local, State, Federal	State: \$20 million Local: \$1.5 million
December 2006	Severe Storm	Local	Local PA Threshold not met
January 2006	Severe Storm	Local	Local PA Threshold not met
December 2005	Severe Winter Storm	Local, State, Federal	Local PA Threshold not met
October 2003	Severe Winter Storm	Local, State, Federal	Local PA Threshold not met: IA Paid out.
January 2003	Flooding	Local, State, Federal	Local PA Threshold not met
January 2002	Flooding	Local, State	Presidential Declaration denied
September 2001	9/11 Attack on U.S.	Local, State	In response to event. No assistance paid
February 2001	Earthquake – Nisqually	Local, State, Federal	State \$2.0 Billion Local: \$1.5 Public and \$900k private
March 1997	Flooding	Local, State, Federal	Local PA Threshold not met. IA received
December 1996	Severe Storm	Local, State, Federal	Total PA:\$20 Million Local: \$1.6 Million
April 1996	Mudslide	Local	Local Declaration; No assistance provided
February 1996	Flooding	Local, State, Federal	Received PA. No IA received
November 1995	Severe Storm – Wind/flooding	Local, State, Federal	Local PA Threshold not met
December 1994	Flooding	Local	Local Declaration; no assistance provided
January 1993	Wind Storm	Local, State, Federal	No record on file*
January 1992	Severe Storm	No declaration	No record on file
December 1990	Severe Storm	Local, State, Federal	State: \$785k
December 1986	Severe Storm	Local, State, Federal	No record on file
May 1980	Mt. St. Helens, volcano	State, Federal	No assistance received
January 1974	Severe Storm	Local, State, Federal	No record on file
May 1965	Earthquake	Local, State, Federal	No record on file
October 1962	Severe Storm – Wind	Local, State, Federal	No record on file

PA=Public Assistance IA=Individual/Household Assistance

*No records maintained on event

Kitsap County Profile

Although there is much information available on Kitsap County, the below information represents that which is pertinent to mitigation planning. Additional information can be found on the Washington State and Kitsap County websites.

General Information

Geographical Location: Kitsap County, Washington, is located between the Hood Canal and the west side of Puget Sound near the center of the Puget Lowlands Physiographic Province. The County occupies lowlands in the shadow of the Olympic Mountains.

Area: 394.94 Square Miles

Population Density: 642 per square mile

Assessed Value: \$28,439,419

<u>Population:</u>	<u>2010</u>	<u>No. of Households</u>
Unincorporated Kitsap County	171,395	64,657
City of Bremerton	37,729	14,932
City of Bainbridge Island	22,020	9,470
City of Poulsbo	9,200	3,883
City of Port Orchard	11,144	4,278
Total Kitsap County: <i>(2010 Federal Census)</i>	253,900	97,220

Functional and Vulnerable Populations

Kitsap's Functional needs populations are outlined in Exhibit 2.2. The numbers are consistent with State averages.

Business/Industry: Approximately 50% or slightly less of the population is employed by the following businesses and industry: fishing, construction, manufacturing, tourism, forestry, healthcare, transportation, public utilities, wholesale, retail, financial, insurance, real estate and services.

Military Community: Approximately 40,000 personnel serve the military installations either as federal service employees or military members. Five installations are located in Kitsap County and are a critical factor in the County's economic balance.

Government Employment: Over half of the working inhabitants are employed by Federal, State, County or municipal government agencies.

- County 2094
- State 1740
- Federal 40,018

- School Districts 4105
- Kitsap Transit 411
- Kitsap Public Health 144

- Kitsap Regional Library 200

(2010 Estimates)

School Districts and Attendance

<u>School District</u>	<u>Students</u>
Bainbridge Island	4,023
Bremerton	5,500
Central Kitsap	12,174
North Kitsap	6,700
Olympic College	12,000
South Kitsap	10,500
<hr/> Total Students	<hr/> 50,897

Indian Nations

Port Gamble S’Klallam	1,131
Suquamish	950

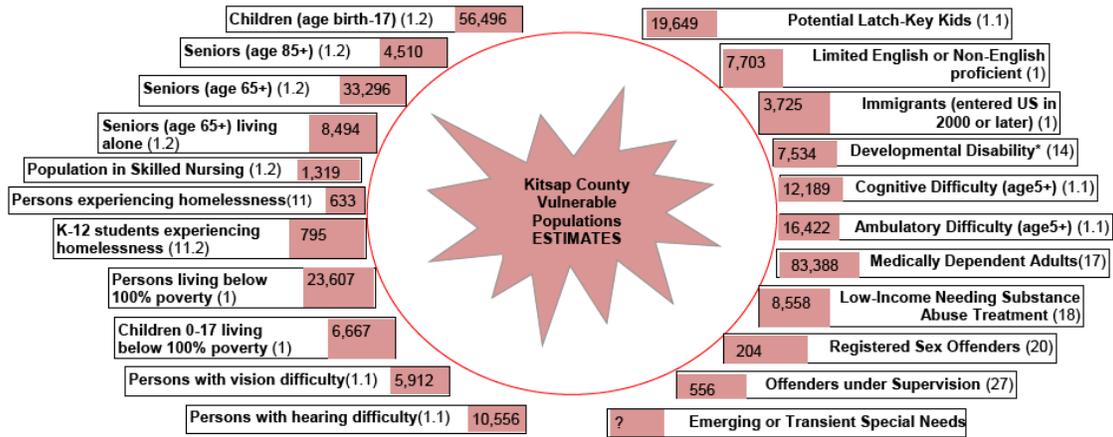
Structure of Governments

Kitsap County: operates with 3 commissioners and the following elected officials: Sheriff, Prosecutor, Coroner, County Clerk, Auditor, and Treasurer.

Cities of Bremerton, Poulsbo, and Port Orchard operate with an elected Mayor and City Council members. City of Bainbridge Island operate with a Mayor Pro Tem which rotates among elected City Council members annually. Each city has a City Manager for day-to-day operations.

The Port Gamble S’Klallam and Suquamish Tribes have a Tribal Council who oversee their tribal nations. Each has a Tribal Executive Director.

UPDATE



Sources

- 1 American Community Survey, 2006-2010
- 1.1 American Community Survey, 2006-2010
- 1.2 US Census, 2010
- 11 Point in Time Count, 2011. Accessed at: <http://www.commerce.wa.gov/DesktopModules/CTEDPublications/CTEDPublications/View.aspx?tabID=0&ItemID=9746&Mid=670&version=Staging>
- 11.2 Office of Superintendent of Public Instruction, 2010-11. <http://www.k12.wa.us/HomelessEdResources.aspx>
- 14 Developmental Disabilities. Accessed at: <http://www.socialworkers.org/research/naswResearch0707Developmental/default.asp#anson>, 12/22/09
- 17 Behavioral Risk Factor Surveillance System 2009-10, Kitsap County analysis
- 18 Tobacco, Alcohol, & Other Drug Abuse Trends in Washington State, 2010 Report
- 20 Washington State Department of Health Local Public Health Indicators. Accessed at: <https://fortress.wa.gov/doh/iph/indicator/mvo/indicatorList>
- 27 http://www.doc.wa.gov/about/doc/docs/mcCommunitySnapshot_017.pdf

Kitsap County Population		
2012 Estimates	Number	Percent
Total	254,500	100%
Unincorporated	170,620	67%
Incorporated	83,880	33%
Bainbridge Is	23,090	28%
Bremerton	39,650	47%
Port Orchard	11,780	14%
Poulsbo	9,360	11%

Source: WA Office of Financial Management

*County estimate based on US National data. All other data are County-specific.

Kitsap Public Health District
 Ruth Westergaard: (360) 337-5752 or ruth.westergaard@kitsappublichealth.org
 September 2012

Exhibit 2.2. Kitsap County’s Vulnerable Population Estimates 2012

Kitsap County Infrastructure

City/County Public Buildings

The combined City/County public buildings are approximately 2500 units. There are pre-earthquake building code structures, although both the four cities of Kitsap and the County enjoyed a building boom during the last decade which included new County Administration Building and 4 new city halls. Most other critical facilities are relatively new except for older structures used by the fire districts or Non-Governmental Organizations serving Kitsap County. The Kitsap County House Authority did not participate in this planning process; most of their building are of wood stock with minor exceptions and were not damaged during the Nisqually earthquake.

Residential Structures

The vast majority of residential structures in the County are constructed of wood stock. A percentage of the over 100,000 residential structures have not been retrofitted to earthquake mitigation standards, but Kitsap County DEM provides programs to instruct building contractors and residence on how to “brace and bolt” older structures. The table below provides the number of housing units in Kitsap as of 2008.

Housing Units by Housing Type

	1990	2000	2006-08	% of total 2006-08	% change 2000 to 2006-08
Kitsap County Total	74,038	92,644	100,924		9%
Single-family	51,434	64,878	70,955	70%	9%
Detached	48,612	61,403	67,637	67%	10%
Attached	2,822	3,475	3,318	3%	-5%
Multi-family	14,147	18,415	20,240	20%	10%
2-4 units	5,124	6,173	6,550	6%	6%
5-19 units	5,918	7,368	8,950	9%	21%
20+ units	3,105	4,874	4,740	5%	-3%
Mobile Homes	7,726	8,923	9,502	9%	6%
Other*	731	428	227	0.2%	-47%

Table 2.2: Kitsap Housing History by Housing Type.

Kitsap County Consolidated Plan 2011-15. Kitsap County Community Development Block Grant

Transportation, Communications, and Utilities

Transportation, communications, and utilities are vulnerable to hazardous events. Transportation corridors are vital to the movement of citizens and the economy as well as electrical and natural gas grids providing energy in the county.

Transportation is provided through state and county roads, but limited by the geographical features of Kitsap bounded by water making it a peninsula and subject to expansive ferry systems and bridges. Table 2.4 shows some of the transportation links in Kitsap County. There is no major rail service in the County with some track provided to Naval Installations.

Kitsap County enjoys all of the communications afforded major Puget Sound cities. These networks are available to its citizens as well as high speed internet and cable TV services. Kitsap County did build a new 911 Center in 2004 previously noted as a County mitigation strategy. As part of the strategy, seismic isolation systems were installed to provide better protection of the County and 911 communication network.

Puget Sound Energy (PSE) provides essential electrical power to most residential and commercial facilities in the County. This combination of pole and underground service has been mitigated over the years for winter storm outages and improved structural integrity. Although gas lines, public utility and sewer systems are underground and can be vulnerable to earthquakes and moving earth.

Types of Transportation	Link	Comments
Air	Bremerton Airport	Limited commercial service
Highways	Major routes SR 3, 14, 104	No federal highways in Kitsap
Bridges	Tacoma Narrows Bridge Hood Canal Bridge	Vital links to adjoining Counties
Transit	Kitsap Transit Access and regular service	Vital service to military installations and ferry docks
Rail	Puget Sound Pacific Railroad	Service from Mason County to Military installations
Ferries	Kitsap Transit Inter-harbor service	Service to Bremerton/Port Orchard and Bremerton/Annapolis
WA State Ferries	Service from Bremerton, Bainbridge Island, Kingston, and Southworth	Service to Edmonds, Seattle and King County

Table 2.3 Transportation Links in Kitsap County

Geographical/Topographical Description of Kitsap County

Geographical Location: Kitsap County, Washington, is located between the Hood Canal and the west side of Puget Sound near the center of the Puget Lowlands Physiographic Province. The County occupies lowlands in the shadow of the Olympic Mountains.

Weather Conditions: Kitsap County has a moderate climate with an average annual temperature of 51.3 degrees F:

- Average rainfall is 34 - 42 inches
- Average low temperature in January is 33.6 degrees F
- Average high temperature in July is 74.8 degrees F

Topography:

The Kitsap Peninsula area is geologically the remnant of a glacial drift plain. The peninsula is deeply dissected by inlets, giving the County roughly 33 miles of freshwater waterfront, and 210 miles of salt-water coastline (see Appendix D – Kitsap County Hazard Identification and Vulnerability Analysis – HIVA). Landslide and marine bluff failures are relatively common in the low hills on the perimeter of Puget Sound, particularly in unsheltered bluff areas subjected to wave cutting (Young et al, 1993).

Four main geologic units have been identified in the subsurface: fill, younger alluvium including beach deposits, alluvium associated with the Vashon Glacier, and basaltic bedrock. Low areas have filled with peat and very loose soils over time, and may have been artificially filled during previous development. (Dames & Moore 1997)

Creeks and Freshwater Ways

Although Kitsap County has the propensity to flood, it does not have any rivers. It does have 39 known creeks which can swell from significant rainfall and flood down stream structures. Creeks are identified in Table 2.4. Kitsap County and its cities have been proactive in managing runoff and reducing the impacts of low area flooding during

significant rainfall events. Mitigation efforts have reduced common flooding areas in cities through innovative means to manage rainfall such as improved stormwater systems.

Saltwater Landmarks (210 Miles of saltwater shoreline): Admiralty Bay, Dyes Inlet, Sinclair Inlet, Port Washington Narrows, Liberty Bay, Miller Bay and Hood Canal. Exhibit 2.4 shows those areas that are affected by boat wakes, low lying flooding from high tides, or potential tsunamis and define as part of FEMA's Flood map and the National Flood Insurance Program.

Landslides

Landslide and marine bluff failures are common on low hills and on the perimeter of Puget Sound. Kitsap has a history of fatal landslides as noted in the Kitsap Events History segment. Significant rainfall and ground saturation affect these areas. Exhibit 2.5 show those areas in Kitsap defined as geological critical areas with soft soil with a greater risk of shaking during earthquakes.

Lakes

Kitsap County has several lakes feed by the numerous creeks and streams in the County. Some lakes have dams to manage lake water levels and protect waterfront residence. The Casad Watershed provides drinking water to the residence of Bremerton. Others provide recreational fishing and boating and managed by residence or County/City Governments. Exhibit 2.3 is a visual map of lakes and streams in Kitsap County.

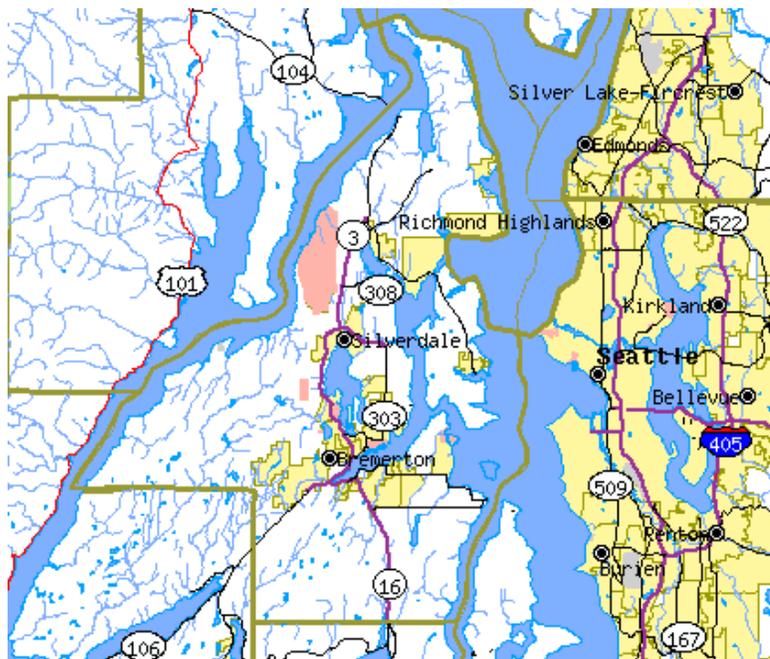


Exhibit 2.3 Lakes and Streams in Kitsap County, Wa.

Table 2.4: Creeks and Fresh Water Ways in Kitsap County

<p>City of Bremerton</p> <ul style="list-style-type: none"> • Wildcat Creek • East Fork Union River <p>North Kitsap County</p> <ul style="list-style-type: none"> • Bjorgen Creek • Buck Lake Outlet • Carpenter Lake Outlet • Cowling Creek • Dogfish Creek • Do-Kag-Wats Estuary • Finland Creek • Gamble Creek • Grover’s Creek • Indianola Creek • Johnson Creek • Jump Off Joe Creek • Kinman Creek • Kitsap Creek • Manzanita Creek • Port Madison Creek • Sam Snyder Creek • Scandia Creek • Scenic Creek • Silver Creek • Snyder Creek • Thompson/Klebal Creek 	<p>Central Kitsap County</p> <ul style="list-style-type: none"> • Barker Creek • Big Anderson Creek • Big Beef Creek • Boyce Creek • Chico Creek • Clear Creek • Kitsap Creek • Little Anderson Creek • Little Beef Creek • Lost Creek • Mosher Creek • Seabeck Creek • Stavis Creek • Strawberry Creek • Steele Creek <p>South Kitsap County</p> <ul style="list-style-type: none"> • Annapolis Creek • Anderson Creek • Beaver Creek • Blackjack Creek • Burley Creek • Curley Creek • Gorst Creek • Karcher Creek • Olalla Creek • Ross Creek • Salmonberry Creek
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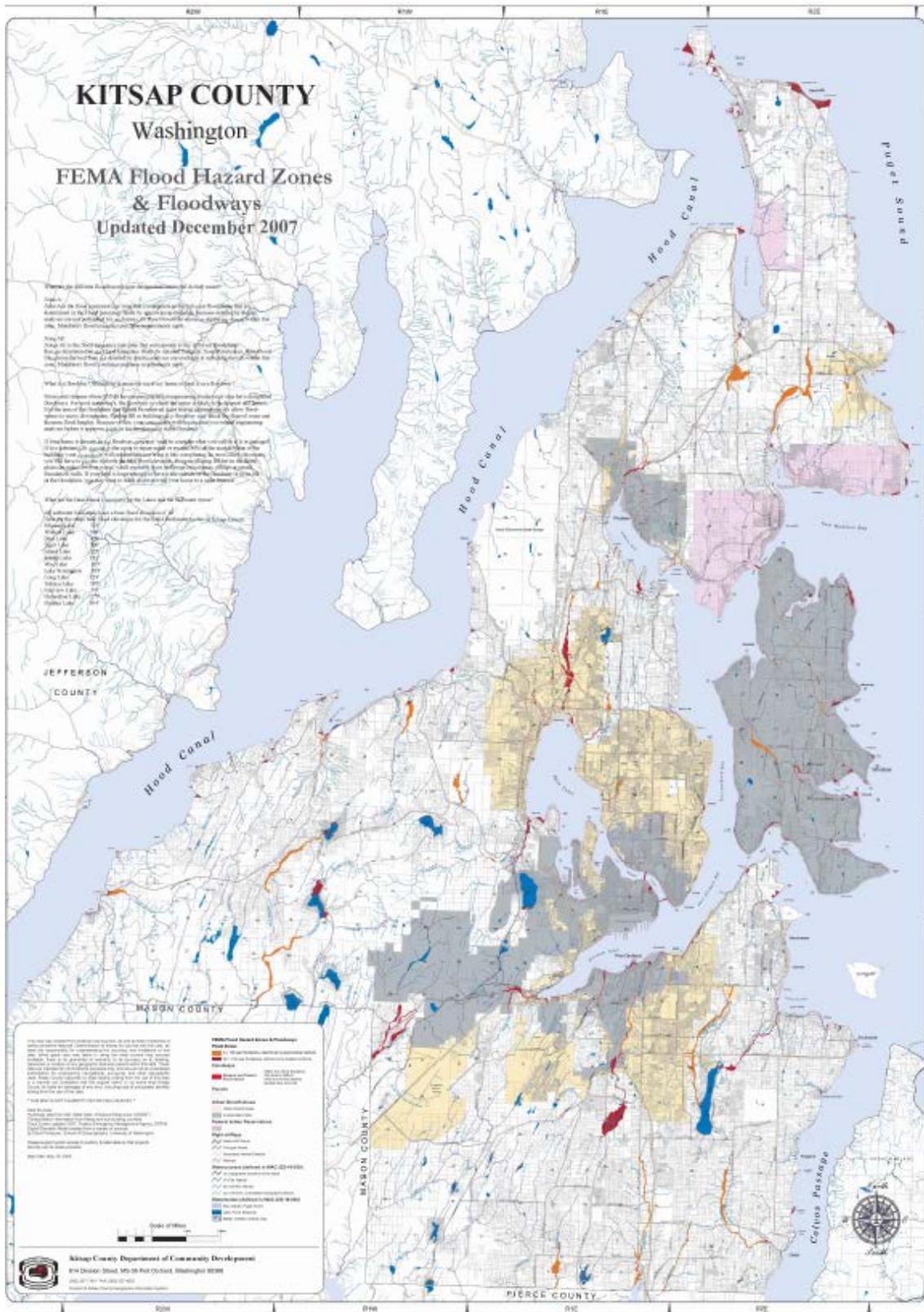


Exhibit 2.4 FEMA's Flood Hazard Zones and Floodways Kitsap County 2007



Exhibit 2.5 Geologically Hazardous Areas Map for Kitsap County

Earthquake Country

Kitsap County and its Cities are vulnerable to earthquakes. There is a history of earthquakes as noted in Section Three. The Nisqually earthquake of 2001 was the last one to create any significant damage to Kitsap and the Puget Sound Region. Kitsap is vulnerable to subduction as well as fracture faults. The Puget Sound region is entirely within Seismic Risk Zone 3, requiring that buildings be designed to withstand major earthquakes measuring 7.5 in magnitude. It is anticipated, however, that earthquakes caused from subduction plate stress can reach a magnitude greater than 8.0.

Exhibits 2.6 and 2.7 show the earthquake sources for Kitsap County. Like other counties, Kitsap take advantage of various available technologies to assess the likelihood and effect of earthquakes in the region. Such technology includes GIS mapping, HAZUS, and evaluation of LIDAR and USGS studies about the County. As noted in exhibits through such maps exhibit potential risky areas associated with earthquake unfriendly soil types, liquefaction and other areas deemed critical and have a higher risk to earthquakes. Refer to Exhibit 2.8 and 2.9 on Liquefaction and Soft Soil areas in Kitsap County.

New programs available from the USGS, for example, the Washington State Earthquake Scenario Catalog, provide a variety of HAZUS modeling studies on different faults. These studies provide valuable insight into vulnerability and exposure modeling of earthquakes that can be used in mitigation planning and as a training and exercise tools.

LIDAR or Light, Detection And Ranging, provides essential information about Kitsap County land mass and the geological history. LIDAR is a remote-sensing technology for measuring the shape and elevation of the earth's surface using a laser beam emitted and read from an airplane. The LIDAR project gives local governments and the USGS earthquake-related information about the Seattle fault plus locates streams, slopes, flood planes, and landslide hazards. An example of LIDAR mapping is provided in Exhibit 2.10

The aforementioned technology provides us with historical and geological information for land use and in defining mitigation projects in the county. More information regarding earthquake strategies and recommendations is provided in Section Three. All of these technologies are available to mitigation planners throughout Kitsap County.

Cascadia earthquake sources

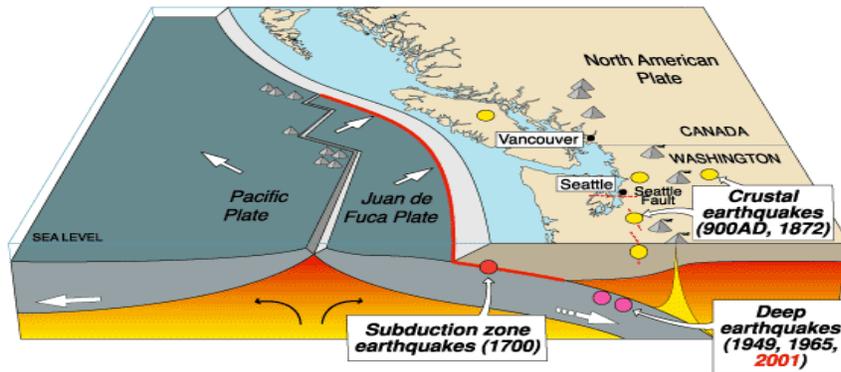


Exhibit 2.6 Cascadia Subduction Earthquake Sources

Source	Affected area	Max. Size
● Subduction Zone	W.WA, OR, CA	M 9
● Deep Juan de Fuca plate	W.WA, OR,	M 7+
● Crustal faults	WA, OR, CA	M 7+

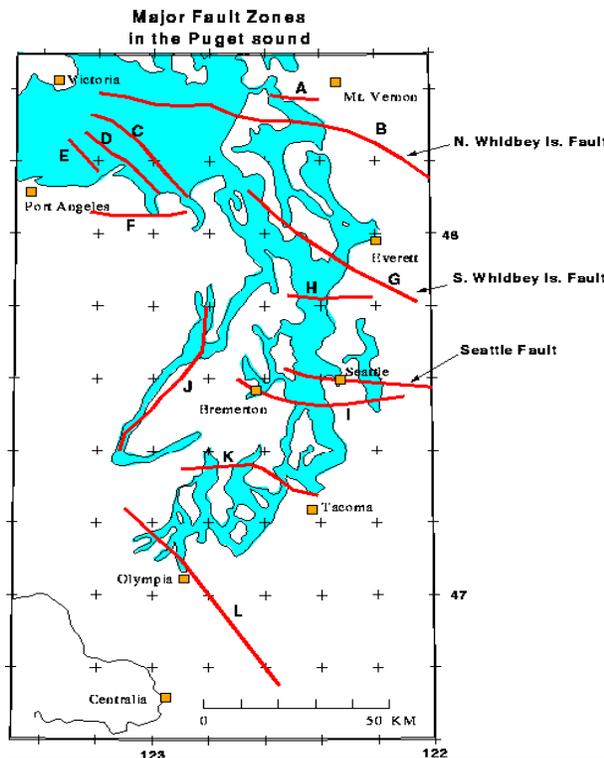


Exhibit 2.7 Major Fault Zones in the Puget Sound

IV. ORGANIZATIONAL STRATEGIES AND CONCLUSIONS

County Wide Mitigation Strategies

The county wide strategies proposed in this section will require continuous coordination and collaboration among this plan's existing partners and future partners over the next five years and beyond to attain successful implementation. Each individual jurisdiction's adopted mitigation strategies are located in Table 2.5 to this section.

Prioritization

The county wide mitigation strategies were prioritized by the Mitigation committee at the recommendation of the organization/jurisdiction mitigation planner. Committee members utilized this plan and the goals and objectives listed in this section to define priorities in the County. In the table, we identified only those hazards that rank highest in probability of occurrence for participating organizations. Table 2.4 shows each organization, mitigation goal and strategy, implementation timeline and estimated costs for project completion.

Strategies are classified as either Priority One which are recommended for funding and implementation or Priority Two which are suited to serve the community's needs and may be considered in the future should the opportunity arise and funding become available.

Detailed benefit-cost analysis' are conducted using FEMA's BCA methodology prior to scheduled implementation and are considered in the final prioritization of strategies/projects. Those which do not receive a benefit-cost ratio of at least a one will not be considered for FEMA funding

Ongoing Mitigation Initiatives

Ongoing Mitigation Initiatives consist of actions that require ongoing attention and mitigation efforts are consistent with routine organizational operations. For example, managing forested areas that may affect agency response efforts during an emergency or developing road culverts that mitigate storm runoff. Mitigation planning is not just about long term projects, but also about routine assessment of land use development, ongoing mitigation maintenance, and long-term solutions.

Strategies by Participating Organizations 2010

Table 2.5

In this table, we are identifying only those hazards that rank highest in probability of occurrence for participating organizations.

Organization	Hazard	Goal	Mitigation Strategy	Implementation Time	Cost
American Red Cross	Earthquake	Eliminate or reduce the long-term risk to human life and property from identified hazards	Pursue seismic upgrades to equipment, infrastructure, and critical facilities that do not meet current seismic codes.	Ongoing	TBD
Bainbridge Island Fire District	Severe Storm High Winds	Reduce risk to critical infrastructure, life and property damage	Identify CI, major response routes and determine level of Response protect and Sustain, prevent loss life	1-2 years and ongoing	TBD
Bainbridge Island School District	Severe Storm	Eliminate or reduce the long-term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	Ongoing	TBD
Bremerton School District	Earthquake	Provide for and implement comprehensive non-structural earthquake mitigation program to secure and stabilize furnishings equipment and windows in all district facilities	Actively participate in planning and hazard preparation with the public, local government, the business community and volunteer organizations	2010-2015	TBD

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Organization	Hazard	Goal	Mitigation Strategy	Implementation Time	Cost
Central Kitsap Fire and Rescue	Severe storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	In place and ongoing	TBD
City of Bainbridge Island	Severe storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years and ongoing	TBD
City of Bremerton	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazards	Pursue seismic upgrades to the Bremerton water system and its components as identified in profile reports and in the City's 6 year improvement plan	1-8 years and ongoing	1.75 Million
City of Port Orchard	Severe storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years and ongoing	TBD
City of Poulsbo	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazards	Pursue seismic upgrades to equipment, infrastructure and critical facilities that do not meet current seismic codes	Ongoing	TBD

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Organization	Hazard	Goal	Mitigation Strategy	Implementation Time	Cost
Holly Ridge Center	Severe Storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	Ongoing	TBD
Kitsap Community Resources	Severe Storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years then ongoing	TBD
Kitsap County Health District	Multi-Hazard Public Education Program	Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks	Actively participate in planning and hazard preparation with the public, local governments, the business community and volunteer organizations	Ongoing	TBD
Kitsap Transit	Severe Storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during storms	1-3 years then ongoing	TBD
Kitsap Mental Health Services	Severe Storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years then ongoing	TBD

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Organization	Hazard	Goal	Mitigation Strategy	Implementation Time	Cost
Kitsap Public Utilities District	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazards	Pursue seismic upgrades to equipment, infrastructure, and critical facilities that do not meet current seismic codes	Ongoing	TBD
Manchester Water District	Severe Storm	Reduce risk of property damage and reduced operational capabilities during severe storms	Annually inspect all trees within falling distance of critical facilities to determine if they pose a hazard during a storm	Ongoing	TBD
North Kitsap Fire and Rescue	Severe Storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years then Ongoing	TBD
North Kitsap School District	Multi-Hazard Public Education Program	To continue to coordinate emergency preparedness plans with the City of Poulsbo and Kitsap County and to provide for and implement comprehensive non-structural earthquake mitigation program to secure and stabilize furnishings equipment and windows in all district facilities	Actively participate in planning and hazard preparation with the public, local governments, the business community and volunteer organizations	Ongoing	TBD
North Perry Water District	Earthquake/ Severe Storm	Reduce the risk of severe water shortages due to power outages	Procure an emergency generator for one of the highest producing and most versatile well in the system	Less than 5 years	\$110,000 est.

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Organization	Hazard	Goal	Mitigation Strategy	Implementation Time	Cost
Peninsula Services	Severe Storm	Minimize the risk of storm damage to people and property	Routinely inspect all trees within falling distance of critical facilities to determine whether they pose hazard during a storm	Ongoing	TBD
Port of Bremerton	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazard	Pursue seismic upgrades to equipment, infrastructure and critical facilities that do not meet the current seismic codes	Ongoing	TBD
Port of Kingston	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazard	Pursue seismic upgrades to equipment, infrastructure and critical facilities that do not meet the current seismic codes	Ongoing	TBD
Port of Poulsbo	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazard	Pursue seismic upgrades to equipment, infrastructure and critical facilities that do not meet the current seismic codes	Ongoing	TBD
Poulsbo Fire Department	Fire	Eliminate or reduce fire risk to human life and property	Adoption of fire and life safety codes, as deemed appropriate	Ongoing	TBD
Silverdale Water District	Severe Storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years then Ongoing	TBD
South Kitsap Fire and Rescue	Fire	Eliminate or reduce fire risk to human life and property	Adoption of fire and life safety codes, as deemed appropriate	Ongoing	TBD

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Organization	Hazard	Goal	Mitigation Strategy	Implementation Time	Cost
South Kitsap School District	Severe storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-3 years then Ongoing	TBD
Suquamish Tribe	Severe storm	Eliminate or reduce the long term risk to human life and property from identified hazards	Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm	1-4 years then Ongoing	TBD
West Sound Utility District	Earthquake	Eliminate or reduce the long term risk to human life and property from identified hazard	Pursue seismic upgrades to equipment, infrastructure and critical facilities that do not meet the current seismic codes	Ongoing	TBD

Summary

In this section, we have identified the process of mitigation planning by discussing the role of planners, the use of risk assessments and the development of mitigation strategies. The strategies defined in this plan are those that involve structural projects and initiatives to abate long-term risks to citizens or property and involve funding to complete the projects. Although, not mentioned in this section is the ongoing programs or advancements to eliminate or reduce the long term risk from identified hazards. Such programs include:

- Kitsap “Bolt and Brace” program to train contractors and citizens to retrofit older residences.
- Kitsap Prepares Responsibly for Emergencies” Program KPREP, programs designed to train schools, business, non-profit organizations, and citizens, to mitigation, prepare for, respond, and recover from disasters, specifically earthquakes.
- Kitsap Pre/Post Evaluation of Building Effectuated by Seismic Events training; teaching building evaluations for potential retrofitting and mitigates effects on earthquakes.
- Kitsap ongoing and robust training and exercise program. Priority One in preparing first responders and citizens in all-hazards disaster response and recovery.
- Implementing advances in technology to improve communication and warning systems, conduct damage assessments, and analyze results. Kitsap’s Damage Assessment software program integrates County files (i.e. property assessments), GIS, and collection coordination to bring in information regarding public and private damage and provide information and mapping tools to assess citizen safety and structural damage throughout the County. This information becomes vital to understanding at risk areas in the county and adds to our mitigation planning efforts.

These are but a few examples of the ongoing Mitigation programs in Kitsap County. Successful mitigation programs like those mentioned above, or others like stormwater initiatives have reduced the risks to citizens and properties. Obviously, although risk assessment tells us what we need to mitigate, it does not predict the size and complexity of the next catastrophic event in Kitsap. As such, mitigation planning will continue to improve our position to reduce risk and take the burden off first responders and the potential loss to businesses and governments.

SECTION THREE: Strategies & Recommendations - PRIORITY ONE

INTRODUCTION

In this section, hazard is identified, defined and assessed in terms of vulnerability. From this analysis, the mitigation planners draw conclusions and define mitigation strategies.

Each section notes lead agencies who lead the analysis and defined the mitigation strategies for effected jurisdictions. In each Category (CAT) strategies are prioritized based on vulnerability, risk, and costs. Documentation and references are defined in each category. The following categories consistent with those in the Kitsap County's Hazard Identification and Vulnerability Assessment 2008 and Strategies are outlined in this section:

CAT I: Flooding

CAT III: Land Shift

CAT V: Drought

CAT VII: Terrorism and Civil Disorders

CAT IX: Multi-Hazard Public Education

CAT II: Severe Storms

CAT IV: Earthquake

CAT VI: Tsunami

CAT VIII: Multi-Hazard Mitigation

CAT X: Fire

CAT IV has been revised to include a discussion on volcano eruptions

2010 Update

This section has been reformatted to include the removal of "Emergencies and Disaster" tables from each Category. One single list is provided at the end of the section as:

Addendum I: Declared Emergencies and Disasters in Kitsap County 1995 through 2010

Re-formatting also added building stock information for jurisdictions only. This does not include information on the types and number of future building stock affected by hazards. This data will be analyzed and provide in the next available update to this plan.

Regardless, changes to local ordinances reflect land use provisions for building in flood prone areas.

CAT I: FLOOD MITIGATION STRATEGIES

LEAD AGENCIES

- City/County Public Works Departments
- City/County Community Development/Building Departments

SUPPORT AGENCIES

- City/County/Regional Organizations
- Tribal Nations
- Conservation District
- Kitsap County Department of Emergency Management (Public Education/Recovery)

HAZARD

Flooding is the most common hazard occurring in Kitsap County. It affects all of Kitsap County. Heavy, prolonged rain in the fall, winter, or spring months often results in saturated ground and high stream flows. Due to ground saturation, Kitsap County businesses and homes located in low-lying areas may flood during prolonged periods of rain. Wind-driven tidal flooding is also possible along the inland waters. Flooding is due to runoff, ground saturation, or tidal flooding. Structures located within floodplain areas also are susceptible to frequent flooding.

EFFECTS

Floods may result in loss of life as well as damage to residences, business establishments, public buildings, roads and bridges, utilities, agricultural land, fish and shellfish habitats, stream banks and flood control structures.

HISTORY

Kitsap County issued disaster or emergency declarations for flooding in 1990, 1994, 1995, 1996, 1997, 1999, 2003, 2006 and 2007. Historically, flooding occurs to some extent in Kitsap County every year, especially in floodplain zones of streams. Hood Canal and Puget Sound beaches are often affected by flood tides compounded by heavy rainfall and high tides. Addendum I contains a list of Emergencies/Disasters in Kitsap County. Flooding events are noted.

VULNERABILITY

Kitsap County will always be vulnerable to flooding in both urban and rural areas. In urban areas flooding is primarily a product of growth and the impact on watersheds and rural areas due to nature. Watersheds are illustrated in Appendix C, Map 2. As shown in Appendix C Map 3, Kitsap has numerous large creeks and lakes throughout the county. A County that experiences significant daily rainfall heavily influence by Olympic convergence zones can experience rapid flooding from creeks and streams into urban areas.

CONCLUSIONS

Mitigation involves flood plain planning and management coordinated by local, state, and federal agencies. Building codes and regulations applied to structures aid in mitigation. Residents should have access to information on flood insurance. Where building has already occurred on flood plains, emergency preparedness in the form of sandbags, building materials, 3-day evacuation kits and alternate shelter should be part of each resident's preparation for possible flooding.

PROBABILITY OF OCCURRENCE

High – More than any other natural hazard, flooding represents the single biggest repetitive event that has a damaging affect to Kitsap County property and resources. Looking back over a twenty-year period, Kitsap County has flooded (Presidentially declared disaster) at least five times with no major river causing the flooding. Kitsap County is vulnerable to urban stream flooding and localized flooding due to drainage system overload during especially large or intense storm events. This will continue to occur until more effective flood mitigation strategies can be developed and implemented for urbanized areas that are subject to inundation by floodwater. Engineering and mitigation will have a measure of success but it is expected that flooding will always occur during extreme storm events.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

Kitsap County and its four cities participate in the National Flood Insurance Program (NFIP). Each community entered into the Program at various times. Below is a brief history of Kitsap County's participation in the NFIP. Please note there are no repetitive losses in this plan!

Kitsap County

In 1978 unincorporated Kitsap County entered the National Flood Insurance Program (NFIP). The most recent review of Kitsap County's participation in the NFIP was conducted in February, 2010. The review, called a Community Assistance Visit (CAV), found that the discrepancies identified in the previous CAV (2002) had resulted in amendments to Kitsap County Code Title 15 (Flood Ordinance). These amendments resulted in improved processes for development in flood prone zones, enhanced GIS map layering to identify flood hazard areas and permit tracking processes for flood hazard area development. The Kitsap County Board of Commissioners approved these amendments in KCC Title 15; the most recent amendment approval process was February, 2010.

City of Bainbridge Island

The City of Winslow entered the Emergency Program on August 14, 1975 then converted to the National Flood Insurance Program (NFIP) effective February 5, 1986. The Island was incorporated in 1991, and became the City of Bainbridge Island with a NFIP Effective Date of March 1, 1991. The most recent review of the city's participation in the NFIP was conducted in 2004. During this Community Assistance Visit (CAV) the summarized findings from the CAV included the need for an amendment to the City's flood chapter 15.16, preparation of procedures to implement Chapter 15.16, and additional information on eleven specific cases that were cited in their field work. As of February 2005, all these items were cleared and our CAV was closed.

City of Bremerton

The City of Bremerton entered the National Flood Insurance Program on May 27, 1975. The most recent review of the city's participation in the NFIP was conducted July 23, 2008. During the visit, the City issued 2 permits that were properly conditioned for the flood elevation certificates; however the final Elevation Certificate was inadvertently missed. The corrective action taken by the city was to modify the permitting system computer software to more definitively request flood zone information at the time of initial application for a building permit and at construction inspection stages including prior to framing and prior to release of final inspection certification.

As most communities in Kitsap County, after the last major flood, 2007, we reviewed our flooding issues and once again determined we have no repetitive loss areas in the City of Bremerton. The City of Bremerton has amended their processes as recently as August, 2007 resulting in a successful CAV in July, 2008.

City of Port Orchard

The City of Port Orchard entered the National Flood Insurance Program in 1978. The most recent review of the city's participation in the NFIP was conducted in 2005. During this Community Assistance Visit (CAV) the summarized findings from the CAV, included the need for an amendment to the City's flood chapter 15.38, preparation of procedures to implement Chapter 15.38, and additional information on three specific cases that were cited in their field work.

On September 16, 2005 the Floodplain Management Specialist responded to the City's transmittal of information by approving Ordinance No. 016-05 bringing the city into full compliance with Federal and State floodplain management requirements.

The City provided the Floodplain Management Specialist with additional information on the 3 specific cases cited during their visit which cleared all of the findings and closed the CAV for Port Orchard. Their conclusion was that the City is effectively regulating development in the City's flood hazard areas and they would notify FEMA of this certification.

City of Poulsbo

The City of Poulsbo entered into the National Flood Insurance Program in 1979. The most recent review of the city's participation in the NFIP was conducted in 2005. During this Community Assistance Visit (CAV) the reviewers identified one deficiency which was related to city code. Code changes were made (adopted, closing the CAV, in late 2005).

2010 Update: NFIP

In recent years, NFIP Flood Insurance Rates Maps (FIRM) has been revised. Some zones changed mostly reflecting coastlines changes based on better data and evaluation of such issues as wake and tidal issues. Changes are not significant, although, have increased the need for some homeowners to file for flood insurance under NFIP.

Community Rating System

The Community Rating System (CRS) is a voluntary program for National Flood Insurance Program communities with the intent to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. It provides incentive for premium discounts for communities that go beyond the minimum and impose extra measures to provide protection from flooding.

Kitsap County is currently not eligible and has not met the full compliance with the NFIP. As such, a new flood mitigation strategy has been added to become a NFIP eligible CRS Community within the next five years. The older strategies listed below; include the CRS Grant Credit Series in meeting the eligibility requirement (*Community Rating System; A Local Officials Guide to Saving Lives, Preventing Property Damage, and Reducing the Cost of Flood Insurance*, FEMA 573 Publication). These activities can directly benefit insurance agents writing insurance policies. A number of the CRS activities have been met by Kitsap County such as outreach projects, Map Information Service, higher regulatory standards, and stormwater management, to name a few. Although, there has not been a coordinated strategy to implement a CRS program in Kitsap.

MITIGATION STRATEGIES

1. Develop a strategy to implement a flood control and riparian zone management process that ensures coordination of the municipalities with regard to storm water management standards, zoning requirements and building codes. The necessary steps to implement this strategy are:
 - Review and compare existing flood control standards, zoning and building requirements and determine minimum acceptable standards for all municipalities.
 - Develop inter-jurisdictional mechanisms to ensure that the municipalities are aware of each other's flood prone areas and properly assign conditions of approval to projects that may affect them.
 - Tie this strategy into the implementation of a community-wide Geographic Information System (GIS).
 - Local funding resources are recommended for potential budget availability.

Implementation Time: 1 to 3 years

Implementation Cost: Estimated cost \$175,000 to develop strategy, review and adopt standards, and set up Memorandums of Understanding (MOUs). Implementation costs, as part of a regional GIS system would be estimated separately.

Lead: Port Orchard

Delayed: Has not started due to lack of funding

2. Convene an annual meeting of interested parties to discuss Local, State and Federal regulatory requirements related to maintenance activities in flood-prone areas.

- The purpose of this meeting would be to exchange information, coordinate future projects, and examine community-wide effects on flood prone areas.
- This project could be used to assist in the identification of areas of influence that effect critical risk areas.
- Local unidentified funds would be the primary resource with some potential support from State and Federal Agencies.

Implementation Time: 1 to 3 years (Flooding and flood mitigation are discussed annually with a community based meeting usually held in October by Kitsap County Department of Emergency Management).

Implementation Cost: \$7,500 annually

3. Develop and implement project proposals to reduce flooding and improve control of runoff within and upstream of flood-prone areas. This may include High Flow Bypass construction in intensely developed areas and buy out programs in frequently flooded areas.

- It is recommended that City/County Public Works Departments pursue Federal and State grant funds to implement this strategy. Additionally local matching and operational funds would need to be budgeted to implement the program.

Implementation Time: 1 to 3 years

Implementation Cost: \$150,000 annually to develop proposals. At this cost estimate the project would be addressed only as a study for implementation. Estimated \$5,000,000 including selected construction and buyout costs. Delayed funding not available.

4. Identify high-risk areas on Geographic Information System (GIS). Update Local storm water system plans and improve storm water facilities in high-risk areas.

- Identify flood and drainage problems on public roads.
- The lead agency would be the appropriate Public Works Departments.
- Local funds and potential private sector funding with possible State or Federal grant funding would be needed to implement the program.

Implementation Time: 1 to 3 years and incorporate as ongoing

Implementation Costs: \$65,000 annually

2010 Update: *Delayed, funding not available.*

Note: It is recommended this \$65,000 annual budget be contributed towards an enhanced GIS system. Costs associated with updating individual projects, community plans and facilities are dependent on identification of criteria and number of projects.

5. Identify, update, and maintain an inventory of privately owned and operated stormwater facilities that contribute runoff to flood-prone areas. Develop and implement guidelines to assess the flood risk and system effectiveness for the individual systems.
- Identify significant un-mitigated man made runoff generating activities or land uses that may be a contributing cause to public flooding. This project would be undertaken in order to expedite flood risk identification and propose specific area problem resolution.
 - Local funding would need to be identified to implement this strategy and consideration is recommended for potential Federal Grant Application funds. This could encompass retrofitting or construction of flood control facilities.

Implementation Time: The Project carries a 1 to 3 year priority rating; however, the actual work would be ongoing through an estimated 9 years.

Note: It is recommended that the project include a study of drainage areas including the study of selected drainage areas for potential mitigation opportunities.

Estimated Cost of the Initial Study: \$75,000

Implementation Cost: An estimated budget of \$550,000 annually would be needed for systems identification, mapping, inspection, update of inventory and assessment of effectiveness and risk.

2010 Update: Delayed funding not available.

6. Identify locations where flooding has occurred on a repeated basis and conduct a cost benefit analysis to determine if a flood buyout option would be cost effective.
- Local funding for the cost benefit analysis would be needed for this process.
 - If deemed cost effective Federal Grant Application funds would be sought.

Implementation Time: This Project carries a 1 to 3 year priority rating; however, the project would best work on an ongoing basis through tracking and identification of repeat flooding properties.

Estimated Cost of the Initial Cost Benefit Analysis: \$50,000.00

7. Kitsap County Public Works has culverts in areas that are failing, undersized for fish passage and have flooding concerns for downstream areas. Replacement funding for these locations is non-existent. These culverts are not listed in the current 6-year Transportation Improvement Program and are not funded. Kitsap County Public Works is the lead agency for implementation of this strategy and will be coordinated with Kitsap County Department of Community Development, the Department of Emergency Management and Washington State Department of Fish & Wildlife.

Implementation Time: 1 to 6 years

Implementation Costs: The costs will be determined at the design phase of the culvert upgrade.

A special resource to be considered for implementation of this strategy would be to request grant funding for design and culvert upgrade projects.

Implementation Cost: Estimates for culvert replacement is \$750,000.00. This would replace up to 5 of the failing culverts.

Prioritized Locations for Implementation:

1. On Stottlemeyer Road NE in Poulsbo there is a failing 24" culvert that needs immediate replacement.
2. North Mission Road NW in Seabeck Holly has a failing 24" culvert that has a rusted invert and a significant belly.
3. Seabeck Holly Rd. NW there is two failing culverts. One of the culverts is an 18" the other is a 36" and both pipes have rust holes and need replaced.
4. There are two culverts on NW Newberry Hill Rd. These culverts are 36" and have significant bellies and rust.
5. There is a concrete culvert in the holly area that is undersized for fish passage. This culvert carries high sediment loads and needs to be improved.

Projected Benefits: There would be less of a risk of road failure and environmental degradation to the downstream environments of these watercourses. Fish passage would be achieved and less flooding would occur to Kitsap County infrastructure.

2010 - Project delayed due to lack of funding!

8. Evaluate City/County eligibility for the NFIP Community Rating System for improved flood plain management and NFIP eligible insurance premium discounts. Develop and implement a plan to meet the compliance with the NFIP and manage CRS activities for credit under the program.
 - Develop data to support CRS criteria for discount points.
 - Determine costs associated with CRS implementation and long-term maintenance
 - Develop a plan to meet eligibility requirements over a 5 year period.
 - Institute the program through City and County zoning ordinances.

Implementation Time: The Project carries a 1 to 3 year priority rating; however, the actual work would be ongoing through an estimated 9 years.

Note: It is recommended that the project include a study of drainage areas including the study of selected drainage areas for potential mitigation opportunities.

Estimated Cost of the Initial Study: \$100,000

Implementation Cost: An initial estimated cost of \$50,000 would be needed to conduct analysis of existing FIRM data and initial eligibility. Currently there is no budget for this project. Additional cost analysis and feasibility study to further define the project's future.

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Jurisdiction	Total Population	Population in Hazard Area	% Population Affected By Hazard
Unincorporated Kitsap County	164,595	164,595	100
Bainbridge Island	22,010	22,010	100
Bremerton	37,729	37,729	100
Port Orchard	11,144	11,144	100
Poulsbo	9,200	9,200	100
Port Madison	5600	5600	100
Suquamish Reservation			
Port Gamble S'Klallam Reservation	1200	1200	100
Totals	258,278	258,278	100%

Table I-1: Population by Jurisdiction Affected by Flooding in Kitsap County 2012

Kitsap County GIS figures 2012

Jurisdiction	Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction	Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
Unincorporated Kitsap County	87,985	87,985	100	249	249	100
Bainbridge Island	12,639	12,639	100	83	83	100
Bremerton	13,683	13,683	100	64	64	100
Port Orchard	6,708	6,708	100	39	39	100
Poulsbo	3,516	3,516	100	66	66	100
Port Madison	4,579	4,579	100	7	7	100
Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	270	100	5	5	100
Totals (Kitsap)	129,380	129,380	100%	513	513	100%

Table I-2: Building Stock and Critical Facilities by Jurisdiction affected by Flooding

Kitsap County GIS figures 2012

*Further changes to this document will include tables on housing stock age and stock directly in the FEMA identified flood areas. Additional data will also include that stock in Special Flood Hazard Area (SFHA) where the elevation difference used for rating is at least 1 foot or more below the base flood elevation (BFE).

2012 Update: FEMA Coastal Study 2011

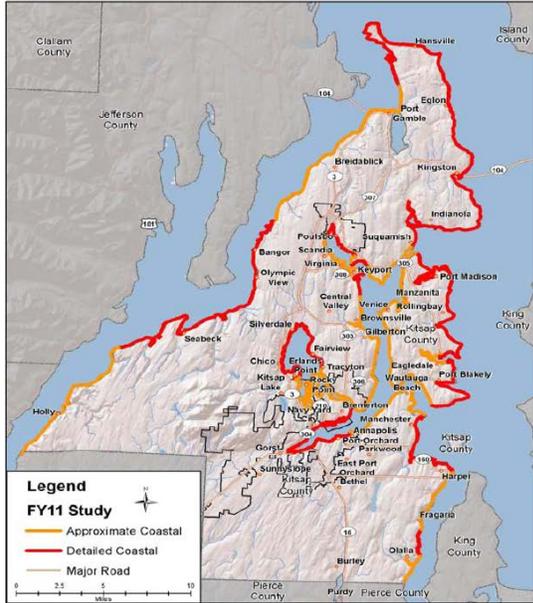
In April 2011, FEMA, Washington State, representatives from Kitsap County and its Cities, and Tribal representatives met to discuss a five year collaboration and plan to assess and map flood risks associated with the coastal area of Kitsap County. This collaboration is designed to work together on Risk Mapping, Assessment, and planning to help communities and the Tribes in hazard mitigation planning, and make informed decisions to improve resilience to natural hazards and raise awareness about local risks to hazard and take more informed actions to reduce these risks

Over the next 5 years, FEMA will conduct flood study reviews to better identify flood hazards, provide local floodplain management regulatory data, support the National Flood Insurance Program (NFIP), and provide risk assessments and mitigation support and planning technical assistance. A number of meetings will be scheduled to discuss flood studies, resilience, and meetings with the public on flood insurance studies.

As part of this project, FEMA will support a detailed coastal flood hazard analysis including the collection of storm surge and overland wave height analysis, as well as floodplain boundaries for 100 and 500 year floods. These studies will help to redefine flood insurance information and FIRM or Flood Insurance rate Map. As a mitigation tool, the activities will provide technical assistance, incentive risk reduction activities at the local level, and help to monitor local mitigation efforts. In essence, the program will help to better identify risks and vulnerabilities associated with floods, evaluate areas of high mitigation value, and develop long term strategies for protecting people and property from future floods. The next few slides from FEMA RiskMap meeting will provide an overview of the project.

Project Scope:

Coastal Study Scope



- Project was funded in November 2010 and is expected to be completed in 2015

- Some of areas of the coast will be studied in detail (based on population/low lying areas) and approximate methods (areas of high bluff)

Task Name	Projected Time of Completion*
Engineering Analysis	Summer 2013
Flood Study Review Meeting	Fall 2013
Resiliency Meeting	Winter 2013
Preliminary Map Production	February 2014
Final CCO & Public Meeting	March 2014
Effective Map Production	May 2015

**All dates are projected and subject to revision.*

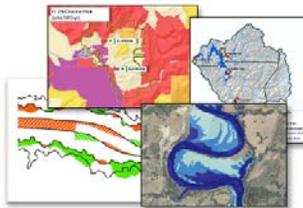
Flood Risk Products. A culmination of numerous data set

Flood Risk Datasets and Products

- **Flood Risk Datasets**
 - Flood Risk Assessments
 - Flood Depth and Analysis Grids
- **Enhanced Flood Risk Datasets**
 - LiDAR
 - Areas of Mitigation Interest (AOMI)
 - HAZUS Data
 - Others (erosion, environmental, etc.)

Flood Risk Products

- Flood Risk Database
- Flood Risk Report
- Flood Risk Map



Flood Risk Datasets



Flood Risk Database



Flood Risk Report



Flood Risk Map

Benefits

Flood Risk Dataset Features and Benefits

- Identifies areas of higher flood risk by census block
- Quantifies potential future losses to existing structures
- Improves ability to identify effective mitigation actions, or areas requiring higher building code requirements, or use of flood resilient designs and construction materials
- Supports mitigation plan updates through improved risk quantification
- Supports disaster recovery planning by showing areas of highest expected damages

Intended Users:

- Planners
- Developers
- Community Officials
- Emergency Managers

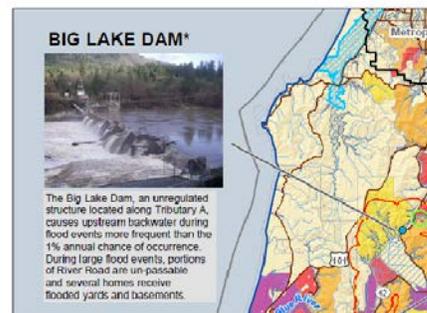
Areas of Mitigation Interest

Overview - Areas of Mitigation Interest

Items that may have an impact (positive or negative) on the identified flood hazards and/or flood risks

Examples include:

- Community Identified “Hot Spots”
- Previous Claim Areas (clusters of claim, RL, SRL)
- Riverine and Coastal Flood Control Structures (e.g. dams, levees, coastal berms, etc)
- Floodplain “Pinch Points” (e.g. undersized culverts and bridge openings, etc.)
- Significant proposed and recent floodplain development
- Locations of successful mitigation projects



Flood Risk Map Example

Flood Risk Reporting

Purpose Flood Risk Report

- **Increase General Flood Risk Awareness**
 - Risk Definitions and Causes
 - Risk Reduction Techniques and Mitigation Practices
- **Deliver Community and Project Level Results**
 - Project Results Summarized by:
 - Communities
 - Watershed or Project Area
- **Provide Information to Augment or Enhance Other Efforts**
 - Local Hazard Mitigation Planning
 - Local Emergency Management Planning
 - Local Master Planning and Building Development

All Slides courtesy of FEMA RiskMAP April 2011

This study should greatly enhance the ability of County planners to manage floodplains and coastal areas and improve future mitigation projects in Kitsap County. As a response tool, these studies will us prepare for potential flooding events in vulnerable areas. This project is scheduled for completion in 2015.

CAT II: SEVERE STORMS MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Department of Emergency Management
- Water Purveyor Association of Kitsap (Water PAK)

SUPPORT AGENCIES

- City/County/Regional Organizations
- Tribal Nations

HAZARD

Although Kitsap County has a moderate marine climate, storm activity involving rain, wind, snow and ice does affect the County. Storms have caused major damage to portions of Kitsap County. Lightning storms and hailstorms are less frequent but do occur. There is a remote possibility of a tornado causing destruction in the County.

EFFECTS

High winds have caused extensive damage through the County in past years. The main effects of local storms include disruption of electrical power, accidents and transportation problems, flooding and landslides and damage to residences and other buildings. Schools may close for several days. Businesses may function at reduced capacity for a time as employees may have difficulty getting to work or are dealing with storm related problems at home.

There are many private roads in the County which individuals must maintain themselves or as a cooperative group. Citizens can become frustrated if private snow removal equipment is inoperable or if extensive damage occurs to private roads and bridges. Realtors could make a point of informing or reminding clients that they are responsible for their own road maintenance when purchasing property on private roads.

HISTORY

High winds have caused extensive damage through the County in past years. The most noted storm was the "Columbus Day" (hurricane winds) storm of 1962. Severe winds also occurred during the Inauguration Day storm of 1993. Other storms that have severely impacted Kitsap County have occurred in: 1986, 1985, 1980, 1979, 1973, and 1971. The most severe snowstorms that have occurred in Kitsap County were: 1996, 1990, 1985, 1971, 1969, 1961, 1951, 1950 and 1949. Historically, the most severe storms occur during the autumn and winter months from October through February. On an average, Kitsap Emergency Management will make preparations for 3 potentially dangerous storms each winter season.

Addendum I to this Section provides a history of severe Storms in Kitsap County.

VULNERABILITY

Kitsap County remains highly vulnerable to the effects of rain, snow and windstorms.

CONCLUSIONS

Mitigation efforts include effective warning through the media. 3-5 day preparedness kits help people weather the storm if they are without normal utilities and comforts. Well-packed kits could be easily transported if an evacuation was necessary/possible. For those residents living in elevations prone to snowstorms, a 14-day preparedness kit is highly recommended. Any kit should include prescription medications.

Annually, Kitsap County conducts pre-storm season preparations to include briefings with County Officials to include schools, first responders and utilities; conduct winter season public education programs; and prepare equipment and resources for these types of events.

PROBABILITY OF OCCURRENCE

High - Severe storms are a fact of life in Kitsap County. Severe wind and rainstorms do not generally impact the region for long periods of time but winter snow/ice storms have shut down schools and businesses for long periods of time. Therefore, the most severe storm Kitsap County is likely to face will be a snow/ice storm. It is not unprecedented for a winter storm to leave a long lasting mark on the community by inflicting heavy financial damage on the area. Based upon historical data, the future probable severity for severe storms in the region is high. Tables II-1 and II-2 show the population and building stock affected by severe winter storms in Kitsap County.

MITIGATION STRATEGIES

1. Encourage the public sector to prepare and maintain 3-day emergency preparedness kits.
 - The lead agency would be the Department of Emergency Management.
 - Local operations budget funding is to be identified to apply for Hazard Mitigation and other grant opportunities.
 - Combination of Local funds to be budgeted and potential grant applications.

Implementation Time: Portions of this strategy are currently being implemented and they are included in these recommendations to emphasize the importance of the ongoing efforts and to support a future grant application to increase the efforts.

Implementation Cost: It is recommended that this strategy be included as part of the annual Department of Emergency Management's Public Education Program budget.

2010 Update – Ongoing support

2. Encourage Water Utility Districts to coordinate the hazard planning, mitigation and recovery activities through joint efforts of the Water PAK. These strategies would include but are not limited to:

- Coordination of restoration priorities with Puget Sound Energy
- Coordination of phone restoration with community-wide phone companies
- Participation of Mutual Aid Programs with other utilities
- Survey and retrofit facilities for high wind loads damage
- The development of a Water PAK Emergency Response Plan

Implementation Time: Portions of this strategy are currently being implemented and they are included in these recommendations to emphasize the importance of the ongoing efforts and to support a future grant application to increase the efforts.

Implementation Cost: Cost to be determined

2010 Update: Ongoing support

Note: In the past few years Kitsap County DEM has developed and implemented new programs for winter storm mitigation including the County's Alert and Warning Program and Damage Assessment Program. The Alert and Warning System provides hazard information, preparedness tips, and the ability to alert the public on impending hazardous events. The Damage Assessment Program, although used primarily for assessing private and public damage during an event, provides post event analysis to use in future predictions of storm damage and potential mitigation efforts. The program contains over 700 identified critical facilities by type and response prioritization to better assess the damage in the county and coordinated response.

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Jurisdiction	Total Population	Population in Hazard Area	% Population Affected By Hazard
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Poulsbo	9,200	9,200	100
Port Madison	5600	5600	100
Suquamish Reservation			
Port Gamble S'Klallam Reservation	1200	1200	100
Totals	258,278	258,278	100%

Table II-1: Population by Jurisdiction Affected by Severe Storms in Kitsap County 2012
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Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	270	100	5	5	100
Totals (Kitsap)	129,380	129,380	100%	513	513	100%

Table II-2: Building Stock and Critical Facilities by Jurisdiction affected by Severe Storms in Kitsap County
Kitsap County GIS figures 2012

CAT III: LAND SHIFT MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Conservation District
- City/County Community Development Departments
- City/County Public Works Departments
- Kitsap County Department of Emergency Management
- Tribal Nations (where appropriate)

HAZARD

The term landslide refers to the down-slope movement of masses of rock and soil. Slides range in size from thin masses of soil a few yards wide to deep-seated bedrock slides. Slides are commonly categorized by the form of initial failure, but they may travel in a variety of forms along their paths. This travel rate may range in velocity from a few inches per month to many feet per second, depending largely on slope, material and water content. The recognition of ancient, dormant slide masses is important as they can be reactivated by earthquakes or unusually wet winters. Also, because they consist of broken materials and disrupted ground water, they are more susceptible to construction-triggered sliding than adjacent undisturbed material.

Erosion refers to the gradual removal of soil through wind or water action. Erosion may be induced or increased by failure to use ground covers to protect soil from wind or drainage systems that allow good dispersal of storm water. Slopes on waterfront can also be severely undercut by normal wave action or large waves produced by storms. The following factors contribute to landslides and earth movements:

- Erosion caused by rivers, glaciers, or ocean/sound waves.
- Earthquakes shaking the ground and creating stress in vulnerable soils.
- Increased loads from man-made structures like roads and the weight of rain/snow and/or vegetation.
- Hydrologic issues caused by high water tables, freezing and thawing of ground or weak soils.
- Development of land, grading of roads, and the removal of vegetation
- Increases in lateral pressures like tree roots, crystallizations weakening slopes.

EFFECTS

Landslides typically and primarily cause damage to roads, railroads, sewer and water lines, homes and commercial buildings.

Landslides can occur as a result of flooding areas and/or can cause localized flooding if they impact the drainage system within the slope or bluff.

Severe slides may affect shipping and travel routes to the extent that economic loss results. This loss can be particularly severe on tourism and recreational businesses. Uncontrolled water

flow frequently causes erosion, which in turn can cause landslides. Erosion can also move soil, causing gullies, which ruins land and deltas by covering the more valuable land.

The effects of erosion are usually much less dramatic than landslides, but the final results may be more costly.

HISTORY

Several landslides have impacted Kitsap County over the last 20 years. Landslides can cause deaths, significant damage to properties, and in some cases losses of the use of land for many years do to the extensive cost to restoration. The deadly landslide on Bainbridge Island is probably the one single event that demonstrates the unpredictability and destructiveness of a landslide

Winter Storm December 1996 Bainbridge Island Landslide

In the winter of 1996, a landslide in the Rolling Bay area of Bainbridge Island forced a house off its foundation and sent the house down the hill into Puget Sound. A report by USGS provided a summary of the area from a geological perspective and the long term issues affecting other home in the area.

Landslides Triggered by the Winter 1996-97 Storms in Puget Lowland, Washington (Online edition) 1998

Kitsap County

“The Bainbridge Island landslide at Rolling Bay Walk is about three houses north of one that was pushed off its foundation on April 23, 1996 (#20, plate1.html; fig. 2). The landslide scar, deposits, and overturned house were still intact at the time of our observations, except for the disturbance caused by recovery operations. The scar of the slide was about 15 m wide, 15-20 m high, and averages 1 m deep. News reports indicated that the owner had built a retaining wall of unknown quality and design (Maier, 1997; Crist, 1997). Newspapers and a local resident indicated that the landslide happened shortly before 8:00 a.m., Sunday, January 19, 1997 (Maier 1997). A neighbor stated that the landslide lasted only a few seconds (Bjorhus and Tu, 1997). The row of houses appear to be constructed in a cut at the base of a steep bluff that rises from a narrow beach area. We observed scars of many old landslides on the bluff to the north of the houses. About five recent slides from 1996 and 1997 storms were visible along undeveloped bluffs not far north of the houses. More slides occurred at Rolling Bay Walk on March 18 and 19, 1997; these slides damaged two houses and pushed another house onto the beach (Wallace, 1997).”

Kitsap County is subject to landslide or soil erosion due to wind, water and flooding at all times of the year. Kitsap County's most recent history, the winter storm of 1996, caused the death of a family of four on Bainbridge Island and destroyed millions of dollars in both public and private property. Studies as noted above provide an avenue for ongoing analysis to mitigate landslide concerns. The report above continued to make the following conclusions:

“Although slow-moving slides were less common than debris flows, they caused significant property damage. Slow, deep-seated slides severely damaged several homes, roads, and utilities on the rim, bench, or sloping face of bluffs. Many of the deep slides appeared to result from reactivation of preexisting landslide deposits. Detailed engineering-geologic mapping to identify existing landslides before development and establishing minimum setback distances for structures at the rim of bluffs could help reduce damage caused by deep slides.

The distribution and likelihood of debris flows and shallow landslides occurring in any given area are crudely predictable. In general, such landslides occurred in the same areas and relative abundance as they have previously. Analyzing the spatial and temporal distributions of historic landslides and debris flows could aid in delineating areas of significant landslide hazard for parts of the Puget Lowland.

Though debris-flows were abundant and widespread on lake and coastal bluffs, debris flows were particularly hazardous in certain settings and any attempt to delineate debris-flow hazard zones should include the potential paths (run-out zones) as well as the source zones. Several homes on beaches or benches that were directly downslope from steep bluffs were struck and destroyed or damaged by debris flows. One such debris flow killed a family of four people sleeping in the lower level of their home, which was built directly downslope from a steep bluff.”

It concludes that the severity of any landslide is life and property and the magnitude unpredictable. But with new technology like LIDAR, and ongoing studies, improved mitigation practices and managing land use can reduce landslide threats.

VULNERABILITY

It is difficult to predict precisely when and where a landslide will occur. There are although seasonal prediction in locations normally affected by heavy rains effecting shorelines. In some cases, the amount of precipitation fallen over a period of time can predict the vulnerability of a slope.

Despite the difficulty in predicting landslides, recent research conduct by USGS in Kitsap County has been instrumental in mapping landslide areas. Using LIDAR or Light, Detection And Ranging, provides essential information about Kitsap County land mass and the geological history. LIDAR is a remote-sensing technology for measuring the shape and elevation of the earth's surface using a laser beam emitted and read from an airplane. USGS conducted a study identify and analyzing landslides throughout the county.

The USGS landslide study using LIDAR helped to map out areas vulnerable to landslides. The map provided in Exhibit III.1 shows areas in Kitsap affected by known landslide threats. It represents .8% or 32 square miles of the landmass of Kitsap a total of 179 landslides. As noted in the report, Shallow debris topples along the coastal bluffs and large (>10,000 m²) landslide complexes are the most common types of landslides. Most of these areas are noted in the Geographically Critical Areas Map Kitsap in the CAT IV: Earthquakes Sub-section.

As of this update, the specific amount of building stock or population prone to these landslides is not part of this plan due to the expediency of approval and adoption of this update. Affected areas are small and some have no structures others rural residential areas. City cores and economic bases do not show any landslides. Table III-1 below shows a list of landslides by area and additional data. Although tables III-2 and III-3 attempt to extrapolate data based on known population densities and building stock per jurisdiction. There are no known critical infrastructure facilities in these areas. As noted in the mitigation strategies, there are residential areas that could be affected by these slide areas as well as roads and other utility infrastructure. These areas are known to City and County community development. A goal of the Mitigation Planners will be to map and measure building stock and populations in these areas prior to the next plan revision.

Jurisdiction	Number of Landslides	% of total Landslides	Affected Area per Jurisdiction in Sq. Mi.
Unincorporated Kitsap County	137	76.5	24.5
Bainbridge Island	27	15	4.8
Bremerton	6	3.4	1.1
Port Orchard	3	1.7	.54
Poulsbo	0		0
Port Madison	4	2.2	.7
Suquamish Reservation			
Port Gamble S'Klallam Reservation	2	1.1	.35
Totals	179	100%	32

Table III-1: LIDAR defined landslides Kitsap County.

USGS Landslides Mapped from LIDAR Imagery, Kitsap County Washington 2008

**Gross estimate if all landslide areas were averaged.*

Information extrapolated based on population or building density and may not represent actual numbers, but the limit on affected citizens and building stock.

Kitsap County continues to be impacted by landslides and erosion issues with each new winter storm. Soil erosion continues to occur, especially at steep slopes and construction sites during wind and rain storms.

CONCLUSIONS

The most significant effects of landslides are injury or death, disruption of transportation and the destruction of property. Future studies and effective land use management will help to mitigate landslide prone areas and minimize the affect on the public and infrastructure.

Kitsap County has identified slide hazard areas and required geotechnical investigation and preventative improvements before development can take place on top of or below slopes subject to sliding through the:

- Kitsap County Critical Areas Ordinance, revised May, 1998
- Bainbridge Island Critical Area Ordinance, February, 2006
- Bremerton Critical Land Ordinance, March, 2006
- Port Orchard Interim Critical Area Ordinance, December 2009
- Poulsbo Municipal Code 16.20 Critical Area Ordinance, July, 2007

However, the County needs to conduct more public education concerning construction of single-family structures in slide hazard areas and to reduce efforts to develop these areas.

Human-caused erosion at building sites must be controlled through good engineering and construction practices, i.e., the removal of trees from slopes in or near residential areas.

Farming must conform to established erosion control practices to conserve topsoil.

PROBABILITY OF OCCURRENCE

High - The State of Washington rates landslide losses second to flood losses for the state as a whole, with the Puget Sound basin having the greatest vulnerability. This is because of increased population density and development on and below bluffs and slopes. As referenced in a series of sensitive area maps, the County has several landslide hazard areas ranging from low to very high hazard rating. Areas with the largest landslide risk are generally at some distance from development, although an event would likely impact roads and lifelines.

Based upon historical data, the future probable severity for land shifts in the region is high.

MITIGATION STRATEGIES

1. Identify and implement agricultural area erosion control measures to aid in mitigation of identified land shift related problems. The lead agency would be the Local Conservation District in coordination with the Community Development Departments.

- Funding recommendations are to seek State and Federal support funds.

Implementation Time: 1 to 9 years

Implementation Cost: Initial study to identify erosion problem areas and apply mitigation strategies costs is estimated to be \$178,000.

2. Identify and recommend landslide mitigation measures for implementation throughout the community. See Exhibit III-1– Hazard Mitigation Plan Maps, Known Landslides.

Task 1: Identify potential land shift areas based upon historic data and existing geologic studies of the area (to include the addition of the Illahee Coastal Bluffs).

Task 2: Identify the resources to do the study for areas of influence located near critical areas and the contribution those areas of influence exert on the land shift problems in the identified critical areas.

Recommendation: This would entail setting up a process by which each jurisdiction would submit the geo-technical and geologic reports received as part of the land use and permitting process to the Kitsap County Dept. of Emergency Management (DEM) for review and indexing. Staff at DEM would need to be knowledgeable in this field and the information on file would need to be readily accessible.

- Take land shift Hazard Mitigation issues and recommendations to the Emergency Management Council for increased community-wide support.

2010 Update: Done – however no funding available for additional work

- Identify and recommend slide mitigation strategies for existing structures and future remodeling of structures.

2010 Update: Done – however no funding for additional work.

- Conduct a study to identify potential mitigation steps for the reduction of risk to life and property from landslides.
- Study and improve runoff control systems for slide prone areas.
- The lead agency would be the appropriate City or County, Tribal Nations Community Development Departments.
- Establish a regionally funded program to review geotechnical and geologic reports submitted as part of the planning and permitting process.

2010 Update: Not complete – no funding allocated.

- Develop a Task List to include preferred providers and peer review methodology. Include minimum requirements for preferred providers to include 5 years in soil related work.
- Identify slide-prone areas and study specific mitigation steps to reduce existing risk and prevent increased risk. Examples of areas of this type are listed below:

1. Rolling Bay Walk
2. Crystal Springs Drive
3. Rockaway Beach
4. Fort Ward Hill
5. Prospect Point
6. Kingston Bluff
7. Suquamish Bluff
8. Hood Canal Bluff
9. Lower Wheaton Way Canyon

- Pursue pre-disaster and post-disaster Small Business Administration (SBA) loans for the implementation of landslide, slippage, erosion, and subsidence abatement strategies.

2010 Update – no declared disasters thus no funding from SBA

- Tribal Nations have sovereignty from County land use requirements. Tribal Nations will need to work on identification and mitigation measures on Tribal lands when grant funding/personnel are available.

Note: Funding for the above mitigation strategy recommendations would be Local unbudgeted funds combined with State and Federal Grants and administrative program funding. Although, recently conducted LIDAR Studies have been beneficial to the increased understanding and location of landslides in Kitsap. Since the studies, more refined mitigation strategies can be developed.

Implementation Time: 1 to 3 years with ongoing project projection of 1 to 9 years.

Implementation Cost: It is recommended that \$150,000 be identified to start the engineering and cost studies needed to support this strategy.



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

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Version 1.0

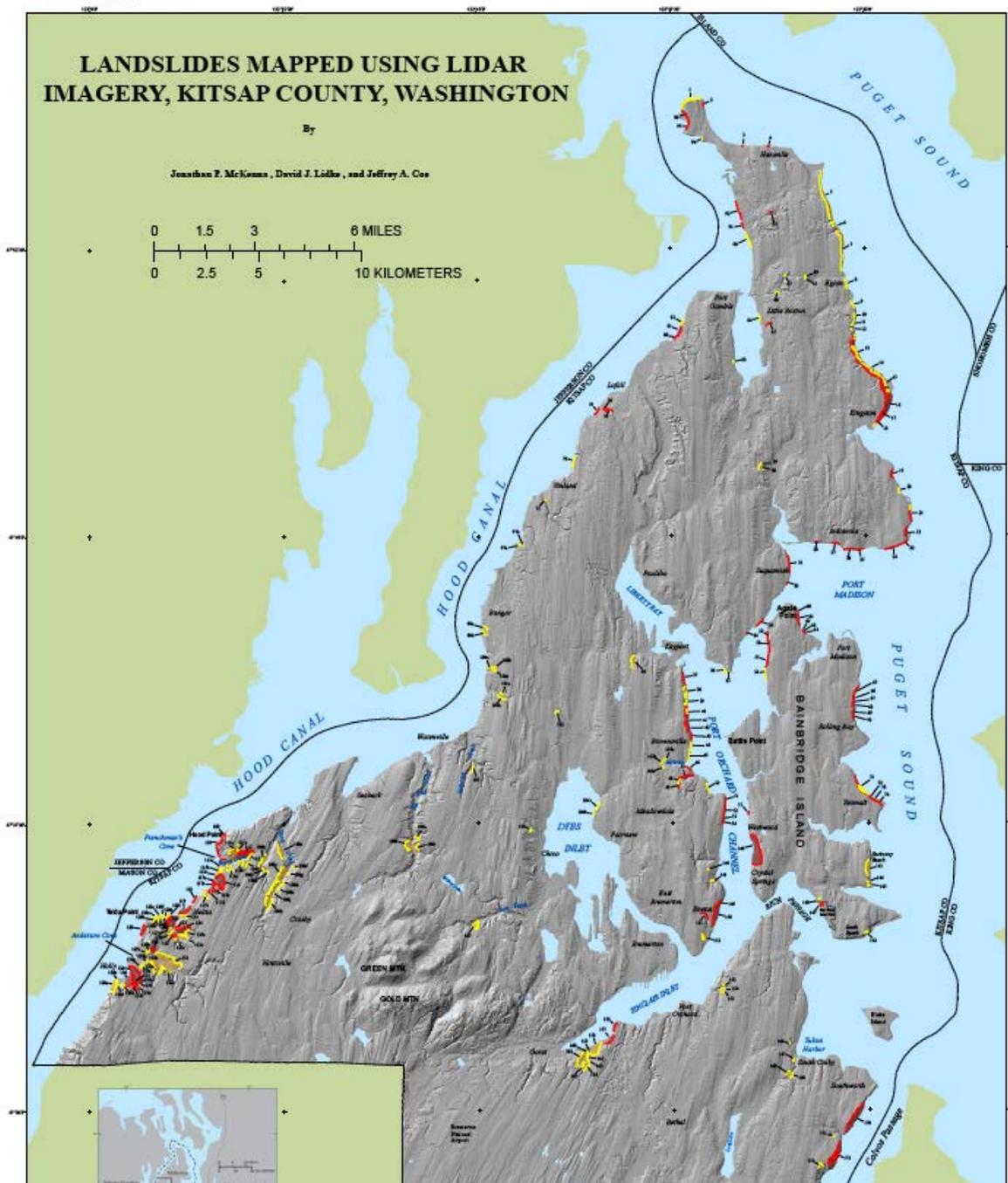


Exhibit III-1. Landslides Prone areas in Kitsap County.
USGS Landslides Mapped from LIDAR Imagery, Kitsap County Washington 2008

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Jurisdiction	Total Population	Population Density	Population in Hazard Area	% Population Affected
Unincorporated Kitsap County	164,595	642	15,729	9.5
Bainbridge Island	22,010	735	3528	1.6
Bremerton	37,729	1644	1808	4.8
Port Orchard	11,144	1910	1031	9.3
Poulsbo	9,200	2121	00	0.0
Port Madison	5,600	590	413	7.3
Suquamish Reservation				
Port Gamble S'Klallam Reservation	1,200	461	161	1.3
Totals	258,278		22,670	8.7%

Table III-2: Population by Jurisdiction affected by Land Shift Hazards in Kitsap County
Kitsap DEM and GIS Data

Information extrapolated using square miles affect by the hazard and jurisdiction population densities.

Jurisdiction	Total Building Stock	Average Building Stock per Sq. Mi.	Building Stock in Hazard Area	% Building Stock in Hazard Area	Total Critical Facilities	Total Critical Facilities in Hazard Area
Unincorporated Kitsap County	87,985	261	6396	7.2	249	0
Bainbridge Island	12,639	456	2190	17.3	83	0
Bremerton	13,683	605	625	4.5	64	0
Port Orchard	6,708	1368	739	11.0	39	0
Poulsbo	3,516	925	00	0.0	66	0
Port Madison	4,579	416	291	6.3	7	0
Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	104	36	13.3	5	0
Totals (Kitsap)	129,380		10,277	7.9	513	0*

Table III-3: Building Stock by Jurisdiction affected by Land Shift Hazards in Kitsap County
Kitsap DEM and GIS Data

Information extrapolated using total square miles per jurisdiction to extract average building stock per square mile. *Total critical facilities in hazard area are zero (0) based on review of Hazard area and Critical Facility Database (not provided). Although these known hazard areas may contain roads (county/city) and utility infrastructures.

CAT IV: EARTHQUAKE MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Emergency Management Council
- City/County Public Works Departments
- Kitsap County Department of Emergency Management

SUPPORT AGENCIES

- Kitsap County Geographic Information System (GIS) Department
- US Geological Survey (USGS)
- University of Washington (UW) Geology Department

HAZARD

The Puget Sound region is entirely within Seismic Risk Zone 3, (Seismic Zone Map) requiring that buildings be designed to withstand major earthquakes measuring 7.5 in magnitude. It is anticipated, however, that earthquakes caused from subduction plate stress can reach a magnitude greater than 8.0.

A seismic zone map in Exhibit IV-1 is based on a statistical compilation of the number and the magnitude of past earthquakes. Therefore, it is an indication of where the next earthquake is most likely to occur, how often and the magnitude. There is no direct correlation between seismic zone and Richter scale, except past experience shows that the worst earthquakes occur in the higher seismic zones.

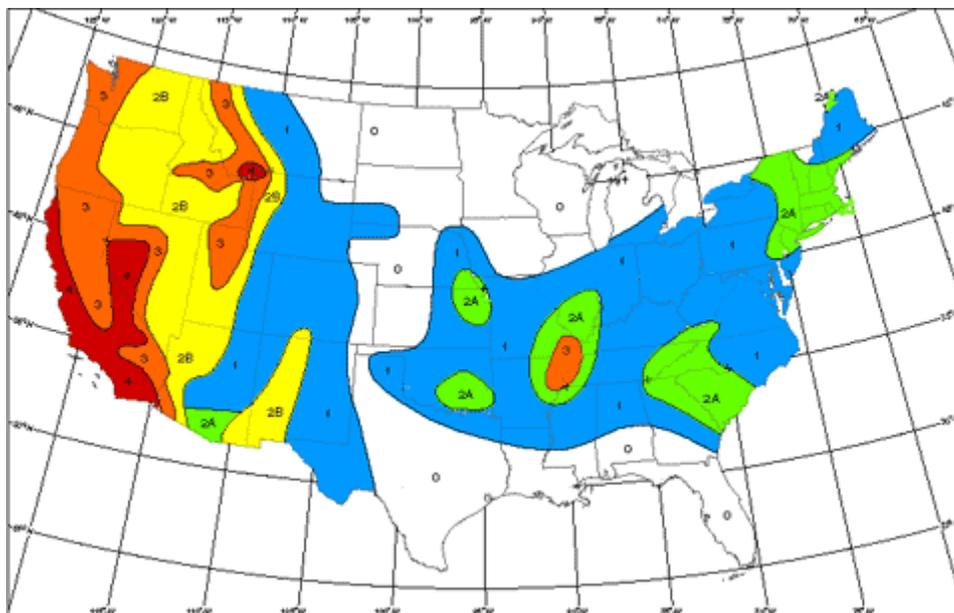


Exhibit IV-1: Seismic Zone Map (Courtesy USGS)

EFFECTS

Effects of a major earthquake in the Puget Sound basin area could be catastrophic, providing the worst-case disaster short of drought-induced wild fire sweeping through a suburban area. Hundreds of residents could be killed and a multitude of others left homeless.

In Kitsap County, depending on the time of day and time of year, a catastrophic earthquake could cause hundreds of injuries, deaths and millions of dollars in critical infrastructure and private property damage.

A severe earthquake could level or severely damage older buildings, especially those constructed of non-reinforced masonry. Newer structures, built under recent building codes, would probably sustain less damage, but are vulnerable to the soil conditions of the building site.

A severe earthquake would also do major damage to County and City utilities. Depending on the earthquake epicenter and duration of the earthquake, major damage or failure of Casad Dam could occur. Water systems in the County would suffer ruptured mains and possible failure of local water reservoirs. Sanitary sewer and storm water piping and associated spills are also probable.

Electrical and natural gas utilities would also suffer major damage. Failed transformers and downed electrical lines would create massive power failures in the County. Ruptured gas lines would create conditions for large fires and explosions.

Public communication facilities (i.e., radio, television, and telephone systems) would be damaged. Surviving telephone systems would likely be overloaded almost instantly. Radio and television services may take days or weeks to recover.

Emergency services (i.e., fire, medical, search and rescue) would be instantly overwhelmed by the amount of damage and injury throughout the County.

County and City Public Works Departments would be very hard-pressed to establish a working road net for essential services, especially if bridges become damaged. At a minimum, bridges in an affected area would have to be inspected prior to use.

Emergency food and shelter would be needed for possibly thousands of persons forced from their homes or isolated by damaged roads and bridges.

Since a catastrophic earthquake would likely affect more communities than Kitsap County, the likelihood of immediate assistance from sources outside the County would be remote.

Earthquakes of lesser magnitude or further from the County would cause less damage and displacement, but the County could find itself faced with a large influx of refugees.

Depending on the damage and injuries caused by an earthquake, businesses may close, unemployment may rise and economic loss might occur.

HISTORY

The part of Washington State east of the Cascades has historically been subject to shallow, though infrequent, smaller earthquakes up to a magnitude of 6.0. The western part of Washington State is vulnerable to the following earthquake risks:

- A magnitude 7.5 event of 40 or more kilometers in depth
- A magnitude 6.5 event at a shallow depth in the vicinity of Mt. St. Helens
- A magnitude 7.5 event at a shallow depth anywhere in western Washington of uncertain probability.
- Subduction-plate earthquakes can reach magnitudes greater than 8.0

Nisqually Earthquake 2001

On February 24, 2001, a 6.8 magnitude earthquake struck the Puget Sound Region. The Region suffered moderate damage and no deaths. In Kitsap County, over 750 residents received minor to major damages resulting in \$900,000 in Individual Assistance. Public Assistance was \$1.5 million for roads and infrastructure damaged by the Earthquake. As a result of the event, Kitsap developed better programs to prepare citizens and public entities as well as provide educational courses in home and business retrofitting.

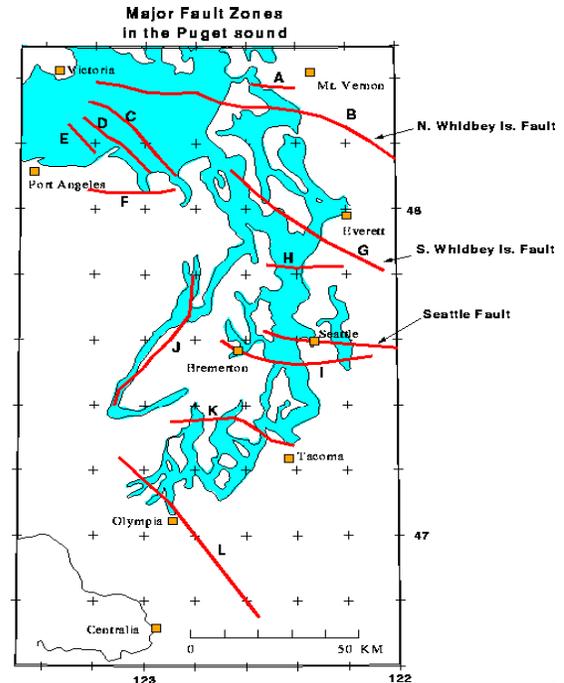
VULNERABILITY

Kitsap County will remain vulnerable to earthquakes. The largest estimated magnitude is 8.0, which would be catastrophic in nature. The exhibits below show the numerous seismic faults in the Puget Sound Region. HAZUS modeling, a FEMA product used to develop potential scenarios and effects from earthquakes, has been essential in defining damage estimates and outcomes. Although Kitsap does not use HAZUS, it does use the scenarios provided in the USGS HAZUS and Shake Map Library and tailors them to conduct earthquake exercises, training, and evaluate areas for mitigation.

It is obvious, that an earthquake can cause any number of hazards presented in this mitigation plan other than a terrorism event; particularly landslides and flooding. Any effort to mitigate these hazards can potentially lessen the impact of an earthquake.

Kitsap County is also vulnerable to potential liquefaction damage as a result of a catastrophic earthquake. Liquefaction is a phenomenon in which strong earthquake shaking causes soil to rapidly lose its strength and behave like quicksand. Liquefaction typically occurs in artificial fills and in areas of loose sandy soils that are saturated with water, such as coastal areas, lakeshores, and river valleys. During an earthquake liquefaction can be catastrophic as noted in the recent earthquake in Christchurch New Zealand 2010). Exhibit IV-5 and IV-6 show areas in Kitsap County susceptible to liquefaction. The information can be critical in land development and determining current building stock or populations in these defined areas.

Exhibit IV-2 Major Fault Zones in the Puget Sound Region



Illustrates known major fault lines that may affect Kitsap County.

Cascadia earthquake sources

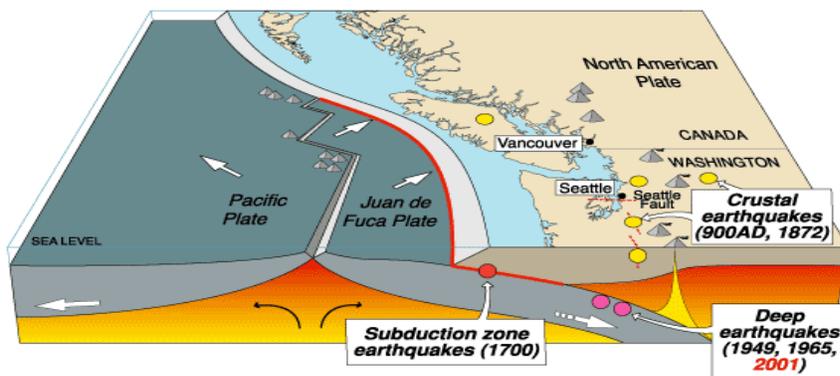


Exhibit IV-3 Cascadia Subduction Earthquake Sources

Source	Affected area	Max. Size
● Subduction Zone	W.WA, OR, CA	M 9
● Deep Juan de Fuca plate	W.WA, OR,	M 7+
● Crustal faults	WA, OR, CA	M 7+

Illustrates the Cascadia subduction seismic events that may affect Kitsap County. These are huge earthquakes as a result of the movement between oceanic and continental plate movement. These events can be catastrophic causing tsunamis, significant shaking, and major landslides.

CONCLUSIONS

Kitsap County will experience major earthquake effects. Mitigation efforts must be instituted and maintained to decrease potential problems from major earthquakes. They are:

1. Examination, evaluation and enforcement of effective building and zoning codes.
2. Public education on what to do before, during and after an earthquake.
3. Development of appropriate County and City government response plans. Response should include detailed immediate action to save resources such as water and gas supplies. Plans should be realistically exercised at the County and City levels to insure workability and relevance to disaster response.

VOLCANO Eruptions

As noted in Section II of this plan, the eruption of Mt St. Helens in 1981 resulted in a statewide disaster affecting numerous Counties due to ash fallout. It is listed in the History of Disasters, but did not affect Kitsap County. Mt St Helens is part of a string of classified volcanic peaks in the Cascade Mountain Range. The closest volcano to Kitsap is Mt Rainer. The question for Kitsap is "is a volcano eruption a hazard to Kitsap County and can we mitigate this hazard?"

Should a volcano eruption occur, it could occur because of an earthquake or on its own over time. Should it occur because of an earthquake, obviously Kitsap County would experience the earthquake. The volcano eruption would cause a potential Lahar as well as cataclysmic upheaval followed by fallen ash. Due to prevailing winds (west to east), and affects of the Puget Sound waters, the likelihood of Kitsap receiving any fallen ash is very low and does not warrant any mitigation efforts.

Although, should a volcanic eruption occur at Mt Rainer or Mt Baker in the North Cascades, Kitsap County would monitor and provide assistance as necessary to support our partners in the Puget Sound Region.

As a whole, agencies/jurisdictions represented in this plan do not need to conduct any further analysis on volcanic eruptions.

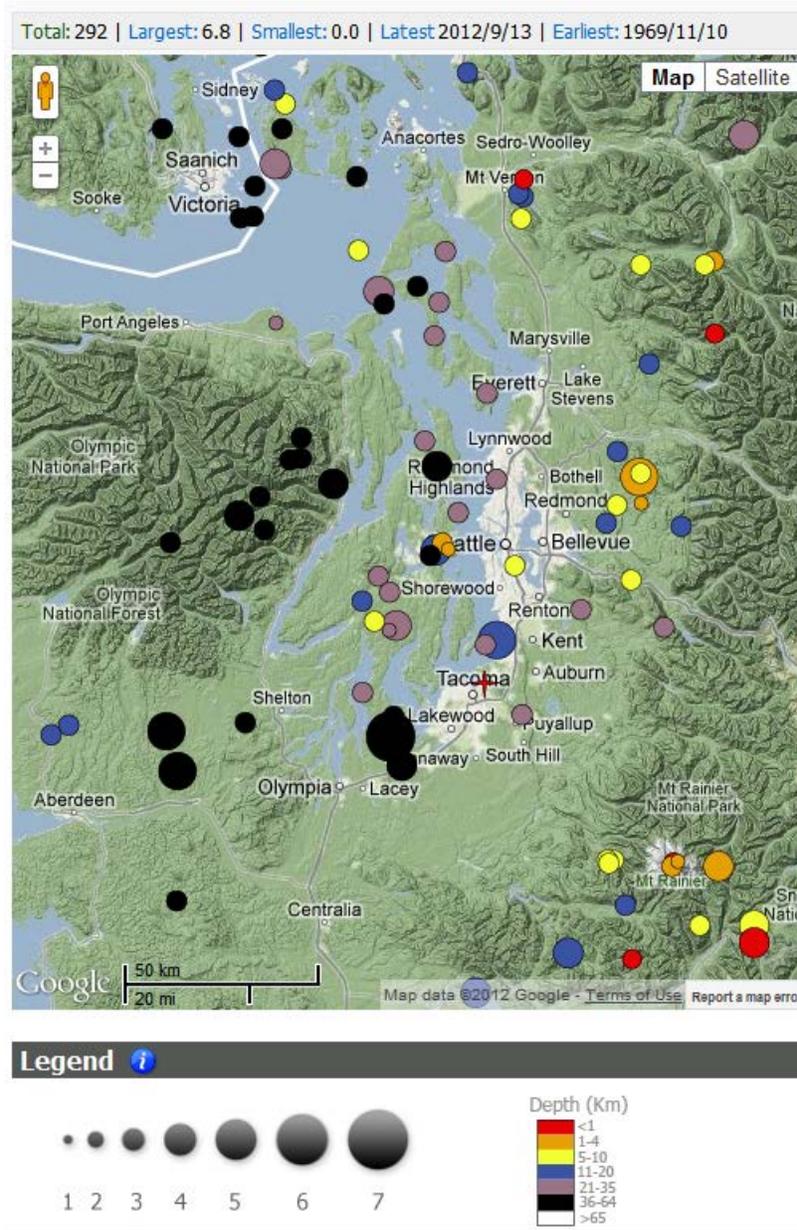


Exhibit IV-4: Notable earthquakes from 1969 to present are shown, with size proportional to magnitude and color indicating depth.

Courtesy: Pacific Northwest Seismic Network.

Table IV-1: History of Major Earthquake in Washington State

The following descriptions are for the earthquake sites in or near Kitsap County:

Washington State Significant Earthquakes					
Date	Time (PST)	Latitude Longitude	Depth (Km)	Mag	Location
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°43'	52.4	6.8	17.6 km NE of Olympia
January 30, 2009	1325	47.78N 122.56W		4.5	Kingston

Table extrapolated from WA State HIVA, Table 4

PROBABILITY OF OCCURRENCE

High - Washington State is situated near a tectonic collision boundary where the oceanic Juan de Fuca plate dives beneath the continental North American plate. The plate boundary is the Cascadia Subduction Zone which lies about fifty miles offshore, extending from near Vancouver Island to northern California. These plates are converging at a rate of 1 to 1 ½ inches per year.

As the Juan de Fuca plate slides beneath the North American plate, cracks or faults develop at their boundary and at the surface in response to bending. The friction caused by this sliding movement tends to stick the two plates or two sides of a fault together. Over time, tremendous pressure builds up and friction is overcome. When this happens, one plate or one side of a fault moves relative to the other plate or side resulting in the sudden release of energy that is felt as an earthquake. According to the United States Geological Service, Kitsap County is a high-risk area for earthquakes.

Based on the history of the San Juan Fault and the calculated earthquake frequencies, the future probable severity for earthquakes in the region is high.

MITIGATION STRATEGIES

1. Design and implement an ongoing community-wide public seismic risk assessment program. The Emergency Management Council will have responsibility for this strategy. Local agencies including the Public Works Departments, Community Development Departments and the Department of Emergency Management will share lead responsibilities for this strategy, as appropriate. This project will require specific task development and may need to be based on the implementation of a community-wide GIS System and/or the implementation of Geologic Mapping Strategy number three.

Implementation Time: 1 to 6 years

Implementation Cost: These costs will need to be determined after the identified agencies/departments meet to determine the costs.

2. Identify and study ground motion, landslide, and primary liquefaction community-wide. Include new data from most recent earthquake studies affecting Kitsap County.

The lead agency at the Local level for this project would be the appropriate Public Works Departments and the Department of Emergency Management with additional support required from the US Geological Survey and the University of Washington Geology Department.

- A special resource to be considered for implementation of this strategy would be to request grant funding to use college and university graduate students for the planning and implementation of the study.
- A recommended result of the study would be the ability to create liquefaction hazard mapping.

Implementation Time: 1 to 3 years

Implementation Cost: Estimates for support of a graduate student is \$75,000. This contribution may be able to be used towards the collaborative USGS-UW Geologic mapping effort to consolidate projects and cost sharing.

2010 update – The County has participated in LIDAR Mapping which assists Kitsap County in pre-identifying faults.

3. Develop and implement an incentive program for seismic retrofit.

- Community Development agencies and the building industry will be the lead agencies for this program. Funding has not been identified.
- Constraints for this program are based upon the State of Washington authority to approve tax incentives for mitigation programs. Local incentives would require cooperation with insurance brokerage firms to lower rates on seismically retrofitted homes.
- Incentive funding programs can be explored and modeled after Project Impact Communities for community revolving low interest loans and loan of tools to accomplish the retrofit program.

Implementation Time: 3 to 5 years

Implementation Cost: An estimated \$36,000 for staff time would need to be set aside to explore potential implementation of an earthquake seismic retrofit program.

2010 Update – Delayed, funding not available.

4. Implement a community-wide water main and water delivery system risk assessment. Formulate alternatives to mitigate risk.

- Lead agencies for this strategy would be the Public Utility Districts, Water Purveyors, City Utilities and public/private system owners or operators, where appropriate.
- In addition to Local operational budgets, this project would require matching grant funds.
- Coordinate the risk assessment with the identification of fire hydrants and perform risk analysis for fire protection.

Implementation Time: 1 to 3 years

Implementation Cost: Funding to be identified.

2010 update: Both Silverdale Water and North Perry water have been working on tying the two systems together.

5. Promote public seismic risk retrofit for commercial sector and residential sector to include foundation bolting, tie downs, and necessary bracing actions.
- Lead agencies and private groups for this strategy would include the Board of County Commissioners and Mayors through the Emergency Management Council, Housing Authority, Local Chambers of Commerce, Department of Emergency Management, City/County Public Works Departments, at-risk population service agencies, and volunteer organizations.
 - Special Resources considered for this project could include volunteer groups, matching grant applications, private donations, and Housing Authority support.
 - Propose the utilization of Small Business Administration pre-disaster mitigation loans for portion of the funding needed.

Implementation Time: 1 to 4 years

Implementation Cost: Work toward establishing a moderate, low interest community revolving loan program of 7 to 10 million dollars. Funding for this loan program would be modeled after the FEMA Project Impact Mitigation Strategies and would be dependent upon the community financial and real estate private sector assistance.

2010 update: delayed until 2014

2010 Update: 2004 priorities 3 and 6 downgraded to Section 4 Strategies and Recommendation: Priority 2 due to funding.

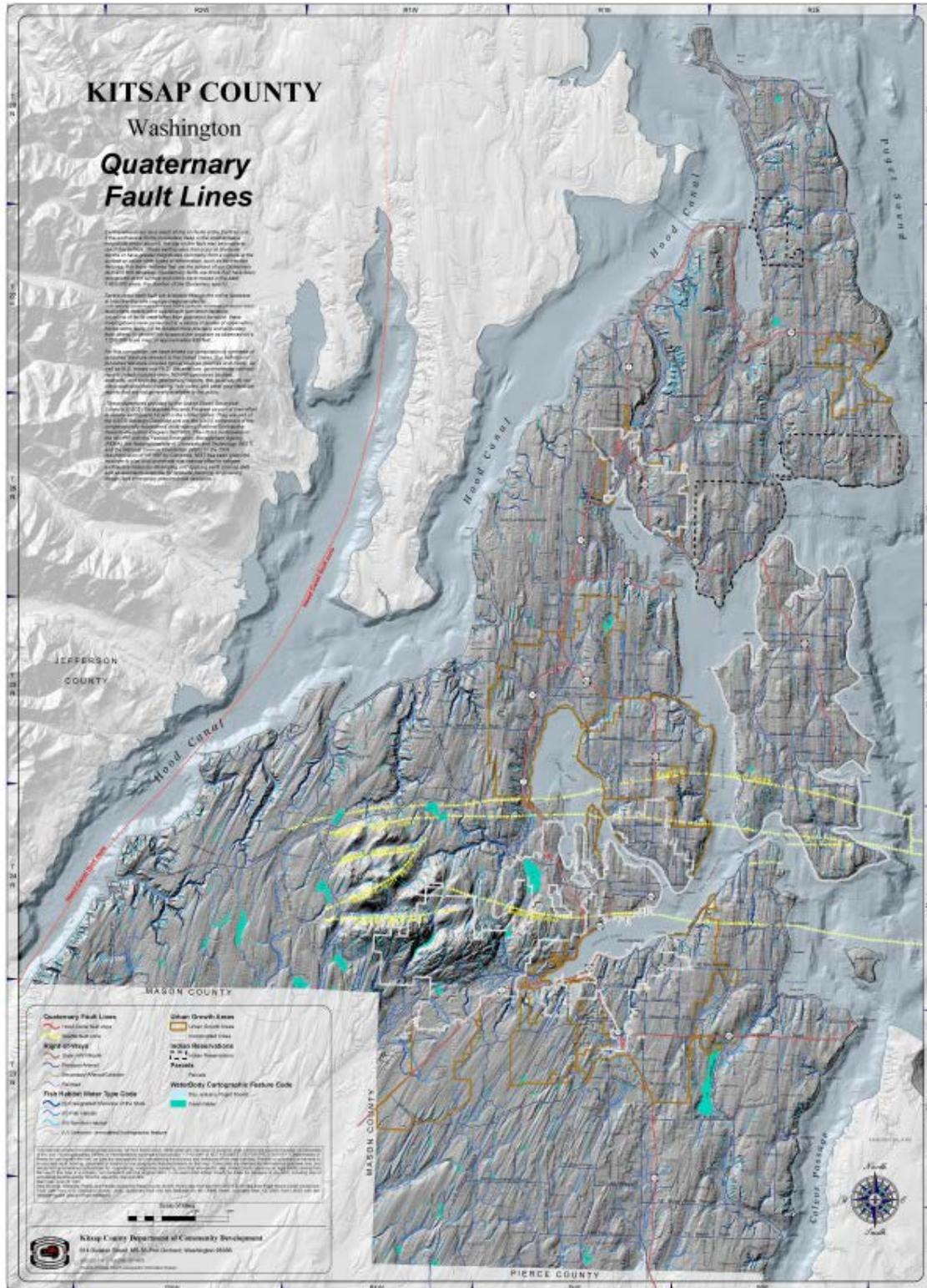


Exhibit IV-8: Quaternary Fault Lines Kitsap County

Kitsap County GIS Mapping

Shows potentially hazardous areas, major earthquakes and fault lines. Yellow lines indicate fault lines.

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Jurisdiction	Total Population	Population in Hazard Area (Approx.)	% Population Affected by Hazard Jurisdiction
Unincorporated Kitsap County	164,595	164,595	100
Bainbridge Island	22,010	22,010	100
Bremerton	37,729	37,729	100
Port Orchard	11,144	11,144	100
Poulsbo	9,200	9,200	100
Port Madison	5600	5600	100
Suquamish Reservation			
Port Gamble S'Klallam Reservation	1200	1200	100
Totals	258,278	258,278	100%

Table IV-2: Population by Jurisdiction affected by Earthquakes
Kitsap County GIS figures 2012

Jurisdiction	Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction	Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
Unincorporated Kitsap County	87,985	87,985	100	249	249	100
Bainbridge Island	12,639	12,639	100	83	83	100
Bremerton	13,683	13,683	100	64	64	100
Port Orchard	6,708	6,708	100	39	39	100
Poulsbo	3,516	3,516	100	66	66	100
Port Madison	4,579	4,579	100	7	7	100
Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	270	100	5	5	100%
Totals (Kitsap)	129,380	129,380	100%	513	513	100%

Table IV-2: Building Stock and Critical Facilities by Jurisdiction affected by Earthquakes
Kitsap County GIS figures 2012

CAT V: DROUGHT MITIGATION STRATEGIES

LEAD AGENCIES

- Public Utility Districts (all)
- Water Purveyors (all)

SUPPORT AGENCIES

- Kitsap County Fire Agencies
- Kitsap County Health District
- Tribal Nations

HAZARD

A drought is defined as "a period of abnormally dry weather, sufficiently prolonged for the lack of water to cause a serious hydrologic imbalance (i.e., crop damage, water supply shortage, etc.) in the affected area."

EFFECTS

The possibility of a prolonged drought exists in Kitsap County. Average annual rainfall is about 64 inches; however, there is a considerable difference in precipitation levels within the County. Several consecutive, hot, dry summer months can create parched and tinder-dry conditions.

Extremely dry conditions could force the closure of forests to recreation, hunting, camping and hiking, Camp fires and outdoor burning are often limited for a couple of months each summer and longer during extremely dry conditions.

Mitigation efforts should include public information on water conservation, which would discourage unnecessary water waste. The mitigation activities listed under FOREST-URBAN INTERFACE FIRES also apply due to the increased potential for forest fires during a drought.

Large areas supplied by one water system might have to resort to rationing. Residents on private wells should be prepared with water barrels in the event their wells become temporarily dry.

HISTORY

Historically, drought has not commonly been considered a problem in the area west of the Cascade Mountain Range. In spite of this, Kitsap County has felt the effects of drought many times in the past and will continue to do so in the future. Multiple measurable and documented droughts have hit the region in the past 100 years but the following three are the most notable:

- April 1934 – March 1937: The longest drought in the region's history.
- October 1976 – September 1977: The worst drought on record. Stream flows averaged between 30% and 70% of normal. Temperatures were higher than

normal, which resulted in algae growth and fish kills.

- January – March 2001: the second driest winter on record in 106 years. Stream flows approached the low levels of the 1976-77 drought.

VULNERABILITY

Kitsap County's population and industries continue to grow, so does the demand for water. As usage approaches the limit of available water, any decrease in the normal flow will tend to exacerbate past problems. The county does not need a full-blown drought to experience a water shortage.

Kitsap County is vulnerable to drought in the logging and wood products industries as well as the recreational areas. Loss of income from hunters, campers and tourists would not have a devastating effect on Kitsap County economics.

Besides the forests, local agriculture can be devastated by a prolonged drought. A shortage of water will also impact certain industries that depend on inexpensive water supplies, such as laundries and restaurants. In the event of severe drought, the fire fighting capabilities of fire agencies can be impacted.

USGS Ground Water Study

USGS in partnership with Kitsap County Public Utilities District PUD #1 is currently conducting a study to characterize the groundwater-flow on the Kitsap Peninsula. Kitsap is obviously unique in that it is surrounded by water on three sides and consequently, water demands from growing population and industry use may find limitations. The purpose of the study is to develop a model using numerical flow information and provide useful planning information for watershed management in the future. This study is consistent with National USGS missions and goals to define water-resource issues as part of their Science Strategy. As noted in Exhibit V-1, ground water flow meters are placed to capture ground water data to evaluate the flow system. The expectation is that USGS will access mapping programs and LIDAR to further evaluate and provide digital mapping.

CONCLUSIONS

Droughts will continue to occur in Kitsap County. Drought-related forest and other wildfire will continue to occur in the County. During periods of drought, County and City governments must perform public education concerning water conservation and, when needed, institute water conservation activities such as prohibition of lawn watering and car washing.

Tables V-1 and V-2 show Population and Building Stock potentially affected by a significant drought event.

PROBABILITY OF OCCURRENCE

Medium - "Empirical studies conducted over the past century have shown that meteorological drought is never the result of a single cause. It is the result of many causes, often synergistic in nature; these include global weather patterns that produce persistent, upper-level high-pressure systems along the West Coast with warm, dry air resulting in less precipitation.

Scientists at this time do not know how to predict drought more than a month in advance for most locations. Predicting drought depends on the ability to forecast precipitation and temperature. Anomalies of precipitation and temperature may last from several months to several decades. How long they last depend on interactions between the atmosphere and the oceans, soil moisture and land surface processes, topography, internal dynamics, and the accumulated influence of weather systems on the global scale.

Based on the state's history with drought from 1895 to 1995, the state as a whole can expect severe or extreme drought at least 5 percent of the time in the future. The east slopes of the Cascades and much of Western Washington can expect severe or extreme drought from 5 to 10 percent of the time." (*Washington State Hazard Mitigation Plan*)

MITIGATION STRATEGIES

1. Provide for additional research and compilation of water resource data regarding aquifer recharge areas. Identify long-term priorities vs. short-term priorities. The recommendation for implementation would be to partner with water purveyors, well owners, Tribal Nations, nursery owners, homebuilders, architectural and professionally certified programs including community vocational education classes.

Implementation Time: 1 to 3 years

Implementation Costs: Funding to be identified.

2010 update: See Discussion above regarding USGS Ground Water Study

2. Identify cost effective water conservation measures to be developed and implemented. Public Utility Districts and Water Purveyors are identified as the lead agencies for mitigation strategy implementation.
 - Fire Agencies, Tribal Nations and the Health District are recommended as SUPPORT AGENCIES to work with the lead agencies.

Implementation Cost: Funding Sources: Current Local agency budgets.

Implementation Time: 1 to 3 years

Note: Portions of this program are currently ongoing and it is recommended that the strategy continue to receive agency and community support.

2010 update: *Continue to support all three agencies in their endeavors to do this mitigation strategy.*

3. Formulate policies for conservation of water during times of water shortage and drought, policies to be implemented by governments, citizens, and businesses. This type of policy implementation is an ongoing program.
 - The Public Utility Districts, Water Purveyors and Tribal Nations are identified as the lead agencies for mitigation strategy implementation with the support of the Fire Agencies and Health Districts.

- Funding sources identified for policy formulation as an ongoing project with Local budgeted funds is recommended. Future consideration for implementation of policies to potentially require utility rate increases.

Implementation Time: 1 to 3 years

Implementation Cost: To be projected and identified within current operational project budgets.

2010 update: Ongoing... both Emergency Management and the Utility, Water Purveyors and Tribal Nations have brochures etc., to assist in this project.

Jurisdiction	Total Population	Population in Hazard Area (Approx.)	% Population Affected by Hazard Jurisdiction
Unincorporated Kitsap County	164,595	164,595	100
Bainbridge Island	22,010	22,010	100
Bremerton	37,729	37,729	100
Port Orchard	11,144	11,144	100
Poulsbo	9,200	9,200	100
Port Madison	5600	5600	100
Suquamish Reservation			
Port Gamble S'Klallam Reservation	1200	1200	100
Totals	258,278	258,278	100%

Table V-1: Population by Jurisdiction affected by Significant Droughts
Kitsap County GIS figures 2012

Jurisdiction	Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction	Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
Unincorporated Kitsap County	87,985	87,985	100	249	249	100
Bainbridge Island	12,639	12,639	100	83	83	100
Bremerton	13,683	13,683	100	64	64	100
Port Orchard	6,708	6,708	100	39	39	100
Poulsbo	3,516	3,516	100	66	66	100
Port Madison	4,579	4,579	100	7	7	100
Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	270	100	5	5	100%
Totals (Kitsap)	129,380	129,380	100%	513	513	100%

Table V-2: Building Stock and Critical Facilities by Jurisdiction affected by Droughts
 Kitsap County GIS figures 2012

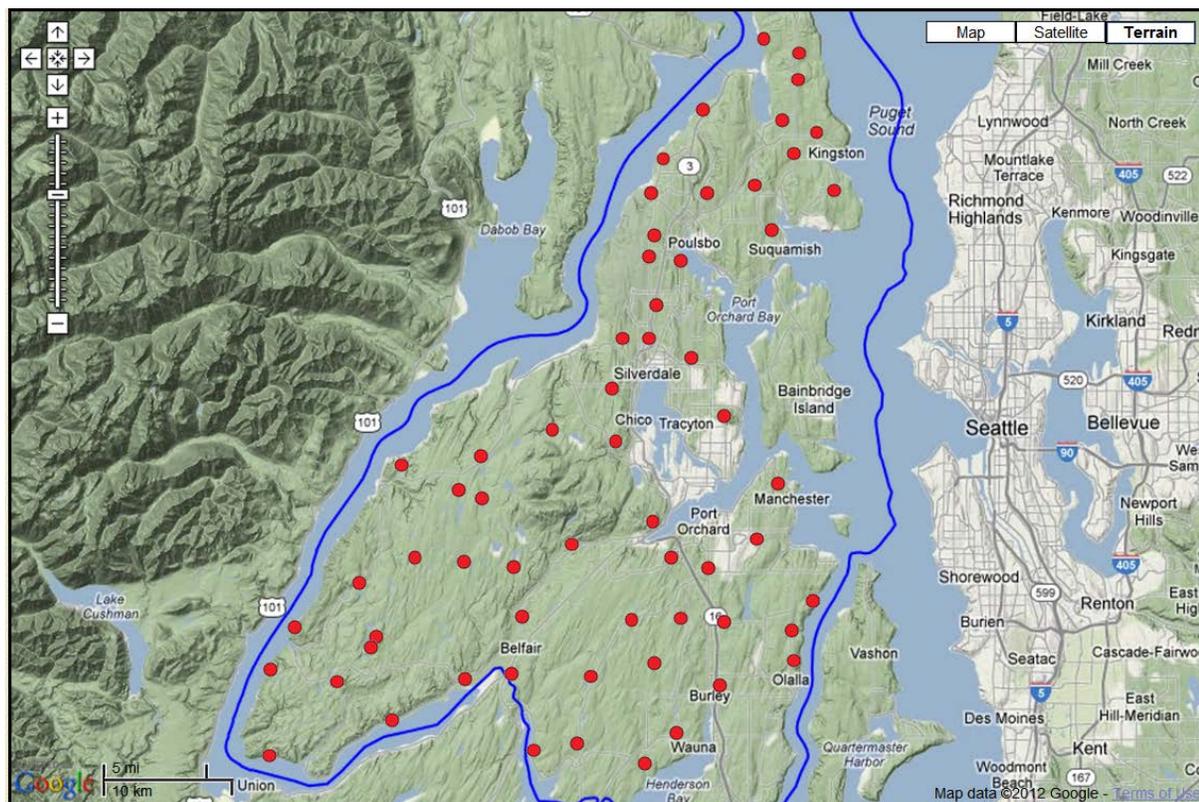


Exhibit V-1. Ground Water Monitoring Wells
 USGS Water Science Center, 2012.

CAT VI: TSUNAMI MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Emergency Management Council
- Kitsap County Department of Emergency Management
- City/County Public Works Departments

SUPPORT AGENCIES

- Washington State Division of Emergency Management
- Area Chambers of Commerce
- City/County GIS Departments
- Washington State Department of Transportation

HAZARD

A tsunami consists of a series of high-energy waves that radiate outward like pond ripples from the area in which the generating event occurred. Typically they are triggered by earthquakes, volcanic activity, and submarine landslides or in the case of Puget Sound, most often by local landslides from surrounding bluffs.

Siècles are basically a series of standing waves in an enclosed or partly enclosed body of water. Siècles are normally caused by earthquake activity, and can affect harbors, bays, lakes, rivers and canals.

EFFECTS

Much of Kitsap County is surrounded by water, from the Puget Sound to the Hood Canal. With so much shoreline in the county, a tsunami, high waves, or a siècle would have a devastating affect on Kitsap County residents. Flooding would occur, property damage would be sustained and residents would be displaced.

Aside from the tremendous hydraulic force of the tsunami waves themselves, floating debris carried by a tsunami can endanger human lives and batter inland structures. Ships moored at piers and in harbors often are swamped and sunk or are left battered and stranded high on the shore. Breakwaters and piers collapse, sometimes because of scouring actions that sweep away their foundation material and sometimes because of the sheer impact of the waves.

Port facilities, naval facilities, ferry terminals, 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, transportation and employment.

Wherever water transport is a vital means of supply, disruption of coastal systems caused by tsunamis can have far-reaching economic effects.

Seiches create a “sloshing” effect on bodies of water and liquids in containers. This primary effect can cause damage to moored boats, piers and facilities close to the water. Secondary problems, including landslides and floods, are related to accelerated water movements and elevated water levels.

HISTORY

An earthquake-induced landslide in 1949 at Salmon Beach in the Tacoma Narrows generated a 6 to 8-foot tsunami that hit Gig Harbor. It moved both directions within the Narrows probably reaching portions of south Kitsap County. East Passage and Colvos Passage form a direct connection from the area where the Seattle Fault crosses Puget Sound and Kitsap County. Because of this, it is highly likely that any tsunami generated by the large earthquake on that fault approximately 1100 years ago propagated south to at least some portions of the County.

A recent study produced by Maria E. Martin Arcos entitle *“The A.D. 900–930 Seattle-Fault-Zone Earthquake with a Wider Coseismic Rupture Patch and Postseismic Submergence: Inferences from New Sedimentary Evidence”* suggest evidence of 4-5 m tsunami hitting the Gorst Area of Sinclair Inlet. The tsunami may have been an outcome of a Seattle fault earthquake or possibly other events cataclysmic enough to cause an 18 foot tidal wave in the Puget Sound. Maria Arcos conclusion is

“This study reiterates the threat of multiple hazards associated with earthquakes in the Puget Lowland, of which tsunamis are prominent in the case of Sinclair Inlet. Tsunami deposits at Gorst and tsunami modeling reiterate the tsunami threat in this inlet. Evidence for a tsunami in Sinclair Inlet is not unexpected based on the proximity to the Seattle fault zone and on previous tsunami models (Koshimura et al., 2002). Simulated wave heights of 4–5 m indicate tsunamis are not only a threat to the infrastructure in Gorst, but also to the naval base at Bremerton. Tsunami simulations demonstrate that the higher uplift documented in this study results in almost a meter higher tsunami wave along Sinclair Inlet. Even an order-of-magnitude smaller Tacoma fault-generated tsunami would generate strong currents in the narrow straits and harbors near Gorst. Further tsunami simulations in the Puget Lowland including different fault scenarios would help determine the degree of hazard posed by locally generated tsunamis.”

Exhibit VI-1 shows the Gorst area of Kitsap County. As noted on the map, an 4-5 meter tsunamis can significantly affect the Cities of Bremerton and Port Orchard as well as the Puget Sound Naval Shipyard. This and other studies conclude that inland tsunamis can be potentially catastrophic and need more attention by those Counties in the Puget Sound Region.

VULNERABILITY

Kitsap County is vulnerable to tsunamis, high waves and seiches due to our vulnerability to storms and earthquakes. Among the most vulnerable elements of the community are the marine enterprises, public port facilities, defense establishments and the hundreds of private residences lining the shorelines of Sinclair and Dyes Inlets; these entities either need, or are willing to pay the price for, a shore location. Located on filled ground, over-water, or at the foot of steep shoreline bluffs, the structures housing employees, customers, military personnel, visitors or residents are in harm’s way for tsunami inundation and strong currents, landslides, and soil failure during and after strong ground shaking.

Vulnerability issues include

- Loss of life
- Debris
- Natural resources damage
- Transportation infrastructure

- Utilities
- Shoreline development

2010 Update: *In the past few years, Kitsap County GIS develop maps and data on the potential for a worst case tsunami scenario defined as a 25 foot wave height hitting anywhere along the coastline of Kitsap County. Using this defined areas; Tables VI-1 and VI-2 define the population and building stock affected by such an event. In the future, updates to this plan will continue to revise the shoreline analysis and evaluate tsunamis based on more credible data.*

CONCLUSIONS

Earthquakes will occur and could cause a tsunami. Earthquakes and other underwater disturbances could occur and cause general or localized damage from a tsunami or a seiche.

Damage from a tsunami or a si cle may range from insignificant to catastrophic. Education of the affected populations, proper zoning, and suitable structural design can aid in reducing the disastrous effect of this natural hazard. If warning is received early enough (2 to 5 hours), which is possible for tsunamis generated at a distance, hasty preventive action can be taken: people can be evacuated, ships can clear harbors or seek safer anchorage, and buildings can be closed, shuttered, and sandbagged. For tsunamis generated by local earthquake or landslide events, however, the time from initiation of a tsunami to its arrival at shore can be less than a minute. Residents in areas susceptible to tsunamis should be made aware of the need to seek high ground if they feel strong ground shaking

Tsunamis or si cles that occur in Kitsap County have the potential to cause property damage and casualties. Public education on tsunamis and si cles is normally included in disaster preparedness classes as a subset of earthquake damage. Although much work has been done on disaster preparedness for public, local governments, emergency planners and the citizenry need to recognize the dangers and effects of tsunamis and si cles as a component of the earthquake hazard.

PROBABILITY OF OCCURRENCE

Medium - Great earthquakes in the North Pacific or along the Pacific coast of South American, historically, generate tsunamis that sweep through the entire Pacific basin occur at a rate of about six every 100 years. Local earthquakes and landslides that generate tsunamis occur more frequently, although a specific rate of occurrence has not been calculated by scientists. The communities within the County that are potentially at risk are Bainbridge Island, Navy Yard City, Silverdale, Bremerton, Parkwood, Suquamish, Erlands Point, Port Orchard, Tracyton, Manchester, & Poulsbo (Washington State Hazard Mitigation Plan)

Due to the potential for tsunamis to occur and the number of communities that potentially could be impacted, the future probable severity for tsunamis is medium.

MITIGATION STRATEGIES

1. Training: Design and schedule a series of workshops to train local waterfront facilities and businesses in the development of appropriate

- Evacuation plans Workshops should serve to: educate local waterfront facilities and businesses to the nature of the tsunami threat, inform them of all available options for evacuation, and train them in assessing their particular facility. This project will require a minimum of 3 workshops: (1) Tsunami Preparedness and Mitigation for Waterfront Businesses, (2) ATC-21: Facility Assessment Training, and (3) Evacuation Planning for Waterfront Businesses.
- The lead agency for this strategy should be the Department of Emergency Management with additional support required from the Washington Sea Grant Program. Additionally, involvement by the Local Chambers of Commerce and local business owners should be requested.
- This strategy should be approached in a manner consistent with the Education & Outreach Plan proposed by Washington Sea Grant for the Reducing Earthquake-Tsunami Hazards in Pacific Northwest Ports & Harbors project.

Implementation Time: 1 to 2 years

Implementation Cost: Minimal costs will be associated with the man-hours needed to design and plan for the workshops. Additionally, costs may be incurred in securing appropriate venues for holding the workshops and/or materials provided. Total costs should not exceed \$5000.

2010 update: This is an ongoing project but has been added to every presentation done by Emergency Management

2. Response & Evacuation: Work with the Washington State Emergency Management Division Earthquake-Tsunami-Volcano Program to develop a "Tsunami Interpretive Information" sign. The sign should be based upon the existing "Washington State Geology" signs that are posted on the outer coast, but with a focus on Puget Sound geology and tsunami. The sign should also illustrate the appropriate responses during and after earthquake and tsunami events.
 - The lead agency for this strategy should be the Washington State Emergency Management Division in coordination with the Kitsap County Department of Emergency Management, Local Chambers of Commerce, and Emergency Management Council.
 - Primary venues for signage should include high-use visitor/tourist areas such as the Bremerton and Port Orchard waterfronts, downtown Port Orchard, Gorst, the Washington State Ferry terminals and Puget Sound Naval Shipyard.
 - Washington State Emergency Management Division has, in the past, provided signs (free of cost) to local jurisdictions. Recommend matching funds with State EMD to secure two additional signs.

Implementation Time: 1 to 2 years

Implementation Cost: The estimated cost per sign is \$1200. A total of 4 signs will be needed to provide adequate coverage of populated vulnerable areas. Total cost: \$4800.

2010 Update: Delayed due to lack of funding.

3. Education & Outreach: Develop informational brochures to be placed at waterfront businesses (e.g. ferry terminals, marinas, hotels) to educate and inform visitors and tourists. Brochures should focus on being non-threatening and informative in nature.
 - The lead agency should be the Kitsap County Department of Emergency Management in coordination with the Washington State Emergency Management Division, Local Chambers of Commerce and Emergency Management Council.
 - Washington State Emergency Management Division currently offers an informational tsunami brochure (free of cost) to the public. Recommend working with State EMD to tailor existing brochure to local needs.

Implementation Time: 1 to 2 years

Implementation Cost: The estimated cost per brochure is \$1.50. A total of 500 brochures will be needed. Total cost: \$1000.

2010 update: maintain this strategy as an ongoing project.

4. Hazard Mapping & Modeling: Contract with the Kitsap County GIS Department to create a “Kitsap County Shore zone Inventory”, including a building footprint, for all lands within 1km of the shoreline. GIS staff should incorporate data gathered from ATC-21 Visual Assessments to enhance detail for critical infrastructure elements. The “Kitsap County Shore zone Inventory” should consist of a wide range of data to support future analyses of earthquakes and tsunami hazards.
 - Lead agency for this strategy is Kitsap County GIS.
 - The NOAA Pacific Marine Environmental Laboratory (PMEL) located at Sand Point, Seattle, is actively developing tsunami models for Puget Sound. As model results and data improve, Kitsap County should be prepared to compare these data and results to existing local conditions. The “Kitsap County Shore zone Inventory” is a logical step toward this goal.
 - Data access constraints at the Puget Sound Naval Shipyard may result in significant data gaps. Recommend initiating talks between Kitsap County GIS staff and PSNS Security/IT staff to discuss data sharing possibilities.

Implementation Time: 1 to 5 years

Implementation Cost: Kitsap County GIS Department staff will estimate the cost of this project. Typically, costs are incurred for hardware, software, data and labor. In this case, labor will be the greatest cost.

2010 update: GIS has mapped our shorelines for a worst case 25 foot tsunami along any coastline of Kitsap. Data based on the geologic mapping is provided in Tables VI-1 and VI-2.

5. Transportation: Incorporate best available tsunami hazard mapping and modeling data into future planning efforts for protecting and planning for critical transportation (lifelines

and infrastructure). Existing areas of concern include, but are not limited to: (1) the Highway 3 / Highway 16 interchange at Gorst, (2) the Manette Bridge, and (3) Marine Drive.

- Lead agencies for this strategy would be the Public Works Departments in cooperation with the Department of Emergency Management, Community Development and GIS Departments, as appropriate. Additionally, the Washington State Department of Transportation will play a key role.
- The Kitsap County GIS Department should work with GIS staff at WSDOT to identify key transportation lines that could be vulnerable to earthquakes and/or tsunami (e.g. those in low-lying areas, or those that are not compliant with current seismic codes).

Implementation Time: 1 to 5 years

Implementation Cost: Primary costs will be incurred for labor provided by the Kitsap County GIS and Public Works departments. Replacement costs and seismic upgrades costs will be shared between Kitsap County and WSDOT.

6. Utilities: Design and implement a project to conduct geotechnical analyses of all utilities within 50 feet in elevation from mean higher high water (MHHW). Project results should include potential impacts from loss of service and plans to retrofit or replace vulnerable system components.

- Lead agencies for this effort should be the Public Works Departments in close cooperation with the primary utility providers in the area (Bonneville Power Association, Puget Sound Energy). Additionally, Kitsap County GIS Department could assist in spatial analysis.
- Until more accurate inundation data is available from NOAA, or other sources, 50 feet in elevation from mean higher high water (MHHW) is a reasonable threshold for considering tsunami risk.
- Project costs will be incurred by appropriate Kitsap County Departments. Retrofit and/or replacement costs will be incurred by appropriate service provider.

Implementation Time: 1 to 5 years

Implementation Cost: Not available at time of publication.

2010 update: All agencies are engaged in this strategy! We await transportation maps/mapping

7. Debris / Hazardous Materials: Conduct a tabletop exercise to simulate a large-scale debris removal effort associated with a significant earthquake-tsunami event to assess the current state of readiness to respond to such a need.

- Lead agency for this strategy should be the Public Works Departments and Department of Emergency Management in cooperation with WSDOT and other applicable organizations (e.g. contractors).

- This exercise should consider the involvement of individuals outside of the local jurisdictions for the purposes of mutual aid and resource allocation discussions.
- Exercise should have a strong focus on the presence of hazardous materials on both land and water, and test the effects this would have on debris removal.

Implementation Time: 1 to 2 years

Implementation Cost: Primary costs will be incurred in the design of the exercise, and perhaps travel costs for participants. Total cost: \$5000.

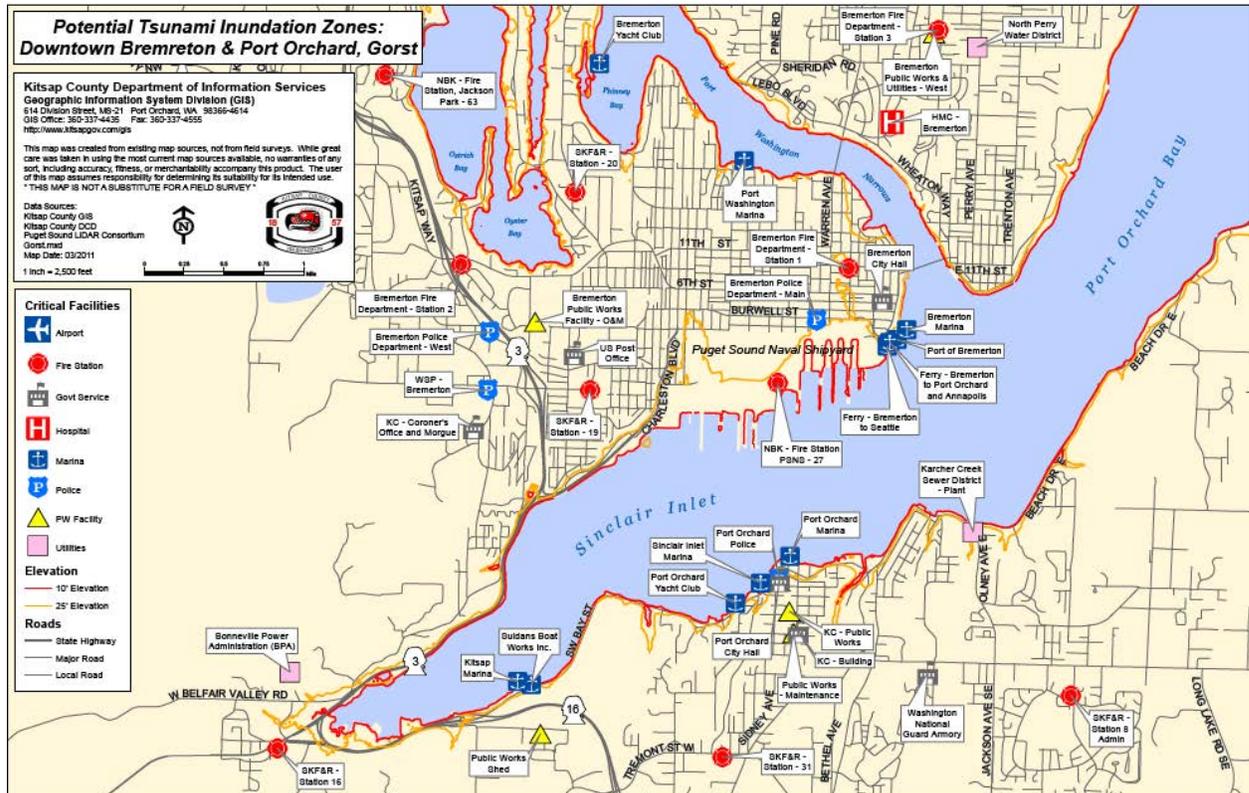
2010 update: In Development for 2014.

8. Planning & Infrastructure: Initiate a collaborative planning effort between County / City planners, State Government, and local citizens to review and revise existing zoning and land use designations to ensure future construction is sustainable.
 - Lead agencies and private groups for this strategy would include the Board of County Commissioners and Mayors through the Emergency Management Council, Housing Authority, Local Chambers of Commerce, Department of Emergency Management, City/County Public Works Departments, at-risk population service agencies and volunteer organizations.
 - If no established building codes are currently adopted, consider expanding project to redefine the standards for new waterfront construction.
 - The Kitsap County GIS Department should be contracted to provide the Best Available Science in compliance with the Washington State Growth Management Act.
 - Tribal Nations have sovereignty from County land use requirements. Tribal Nations will need to work on identification and mitigation measures on Tribal lands when grant funding/personnel are available.

Implementation Time: 1 to 4 years

Implementation Cost: Not available at time of publication.

2010 update: Complete Ordinances are in place to protect the public from building “too close to the water” with 100 feet setbacks.



**Exhibit VI-1: Potential Tsunami Inundation Zone showing the Cities of Bremerton and Port Orchard. Yellow line is 10 Ft Elevation and Red 25 Ft Elevation
 Kitsap County GIS 2011**



Exhibit VI-2: Potential Tsunami Inundation Zone showing Eagle Harbor in the City of Bainbridge Island. Yellow line is 10 Ft Elevation and Red 25 Ft Elevation
 Kitsap County GIS 2011

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Jurisdiction	Total Population	Population in Hazard Area	% Population Affected by Hazard Jurisdiction
Unincorporated Kitsap County	164,595	11,478	7.0
Bainbridge Island	22,010	3714	17
Bremerton	37,729	2214	5.8
Port Orchard	11,144	582	5.2
Poulsbo	9,200	345	3.7
Port Madison	5600	795	14.2
Suquamish Reservation			
Port Gamble S'Klallam Reservation	1200	12	1.0
Totals (Kitsap)	258,278	19,140	7.4%

Table VI-1: Population by Jurisdiction affected by Tsunamis
Kitsap County GIS figures 2012

Jurisdiction	Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction	Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
Unincorporated Kitsap County	87,985	3826	4.3	249	12	4.8
Bainbridge Island	12,639	1238	9.7	83	5	6.0
Bremerton	13,683	739	5.4	64	4	6.2
Port Orchard	6,708	194	2.9	39	2	5.1
Poulsbo	3,516	115	3.3	66	3	4.5
Port Madison	4,579	265	5.9	7	1	1.4
Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	4	1.5	5	0	0
Totals (Kitsap)	129,380	6377	4.9%	513	27	5.2

Table VI-2: Building Stock and Critical Facilities by Jurisdiction affected by Tsunamis
Kitsap County GIS figures 2012

CAT VII: TERRORISM AND CIVIL DISORDER MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Emergency Management Council
- Kitsap County Department of Emergency Management
- Kitsap County Terrorism Planning Committee
- Kitsap County Law Enforcement Agencies
- Kitsap County Fire Agencies
- Kitsap County Health District

SUPPORT AGENCIES

- City/County Departments
- City/County Organizations

HAZARD

Terrorism involves any despicable act directed against government, business or society in general which is meant to cause death or injury, destroy property or disrupt normal agency or business functions. It 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. The FBI defines terrorism as “the unlawful use of force or violence against persons or property to intimidate or coerce a government; the civilian population; of any segment of it, in furtherance of political or social objectives.”

Kitsap County does have five military installations with highly protective military assets associated with the U.S. Strategic Deterrent Doctrines. As such, there is a potential for a terrorist act as well as attacked on military service personnel. Kitsap County does not have any high profile facilities, monuments, or other nationally known sites considered a terrorist target. The greatest fear is those attacks in public places from lone gunman(s). These events are considered more likely than those associated with acts directed against the government or Nation.

EFFECTS

The effects of terrorism include, but are not limited to death, injury and a feeling of fear and helplessness in the general population. It can destroy property, lifelines and the basic social fabric. On a large scale, it destroys major portions of a large city's infrastructure creating physical and economic hardship for some time in addition to the initial death and destruction. Long-term psychological damage to a portion of the population is also possible.

HISTORY

Although Kitsap County has not experienced major civil disorders, we are a community made up of a very diverse population to include members of nationally recognized militia organizations. The events of 9/11 and the creation of the Department of Homeland Security have set in place a framework of terrorism mitigation and extraordinary system of detection and prevention of potential terrorism events. As such, Kitsap County has developed and executed a Homeland

Security program and implemented numerous strategic, tactical, and interoperable plans and systems to mitigate and prevent terrorist attacks in Kitsap County. To date, over \$9 million has been spent in the Homeland Security Region 2 (Kitsap, Jefferson, and Clallam Counties) on equipment, technology, processes, training and exercises to prepare for possible terrorist threats. Terrorism is an all county threat and involves all facilities and all citizens in the County as noted in Exhibit VII-1 and VII-2 which define building stock and population affected by this hazard.

VULNERABILITY

On September 11, 2001, the entire nation was initiated into the world of international terrorism. The nation watched in horror the televised attacks and the frantic search and recovery operations at the Twin Towers of the World Trade Center, the Pentagon, and in a rural field in Pennsylvania. This event turned our attention from domestic to international terrorism.

Terrorist groups are constantly emerging. Copy groups taking their cues from other notorious groups such as Al Qaeda would not hesitate to utilize chemical and biological materials. Recent incidents such as the spread of anthrax through the mail system create events that will receive national as well as international attention.

Other possible scenarios besides chemical and biological include nuclear threat, most likely the detonation of a “dirty bomb” – a device using a conventional explosive packaged with radioactive material. Its primary destructive power is creating panic and fear. Explosive incidents account for 70 percent of all terrorist attacks worldwide. Bombs are terrorist’s weapon of choice. Cyber-terrorism is a relatively new phenomenon used to potentially disrupt our society and exploit our increasing reliance on computers and telecommunication networks. As a result of these hazards, the United States government has implemented counter-terrorism measures to help secure the safety of this nation and its citizens. A vulnerability assessment has been done for every county in Washington as well as the rest of the nation. As home to important military installations and our close proximity to Seattle’s economic, financial, and population centers, Kitsap County’s vulnerability to the effects of terrorism is substantial.

CONCLUSIONS

A terrorism event could occur in Kitsap County. This could be anything from a bomb threat at a local school to an attack on a military base. Law enforcement, as well as citizens, should be aware of this possibility and be alert for instances of suspicious activity. Terrorism is an all county threat and involves all facilities and all citizens in the County as noted in Tables VII-1 and VII-2 which define building stock and population affected by this hazard.

Usually, the plans and systems developed for other hazards serve as templates for developing a comprehensive counter-terrorism program. Hazardous material emergency response plans and procedures are helpful in this arena. First responders must remember they are targets and that proactive steps need to be taken to protect the crime scene and the evidence. Just like preparedness issues with all potential sources of disaster, public education is needed to help the citizens of our county recognize the threat.

One program instituted under the Department of Homeland Security is the Critical Infrastructure Protection Program. This program identifies facilities and critical infrastructure and assigns each a consequence level based on a variety of questions involving vulnerability, affects on the public or property, and interest as a terrorist target. Each community was encouraged to establish their own criteria as well as the criteria establish by HLS for other facilities not identified by the

State of Washington. Based on the results, most targets in Kitsap were considered medium or low. High profile facilities were evaluated by Washington State or the Federal Government and the information was provided to Local Emergency Management.

In addition, one medium profile facility is Kitsap Transit. As such and with available HLS funding, Kitsap Transit is currently involved in a Buffer Zone Protection Program designed to mitigate potential threats.

Finally, over the years, Kitsap has been actively involved in Washington State's Rapid Responder to map and develop tactical decisions of all schools and some public facilities in Kitsap County. This program allows school officials, law and fire personnel to evaluate schools for potential emergency events and develop procedures for mitigation, response and recovery.

PROBABILITY OF OCCURRENCE

Medium - Terrorism is the unlawful use of force or violence against persons or property to intimidate or coerce government or civilian populations in furtherance of political or social objectives. While it is, generally, assumed that terrorist incidents will occur in large cities, it should be recognized that smaller communities and targets might be used as "test sites" for a future strike at a large city. In addition, even the most remote areas may find themselves to be the location for terrorists planning strikes and for the manufacturing of weapons.

A terrorist attack can take several forms depending on the technological means available to the terrorist, the nature of the political issue motivating the attack, and the points of weakness of the terrorist's target. Bombings are the most frequently used terrorist method in the United States.

With this increase in terrorist activities within the past few years, it could be conceivable that a domestic or international terrorist attack could happen in Kitsap County. There is no known record or documentation of terrorist activities within Kitsap County. However, the recent capture of known terrorist Hamad Rasam shows that terrorism in the Pacific Northwest is becoming a real danger. There is always a threat to military installations, and as a partner in this community has trained and exercise with the locals to prepare for such an occurrence. In the past 10 years military bases have instituted numerous security programs to ward off potential threats. Included in these programs are upgrades to Emergency Operation Centers and increases in professional emergency managers.

The terrorism threat is not only attacks from large, organized elements like Al Qaeda, but may come from small groups or individuals that meet the criteria cited above. These may be local or regional groups or individuals.

MITIGATION STRATEGIES

1. Design and implement a community-wide first responder and citizens program including prevention, property protection, public education and awareness, emergency services, and structural project activities.
 - The lead agency for the coordination of terrorism planning and homeland security issues would be the Kitsap County Department of Emergency Management with support from all law, fire, and health agencies in Kitsap County.

- Kitsap County Terrorism Planning Committee identifies all priorities for response for both training and equipment needs.
- Kitsap County Department of Emergency Management is the lead coordinating agency for Region 2 Homeland Security District. Through the U.S. Department of Homeland Security, funds have become available to train and equip first responders to respond to acts of terrorism.

Implementation Time: 1 to 3 years

Implementation Cost: No estimate is available for the total cost of preparing for acts of terrorism. However, through Kitsap County Terrorism Planning Committee, training and equipment needs have been identified and federal funding is available to assist in preparing first response agencies.

2010 update: *Emergency Management has been working on this program/strategy for many years. Terrorism is discussed in all presentations.*

The Terrorism Plan is reviewed and updated annually as well as numerous committees meet to discuss interoperability initiatives, HLS equipment initiatives, training and exercise, and National Incident Management (NIMS) Compliance. One example is Interoperable Communications, essential to response coordination. Exhibit VII-1 shows the framework for HLS Region 2's interoperable communications plan used to identify systems and processes to improve coordination among various agencies. Over the last five years, Kitsap County has been involved in numerous federal, state and local programs to train and exercise responders and provide information to the public on being vigilant about terrorism. Because of the numerous military installations, Kitsap participates in multi-million dollar exercises regarding radiological and terrorist events. As such, the military installations collaborate and exercise with the local on numerous disaster exercises including all of the hazards mentioned in this section. This cooperation provides an ongoing successful program of working together and minimizing the effects of these hazards on Kitsap County.

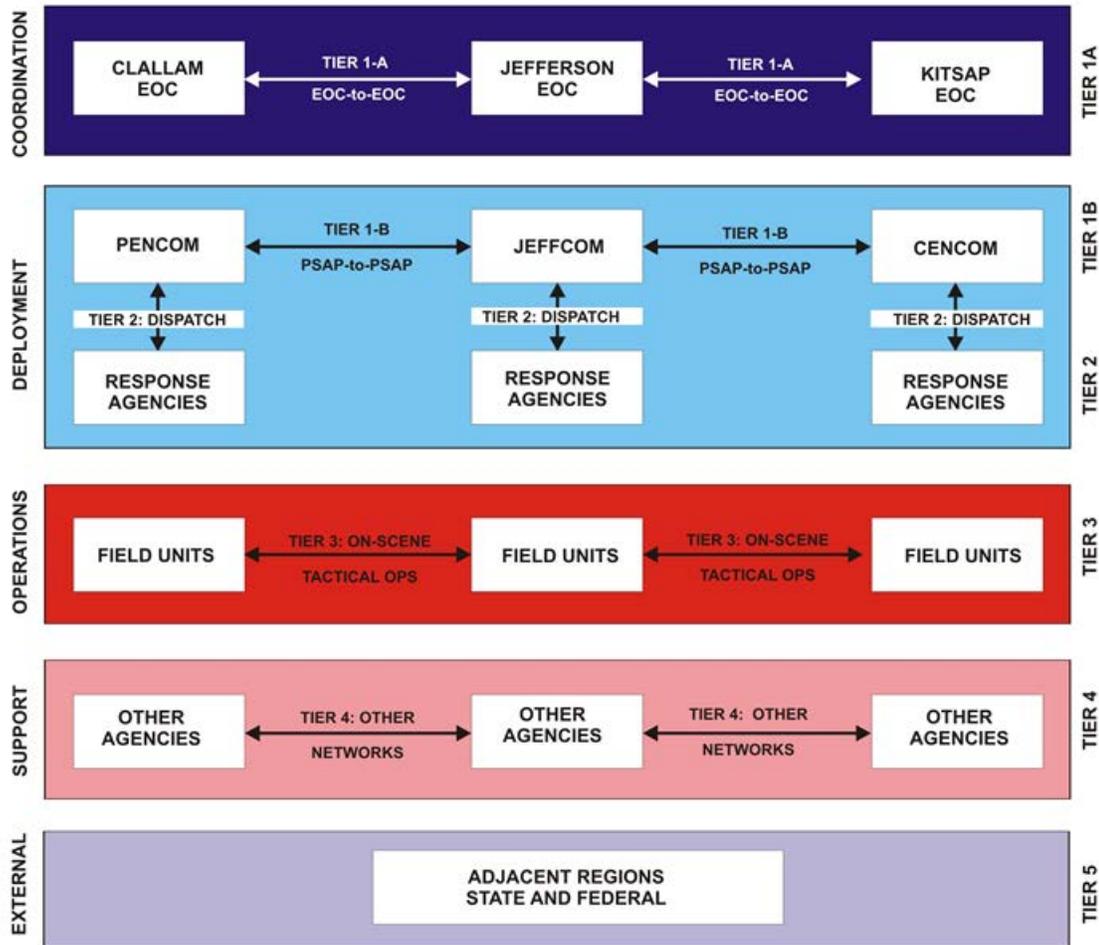


Exhibit VII-1: Homeland Security Region 2 Interoperable Communications Framework

Jurisdiction	Total Population	Population in Hazard Area (Approx.)	% Population Affected by Hazard Jurisdiction
Unincorporated Kitsap County	164,595	164,595	100
Bainbridge Island	22,010	22,010	100
Bremerton	37,729	37,729	100
Port Orchard	11,144	11,144	100
Poulsbo	9,200	9,200	100
Port Madison	5600	5600	100
Suquamish Reservation			
Port Gamble S'Klallam Reservation	1200	1200	100
Totals	258,278	258,278	100%

Table VII-1: Population by Jurisdiction affected by Terrorism
Kitsap County GIS figures 2012

Jurisdiction	Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction	Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
Unincorporated Kitsap County	87,985	87,985	100	249	249	100
Bainbridge Island	12,639	12,639	100	83	83	100
Bremerton	13,683	13,683	100	64	64	100
Port Orchard	6,708	6,708	100	39	39	100
Poulsbo	3,516	3,516	100	66	66	100
Port Madison	4,579	4,579	100	7	7	100
Suquamish Reservation						
Port Gamble S'Klallam Reservation	270	270	100	5	5	100
Totals (Kitsap)	129,380	129,380	100%	513	513	100%

Table VII-2: Building Stock and Critical Facilities by Jurisdiction affected by Terrorism
Kitsap County GIS figures 2012

CAT VIII: MULTI-HAZARD MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Department of Emergency Management
- City/County Public Works Departments

SUPPORT AGENCIES

- Kitsap Transit
- Washington State Ferry System
- Washington State Department of Transportation (WSDOT)
- Tribal Nations

PROBABILITY OF OCCURRENCE

Medium- Kitsap County, like most communities in the United States, began using an “all hazards” planning approach versus planning for one specific hazard during the late 80’s. The rationale for this was very simple; most natural hazards have common denominators; road, closures, transportation issues, chain of command, and other issues that, once resolved, can then transcend to all hazards. This “all hazards” planning approach has been used throughout the mitigation planning process.

Based upon historical data, the future probable severity for all hazards is high. Both natural and technological hazards will impact Kitsap County and will continue to transcend all hazards thus the need to plan for a multi-hazard approach.

MITIGATION STRATEGIES

1. Examine potential road closures related to all risks. Compile a plan that identifies alternate access areas in cooperation with State and community officials. Several Local, State and possibly Federal resources are currently conducting or have already completed this type of study. It is recommended that a Local task force be formed to bring all of the information developed under one comprehensive all-risk road plan.
 - The Public Works Departments and the Department of Emergency Management would share as the lead agencies responsible for this strategy. The Task Force needs to include the transit system, fire, Tribal Nations, Washington State Ferry System, state, county and city law enforcement and members of the regional task force as needed.
 - This ongoing project needs to be elevated to State and Local task force level.
 - It is recommended that an intern position be developed to follow-up on and consolidate alternate route plans for road closures that currently exist.

Implementation Time: 1 to 9 years

Implementation Cost: Intern fees, office and support costs estimated at \$56,000.

2010 update: Both Kitsap Transit and Emergency Management have worked closely on this project/strategy. By 2013 a transportation plan should be in place. In the interim, Kitsap County has been significantly involved in the last 3 years with the Puget Sound Regional Catastrophic Planning. As part of this plan, Kitsap and the planning committee have evaluated critical and vulnerable roads in Kitsap County and identified solutions or alternate routes in the case of a catastrophic event.

2. Study and identify areas of geographical/geological influence affecting identified critical area hazards. Add identified areas of influence to critical areas geographic identification as part of the problems to be addressed. (Determine what the science is to identify areas of influence.) This strategy is to be done in coordination with the land shift areas of influence Hazard Mitigation Strategy.

Note: It is recommended that consideration be given to make this a MULTI HAZARD demonstration grant project through FEMA.

3. Areas of Impact Mitigation Strategy: Study non-traditional areas of impact such as:
 - Pre-identified critical areas that require monitoring and potential areas of influence near and adjoining these risk areas.
 - Identify single lot property owners who are in an area of influence to an adjoining critical risk area and determine what effects, if any, usage of the adjoining areas of influence have on the critical risk area.
 - The lead agencies would be the Public Work Departments and the Community Development Departments.
 - Local funds recommended from future budget appropriations with potential grant application from mitigation sources.
 - Identify infrastructure improvements for specific critical risk areas and identify the level of risk for which these improvements will be effective.
 - Funding sources would be a combination of Local funds and State and Federal matching grants.

Implementation Time: 1 to 3 years

Implementation Cost: \$50,000 is estimated to be the project development cost to identify implementation costs and write the FEMA Demonstration Grant Proposal.

Note: *This is another mitigation strategy that would require strong participation from a regional GIS.*

CAT IX: MULTI-HAZARD PUBLIC EDUCATION PROGRAMS MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Department of Emergency Management
- Kitsap County Fire/Law Agencies
- City/County Public Works Departments
- Kitsap County Citizen Corps Council

PROBABILITY OF OCCURRENCE

High – Winter storms, earthquakes, technological incidents, and other emergencies have and will continue to impact Kitsap County in a number of ways. Historically, the first response for emergencies has been through the citizens in the affected community. It has been proven, that if the citizens are prepared to care for themselves during the recommended three-day period, the less likely a response will be required by the American Red Cross and other response agencies. Giving the citizens the knowledge and understanding of how they can prepare for a disaster will enable them to provide for themselves, which allows the first responders to manage the more devastating effects of an emergency and to respond to and recover from the event more quickly.

Based upon historical data, the future probable severity for all hazards in the County is high.

MITIGATION STRATEGIES

1. Enhance and support Public Education Programs including citizen involvement. The program would center on a study of specific risk areas to assist in the identification of risk factors and mitigation strategies for citizen implementation in their specific areas; and further, to make recommendations on retroactive and future mitigation practices to implement in risk areas.
 - The lead agencies for this strategy will be the Public Works Departments, the Community Development Departments, the Department of Emergency Management, and fire and law agencies.
 - Develop a Kitsap County Citizens Corps Council to assist in the promotion of public education and volunteerism.
 - Use Existing public education funds coupled with unidentified State and Federal dollars for public education programs.

Implementation Time: 1 to 9 years

Implementation Cost: \$75,000 annually with staff time to be shared with the next strategy.

2010 update: This is now an ongoing project for Emergency Management and has been embedded in all public education programs!

2. Examine and support ongoing programs with a multi-jurisdictional approach for public education, public awareness and the promotion of public participation. Specific Hazard Mitigation Public Education recommendations are detailed in the following strategies:
 - Implement programs that use Public Education for Hazard Mitigation and emergency preparedness methods. This recommendation emphasizes the continuing support for the programs that exist and the development of further opportunities. It is recommended that these programs provide content guidance for both 3-day and 14-day preparedness kits and individual and community preparedness training.
 - It is recommended that business and family emergency communication and preparedness plans be included in flyers available to the public.
 - Work to develop additional preparedness education programs targeted towards Local business preparedness including how to stay in business without power for 3 days.
 - The lead agency would be the Department of Emergency Management.
 - Funding would come from existing public education funds and unidentified funds including State and Federal grant dollars.

Implementation Time: 1 to 3 years

Implementation Cost: Share the above \$78,000 identified staff time with an additional \$50,000 in support and printed materials annually.

Note: Kitsap County Department of Emergency Management currently has a nationally recognized Public Education Program and this recommendation is for the continued support and funding of the program with planned future growth. In a survey conducted in a June 2004 Public Survey conducted by Kitsap County, the following statement characterized Emergency Preparedness:

“At least two out of three residents feel Kitsap County is somewhat prepared or very prepared to deal with natural disasters. Residents who have had greater exposure and experience with County services and amenities tend to indicate the County is more prepared to deal with natural disasters.

Approximately one in two residents reports they have a designated emergency kit. Of those, four out of five say their kit provides at least three days of food, water, first aid, clothing and other emergency supplies for everyone in the household.”

3. Develop a Critical Risk Areas Educational Program including expanding current programs where appropriate to include:
 - Assure an availability of accurate maps and information defining critical areas to the public and private sector.

- Use advertisements to identify critical areas for the public to include mitigation strategies that individuals and businesses can implement.
- Include lenders and insurance agents' cooperation and participation in the educational process.
- Lead agency would be the Department of Emergency Management in cooperation and coordination with Local Chambers of Commerce.

Implementation Time: 1 to 3 years

Implementation Cost: Use existing public education funds. Future funding resources to be identified.

2010 update: Maintain this strategy

4. Use public education programs and meetings, including Public Access Television, to provide methods to identify and mitigate erosion area problems. Use Public Access Television to educate property owners and renters, both commercial and residential, on the definition and identification of erosion and land-shift problems and identify mitigation measures for protection of private property.
 - The lead agency would be Local Conservation Districts in coordination with the Community Development Departments.
 - Funding recommendations are for State and Federal support funds.

Implementation Time: 1 to 3 years

Implementation Cost: Estimated to be \$78,000 annually.

2010 update: Delay due to lack of funding

5. Implement a public education program to alert the public on the dangers of and steps to reduce the risk of landslides on private property. Identify and implement public education programs on seismic safety and strengthening for homes, public spaces, schools, and businesses.
 - The lead agency for this program will be the Department of Emergency Management.
 - This strategy is an ongoing project and it is recommended that both Local government budget funding and Federal funds be used to more fully implement the program.

Recommendation: That the Department of Emergency Management take the lead to coordinate with all Regional Public Education Programs. This coordination would be to share resources and information on a regional basis and to integration public education program information where possible.

Implementation Time: 1 to 3 years

Implementation Cost: Specific costs have not been identified at this time for additional time and materials.

2010 update: Maintain this strategy but it is now an ongoing project within Emergency Management.

In the past five years, Kitsap County and its jurisdictions have made great strides in increasing public awareness of hazards and how they can mitigate and prepare for these events. Such programs are common place and provided to citizens through various public campaigns or on agency websites. Here are some examples:

- Kitsap Public Health initiative to minimize the effects of pandemics. For example, HINI scare in 2010.
- Kitsap County and City Public Works programs to promote programs to reduce hazardous materials spills and reporting to local officials.
- Kitsap County and City Public Works programs to provide public information regarding storm water systems and how the public can help mitigate rainfall runoff during winter storms.
- Kitsap County and City Community Development programs to provide information to the public about flood prone areas, land use, and a variety of other information through GIS programs and databases.
- Kitsap County Department of Emergency Management educational programs for earthquake mitigation for schools, businesses and citizens of Kitsap County. A list of these programs is outlined in Exhibit VII-1.

All these programs and others by a variety of different jurisdictions and agencies constitute an ongoing commitment to public education and awareness a foundation for mitigation of hazards in the County.

Exhibit VII-1. Kitsap County Department of Emergency Management (DEM) Public Education and Outreach Programs

The following is a list and description of programs developed since the adoption of the Mitigation Plan in 2004.

“Bolt It, Brace It – Do it” Program. Designed to teach local citizens and contractors how to assess building structures for earthquake retrofitting and conduct the required modifications. This is a partnership program with the Homebuilders Association, Olympic Peninsula Chapter of International Code Council, and Simpson Strong-Tie.

Map Your Neighborhood Program. Designed to provide mitigation and preparedness information and training to neighborhood groups. The program is used to identify key resources in neighbor and the essential for training and exercising personnel in disaster preparedness. To date, Kitsap DEM have mapped approximately 200 neighborhoods in Kitsap County with several awarded the “Disaster Ready” for meeting all the criteria for preparedness.

Community Emergency Response Team (CERT). This nationally recognized CERT program was added in 2012 to promote community awareness and participation. This program provides a 10 week training program to develop community specific CERT teams.

KREP School Preparedness Program. Ongoing program to train school teachers and staff to respond to a myriad of hazards associated with schools. Response teams are developed for hazard response, but the program also includes emergency preparedness for students. All public school districts and some private schools have been part of this program.

Alert and Warning Program. Using purchased software, Kitsap County DEM allows citizens to sign up for the “Alert and Warning Program to receive alerts, tips, and instructions on hazardous events in Kitsap.

Public Media Programs. Kitsap DEM has a very robust website at www.kitsapdem.org for continued public mitigation, preparedness and response information. Additionally, Facebook and Twitter accounts have been established and useful obtaining information on threats and hazards in Kitsap.

Business Preparedness Programs. A recently new program to support mitigation and preparedness for local governments, districts, and businesses in Kitsap. This program teaches mitigation to include evaluating structures for earthquake mitigation, providing employee training in emergency response, and individual/home preparedness information.

CAT X: FIRE MITIGATION STRATEGIES

LEAD AGENCIES

- Kitsap County Fire Marshall
- Kitsap County Fire Agencies
- Kitsap County Department of Emergency Management

HAZARD

Forest fires and urban interface fires are possible in Kitsap County. Sources of ignition include lightning, arson, recreational activities, debris burning by individuals or logging companies and carelessness with fireworks. Individuals cause about 80% of forest fires with about 20% attributed to natural causes.

EFFECTS

With much of the County in various stages of forestation, nearly all areas are vulnerable to fire. Many individual homes and developments border forestland. Drought conditions often increase the fire danger in early fall. Recent history of fires in the County indicate that most were human-caused and extinguished before major damage occurred.

Forest products help sustain the Kitsap County economy. Forest fires would result in the loss of timber resources, wild life habitats, watersheds and recreational areas as well as increased vulnerability to flooding and landslides.

HISTORY

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, wild land 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. There have been no Presidential Disaster Declarations due to fires in Kitsap County.

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 area. Recorded history of fires in the area however indicates Kitsap 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.

VULNERABILITY

Kitsap County's forests will remain vulnerable to forest and wild land fires. The probability of forest and wild land fires will continually change depending on variables such as drought effects, lightning strikes, careless campers, etc. Although, it is safe to say, that vulnerability is seasonal and increased vigilance and public awareness can help to mitigate potential fire threats. We

consider all of Kitsap in the hazard area as any fire can become uncontrollable under certain conditions and swiftly move through forested areas if not contained. As such Tables X-1 and X-2 summarizes the population and building stock affected by this hazard.

CONCLUSIONS

The following steps should be accomplished to preclude major loss of life and reduce the actual number of fires and hazard areas:

1. Since the vast majority of forest and wild land fires are started by humans, fire prevention education and enforcement programs can significantly reduce the total number of forest fires.
2. An effective early fire detection program and emergency communications system are essential. The importance of immediately reporting any forest fire must be impressed upon local residents and people utilizing the forest areas.
3. An effective warning system is essential to notify local inhabitants and visitors in the area of the fire. An evacuation plan detailing primary and alternative escape routes is also essential.
4. Fire-safe development planning by County and City government planners is essential..
5. Encourage citizens to incorporate defensible space planning when landscaping their property.
6. Road criteria should ensure adequate escape routes for new sections of development in forest areas with both ingress and egress planned.
7. Road closures should be increased during peak fire periods to reduce the access to fire prone areas.
8. Kitsap County should consider adopting the 1997 Urban-Wildland Interface Code as part of its wildfire protection program. Phyllis, how can we determine if this has been done?

PROBABILITY OF OCCURRENCE

Medium - There is always a risk of fire due to natural causes, carelessness, or arson but there has been no historical precedent for wildfires threatening the County. Small scale brush fire occur from time to time but they rarely have any meaningful impact like wildfires in Western Washington. Kitsap County Fire Districts as well as the State Mobilization system has been effective in containing brush fires before they threaten building stock in the County.

The potential for future damages is estimated by extrapolating data from past events. Future damages are expected to be very similar to past damages, with annual losses due to wildfire ranging in only the hundred's of dollars. As the urban, rural interface enlarges with continued urban growth the County may see an increased fire risk to structures in those areas.

Based upon historical data and the geological conditions which exist in the region, the future probable severity for fires in the region is medium.

MITIGATION STRATEGIES

1. Identify Urban Wild Land Fire interface problem areas including the development of an urban fire risk map. This project would be dependent upon a Regional GIS program for mapping components.
 - Study urban fire issues including development of recommendations for requiring fire retardant building materials and sprinklers where possible.
 - The lead-coordinating agencies will be the Kitsap County Fire Marshall, Department of Emergency Management, and Local Fire Agencies and will include the water purveyors, Tribal Nations, Department of Natural Resources and Public Works Departments, where appropriate.

Implementation Time: 1 to 3 years

Implementation Cost: These costs have not been identified at this time but they would include additional working staff for the Fire Marshall's Office and Regional GIS mapping usage time.

2010 Update: *Economic downturn has reduced staff and the ability to take on this strategy. This will be reviewed at the next plan update.*

2. Offer community-based loan programs or other identified incentives to replace combustible roofing and to retrofit buildings with fire sprinkler systems.

2010 Update: *This Strategy has been removed due to no future funding.*

3. Increase and implement fire public education measures.
 - The County Fire Marshall's Office, in coordination with Local Fire Agencies, would take the lead in this program.

Implementation Time: 1 to 3 years

Implementation Cost: Budget recommendations are for the use of existing funds should the fire agencies determine if current personnel are sufficient. The Steering Committee recommended a study be considered to determine if a Fire Public Educator is needed on a regional basis.

2010 update: *This is now an ongoing program*

SUMMARY AND CONCLUSIONS

Urban wildfires can be extremely hazardous if not contained causing loss of life and property. Increasing public education on wild land fires and improving agency response will help to minimize the spread of fires and reduce its effect.

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

Jurisdiction	Total Population	Population in Hazard Area (Approx.)	% Population Affect
Unincorporated Kitsap County	164,595	164,595	100
Bainbridge Island	22,010	22,010	100
Bremerton	37,729	37,729	100
Port Orchard	11,144	11,144	100
Poulsbo	9,200	9,200	100
Port Madison Suquamish Reservation	5600	5600	100
Port Gamble S'Klallam Reservation	1200	1200	100
Totals	258,278	258,278	100%

Table X-1: Population by Jurisdiction affected by Fires
Kitsap County GIS figures 2012

Jurisdiction	Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area	Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area
Unincorporated Kitsap County	87,985	87,985	100	249	249	100
Bainbridge Island	12,639	12,639	100	83	83	100
Bremerton	13,683	13,683	100	64	64	100
Port Orchard	6,708	6,708	100	39	39	100
Poulsbo	3,516	3,516	100	66	66	100
Port Madison Suquamish Reservation	4,579	4,579	100	7	7	100
Port Gamble S'Klallam Reservation	270	270	100	5	5	100
Totals	129,380	129,380	100%	513	513	100%

Table X-2: Building Stock and Critical Facilities by Jurisdiction affected by Fires
Kitsap County GIS figures 2012

Addendum I: Declared Emergencies and Disasters in Kitsap County 1995 through 2010

Date of Event	Type of Declaration	Declaration Results and Impact	Comments
Nov 22, 2010	Severe winter Storm	Declared: Local and State No Presidential Declaration Severe weather all of Kitsap County	Local Damages did not meet Threshold
Dec 03, 2007	Severe Flooding	Declared: Local, State, and Federal Presidential Declaration: DR1734 Major Severe Flooding All of Kitsap County	Local PA: \$2.9 Million
Dec 14, 2006	Severe windstorms, landslides, & mudslides	Declared: Local, State, Federal Presidential Declaration: DR 1682 Major Severe Windstorms, Landslides	PA and IA threshold not met by Kitsap
Nov 2-11, 2006	Severe storm, flooding, landslides, mudslides	Declared: Local, State Federal Presidential Declaration: DR 1671 Major Severe storm, flooding and landslides impact all of Kitsap	PA and IA threshold not met by Kitsap
Jan 27-Feb 04 2006	Severe Winter Storm	Declared: Local, State, Federal Presidential Declaration: DR 1641 Major Severe Winter Storm affecting all of Kitsap County	Local PA: \$1.4 Million IA Not met by Kitsap
Oct 15-23, 2003	Flooding	Declared: Local, State, Federal Presidential Declaration: DR 1499 Flooding creeks throughout the County	IA Met; PA not met by Kitsap
Jan 07, 2002	Flooding	Declared: Local, State No Presidential Declaration	No PA or IA received.
September 2001	9/11 Attack on U.S.	Local, State	In response to event. No assistance paid
Feb 28, 2001	Earthquake	Declared: Local, State, Federal Presidential Declaration: DR 1361 Nisqually Earthquake. 6.8 magnitude affecting entire County	Local PA: \$2.9 Million. IA received.
Feb 24, 1999	Flooding landslides	Declared: Local Flooding and local landslides	No Assistance Received
Mar 18-28, 1997	Severe Storm Flooding Landslides	Declared: Local, State, Federal Presidential Declaration: DR 1172	PA and IA Assistance

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

		Severe Flooding	
Jan 26 to Feb 23, 1996	Severe Storm Flooding	Declared: Local, State, Federal Presidential Declaration: DR 1100 Major Severe storm with flooding affecting entire County	PA and IA Assistance received
Dec 26 to Feb 10, 1996	Ice, snow, Severe cold flooding	Declared: Local, State, Federal Presidential Declaration: DR 1159 Severe Event State damages public and private at \$20 Million	\$1.64 million PA received by Kitsap
Apr 23, 1996	Landslide with Fatalities	Declared: City of Bainbridge Island and Kitsap County Mudslide: home into bay; evacuated Rolling Bay Walk and homes along Mtn. View Rd. Fatalities	No assistance received
Nov 7 to Dec 18, 1995*	Flooding, Strong winds	Declared: Local, State, Federal Presidential Declaration: DR 1079 Strong Winds and flooding impacting all of Kitsap County	PA Received. No IA

*Older Presidential Declarations can be found at FEMA's Website <http://www.fema.gov/disasters/grid/state/89>
 For some declarations, information regarding damage costs is no longer available.

SECTION FOUR: Strategies & Recommendations - PRIORITY TWO

Definition: Strategies identified as less important than the Priority One rated strategies for consideration and implementation. Priority Two rated strategies are suited to serve the community's needs and may be considered in the future, should the opportunity arise and funding becomes available.

CAT I: FLOOD MITIGATION STRATEGIES

1. Review and create a floodplain planning, management and over-site program to assure compliance with the National Flood Insurance Program (NFIP) community-wide. The lead agencies for are Community Development Departments and the Public Works Departments.
 - Distribute National Flood Insurance Program (NFIP) information in utility bills on an annual basis prior to flood season. The program lead for this strategy would require the National Flood Insurance Program to coordinate with the local utility companies to provide and distribute the information. The Department of Emergency Management would serve as the point of contact and coordination for the NFIP. **2010 Update: This strategy is ongoing.**
 - Provide expanded NFIP training for development and private property lenders and insurance agents. The primary responsibility would be for the Federal Emergency Management Agency and the NFIP to offer and coordinate a training effort with the Department of Emergency Management to the local finance and real estate groups and associations. **2010 Update: This strategy is ongoing.**
 - Develop a plan to maintain an available supply of safety and emergency preparedness supplies. Lead agencies responsible for coordinating supplies and resource information on availability of supplies would be the Department of Emergency Management in coordination with the Public Works Departments, and the American Red Cross. The lead agency for sandbags would be the Public Works Departments. **2010 Update: This strategy is ongoing.**
 - Streamline environmental compliance requirements for pre-flood prevention activities. The lead agency would be the Community Development Departments. **2010 Update: This strategy is complete.**

2. Pursue Federal Emergency Management Agency Disaster Housing/Home Repair Program to include mitigation measures for the private sector for multi-hazard risks. The lead agencies for this strategy would be the Department of Emergency Management and the Community Development Departments. **2010 Update: No funding available, Strategy will be removed**

3. Provide a community-wide service to anchor mobile homes for qualifying citizens and encourage private individuals to anchor their own mobile homes. Volunteer agencies coordinated by local service organizations and the Department of Emergency Management would take the lead for this strategy. **2010 Update: Most mobiles in the county have been tide down per code.**
4. Familiarize the community with the risks of “convergence zone” type of flooding. A convergence zone is caused when low atmospheric pressure combines with severe weather causing tidal overflow and watershed backup. The lead agencies would be the Public Works Departments in coordination with the Department of Emergency Management. **2010 Update: Now in Public Education materials.**
5. Encourage businesses and citizens in historic flood areas to raise valuables out of harms way. The Department of Emergency Management would be the lead agency. **2010 Update: Now in Public Education materials.**
6. Conduct cost benefit analysis for flood buy out plan in areas where properties have had multiple flood losses. **2010 Update: Funding not available for analysis or property purchase.**

CAT II: SEVERE STORMS MITIGATION STRATEGIES

NONE

CAT III: LAND SHIFT MITIGATION STRATEGIES

1. Land Shift General Mitigation Strategy: Identify and implement community-wide erosion control measures. **2010 Update: No funding available**
2. Utilize Public Access Television to include programming on how to define the problem and how to mitigate and live with the effects of erosion. **2010 Update: No funding available**
3. The lead agencies would be the Health Districts and Community Development Departments in coordination with the Public Works Departments.

CAT IV: EARTHQUAKE MITIGATION STRATEGIES

1. Assess community-wide utility infrastructure with regard to earthquake risk, including public and private utilities (power and telephone systems).
 - Puget Sound Energy, Natural Gas Companies, City/County sewer and stormwater systems, Public Utility Districts, Private Communications Businesses, Water Purveyors, and Sewer Districts would be identified as the lead agencies or

businesses, where appropriate, in relation to the service provided, to implement this strategy.

- In some cases, private and public rate increases may be considered for implementation of a proactive seismic safety program.
- This program will need to be tied to, and be an active participant in, a regional GIS Mapping Project.

Note: The Kitsap Regional Coordinating Council (KRCC), in its current state, could not support such a program. It is recommended an assessment be made to identify specific recommendations that would accomplish the KRCC's participation. An estimate of what it would take to accomplish the KRCC participation is required.

Implementation Time: 1 to 3 years

Implementation Cost: Estimates to be submitted by the private utility districts through the KRCC, for further submission for possible funding e.g. Mitigation grants.

2. Incorporate information and recommendations on water system issues identified in seismic studies into the Hazard Mitigation Plan.

Those studies are: Report Water System Earthquake Vulnerability Assessment for the City of Bremerton: Dames and Moore Group Company Job No. 05793-007-004, March 1997. These reports are inclusive of: Dam Break Inundation Analysis and Down Stream Hazard Classification, May 1996. (Prepared under contract to Dames & Moore by WEScorp) and Washington State Department of Ecology Dam Safety Section, Emergency Action Plan for the City of Bremerton Reservoir No. 4, May 1996.

- City of Bremerton Public Works Department would be identified as the lead agency for strategy implementation.
- Funding for this project would need to include both State and Federal funding resources and potential private funding where appropriate.

Implementation Time: 1 to 6 years

Implementation Cost: \$1,750,000 as per Dames & Moore Order of Magnitude Cost estimate and the City of Bremerton 6-year CIP.

2010 update: *Delayed due to lack of funding*

CAT V: DROUGHT MITIGATION STRATEGIES

NONE

CAT VI: TSUNAMI MITIGATION STRATEGIES

1. Warning:
 - Warning times for tsunami within Puget Sound are significantly less (30 seconds – 5 minutes) than warnings for the outer coast. This effort should not be considered a long-term solution, but rather a means of providing the earliest possible warning in the short-term.

Implementation Time: 1 to 3 years.

Implementation Cost: One warning pole (including installation) has an estimated cost of \$40,000. It is recommended that 2 poles be placed: one pole in Dyes Inlet / Port Washington Narrows, and one in Gorst. Total Cost: \$100,000.

2010 Update – The strategy to become part of NOAA’s Tsunami Warning System has been removed. There is no funding available.

CAT VIII: MULTI-HAZARD MITIGATION STRATEGIES

1. Expand real estate disclosure to include all hazards. Research into this issue to be conducted by the Department of Emergency Management. **(Has not started)**
2. Examine the feasibility of implementing building codes requiring underground utilities for new development where possible. The lead agencies would be the Community Development Departments. **(need to delete no funding)**

CAT IX through X:

NONE

SECTION FIVE: Future Actions & Goals

I. SUMMARY

The Kitsap County Hazard Mitigation Plan and Identified Hazard Mitigation Program Strategies establish the framework within which the post disaster and day-to-day mitigation activities of the community may be carried out on a prioritized and regional basis.

The Plan is based upon the experience of the region through the input of the Hazard Mitigation and Recovery Team Steering Committee, the 2010 City and Special Purpose District Planning Partners, the Department of Emergency Management and the input of the community.

The plan recognizes the varied conditions that exist and can be found throughout Kitsap County. No single mitigation strategy will effectively meet the needs of all of the communities. However, by embracing the regional coordinated approach and objectives found in this plan, Kitsap County can take significant strides toward the efficient and effective use of its resources to resolve and mitigate the community's identified hazards.

One of the most important accomplishments of the Hazard Mitigation planning project was the process itself, where the participants shared information, resources, and methodologies – community- wide, for the benefit of reducing or eliminating risk to Critical Areas.

II. FUTURE ACTIONS

KITSAP COUNTY EMERGENCY MANAGEMENT COUNCIL

The Kitsap County Emergency Management Council will review and adopt portions of or all of the Hazard Mitigation Plan and Strategy Recommendations.

1. Each member of the Emergency Management Council will support, and bring back to their individual political subdivisions, the recommendations adopted by the Council for implementation and coordination on a regional basis.
2. The Council will review and adopt, as necessary, the work of the Hazard Mitigation Steering Committee on an annual basis.
3. Each Special Purpose District Planning Partner will support, and bring back to their individual agency, the recommendations adopted by the Council for implementation and adoption by their Special Purpose District Board.

KITSAP COUNTY HAZARD MITIGATION PLANNING COMMITTEE

The Kitsap County Hazard Mitigation Planning Committee will meet annually to review the progress made on the identification of resources and implementation of the Hazard Mitigation strategies. It shall also seek input on future unidentified Hazard Mitigation programs and strategies.

1. Contact and work with each Hazard Mitigation Strategy's Lead Agency for an annual progress report on funding and implementation of the programs recommended.
2. Submit an annual report to the Emergency Management Council through the Department of Emergency Management on the status of the strategies adopted and implemented.
3. Meet annually, with each political subdivision, to identify new Hazard Mitigation strategies to be pursued on a regional basis and review the progress and implementation of those programs already identified.
4. Meet annually with the Community-Wide Planning Team to review the progress of the Hazard Mitigation program and bring forth community input on new strategies.
5. Coordinate with and support the Department of Emergency Management's efforts to promote and identify resources and grant money for implementation of the recommended Hazard Mitigation Strategies.

III. LONG TERM GOALS AND STRATEGIES

- Goal 1:** Eliminate or reduce the long-term risk to human life and property from identified hazards.
- Goal 2:** Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.
- Goal 3:** Avoid risk of exposure to identified hazards.
- Goal 4:** Minimize the impacts of those risks when they cannot be avoided.
- Goal 5:** Mitigate the impacts of damage as a result of identified hazards.
- Goal 6:** Accomplish mitigation strategies in such a way that negative environmental impacts are minimized.
- Goal 7:** Distill Local planning efforts and existing interagency group efforts into a comprehensive set of recommendations for Kitsap County's long-term regional mitigation strategy. Mitigation is most successful when it grows from Local and regional planning activities.
- Goal 8:** Provide a basis for funding priorities for the Hazard Mitigation Strategies developed.
- Goal 9:** Establish a framework and database that the County and its political subdivisions may use to apply for State and Federal hazard mitigation grants.
- Goal 10:** Establish an ongoing process to accomplish Hazard Mitigation Strategy identification on an annual basis. To be effective, mitigation must be a continuing activity.
- Goal 11:** Establish a regional platform to enable the community to take advantage of shared goals and resources and the availability of outside resources for minimizing vulnerability analysis and critical area risks.

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

APPENDIX A

A.1: Kitsap County Mitigation Planning Committee Meeting Records

Meeting Record	01/07/2010	A.1.1
Meeting Record	12/28/2009	A.1.2
Meeting Record	12/17/2009	A.1.3

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

APPENDIX B

Participating Organizations' Profiles and Public Notification and Meeting Records

Cities

- City of Bainbridge Island
- City of Bremerton
- City of Port Orchard
- City of Poulsbo

Fire Districts

- Bainbridge Island Fire District
- Central Kitsap Fire & Rescue
- Kitsap County Fire District #7
- Kitsap County Fire District #18
- North Kitsap Fire & Rescue

Governmental Organizations

- Kitsap County
- Kitsap County Consolidated Housing Authority
- Kitsap County Health District
- Kitsap Regional Library
- Kitsap Transit
- Suquamish Indian Tribal Community
- West Sound Utility District

Not-for-Profit Agencies

- American Red Cross of King & Kitsap Counties
- Holly Ridge Center
- Kitsap Community Resources
- Kitsap Mental Health Service
- Peninsula Services

Ports

- Port of Bremerton
- Port of Kingston

School Districts

- Bainbridge Island School District
- Bremerton School District
- Central Kitsap School District
- North Kitsap School District
- South Kitsap School District

Water Districts

- Kitsap Public Utility District
- Manchester Water District
- North Perry Water District
- Silverdale Water District

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

APPENDIX C

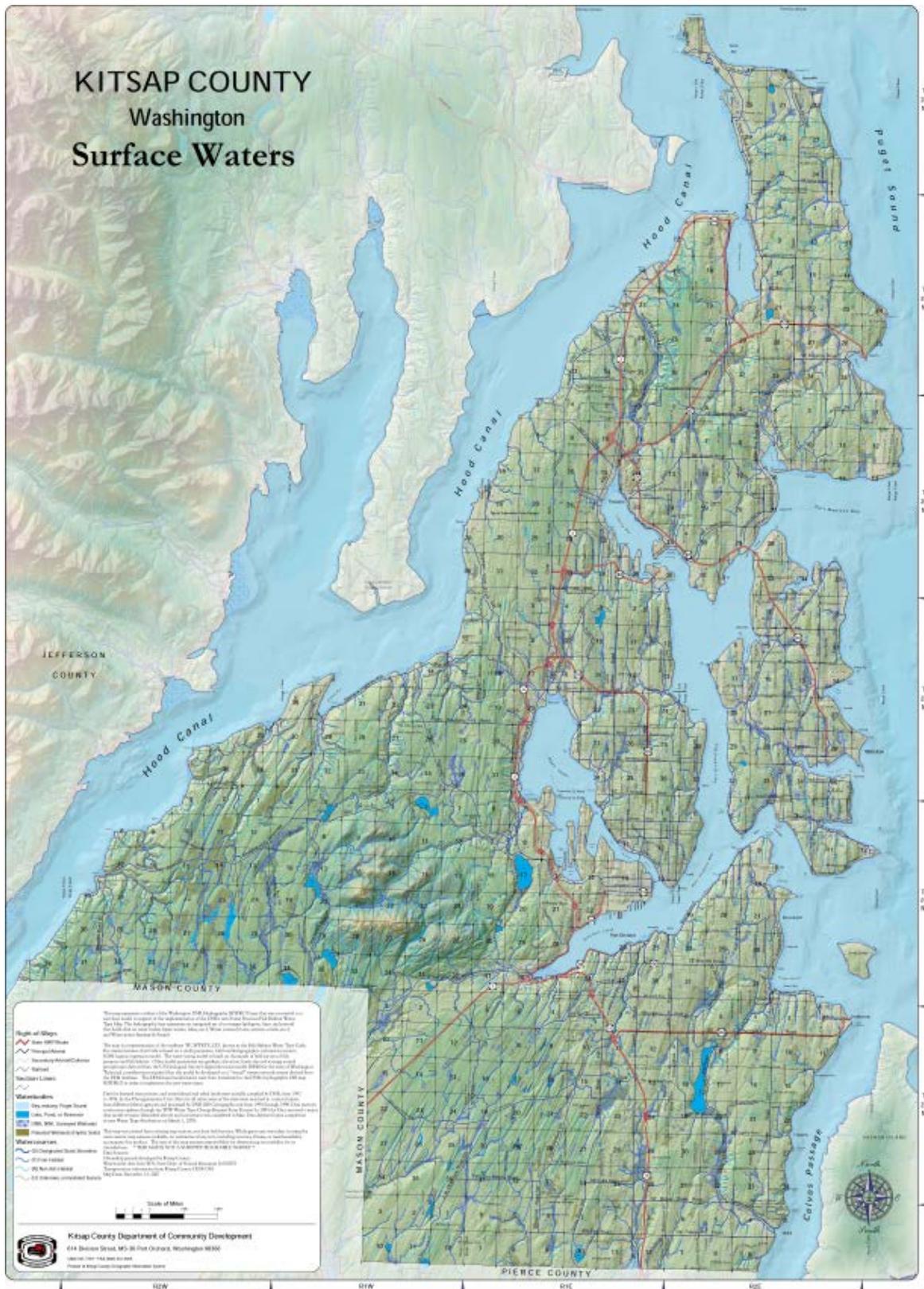
Hazard Mitigation Plan Maps

Map 1: Kitsap County Urbanized areas per 2010 Census, *Kitsap County GIS*

Map 2: Kitsap County Watersheds, *Kitsap County GIS*

Map 3: Kitsap County Surface Water, *Kitsap County GIS*

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN



REVISED: DECEMBER 2012

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

APPENDIX D

References and Resources

FEMA's Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000-Revision 2007

FEMA RiskMap Coastal Study 2010, FEMA

Kitsap County Hazard Identification and Vulnerability Assessment 2008, Kitsap County Department of Emergency Management, Bremerton, Wa.

Kitsap County Comprehensive Emergency Management Plan 2010, Kitsap County Department of Emergency Management, Bremerton, Wa.

Kitsap County GIS and Community Development Websites and Mapping Data, Kitsap County, Wa.

Landslides Triggered by the Winter 1996-97 Storms in the Puget Lowland, Washington (Online) Rex L. Baum, Alan F. Chleboarad, and Robert L Schuster, Department of Interior and USGS, 1998

Landslides Mapped from LIDAR Imagery, Kitsap County, Washington, Jonathan P. McKenna, david J. Lidke, and Jeffrey A. Coe, Department of Interior and USGS, 2008

National Flood Insurance Program Community Rating System; A Local Guide to Saving Lives, Preventing Property Damage, and Reducing the Cost of Flood Insurance, FEMA 573, FEMA.

National Flood Insurance Program Community Rating Systems, FEMA, October 2012

The Robert T. Stafford Disaster Relief Act of 1988

USGS Characterization and Numerical Simulation of the Groundwater Resources on the Kitsap Peninsula, Kitsap, Mason, and Pierce Counties, Washington, USGS 9722-CWQ, 2012

Washington State Earthquake Scenario Catalog (Online) USGS

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

APPENDIX E

Critical Areas	Environmentally sensitive areas, which include wetlands fish and wildlife habitat conservation areas; geologically hazardous areas; areas with a critical recharging effect on aquifers used for potable water; and frequently flooded areas. Critical areas have measurable characteristics which, when combined, create a value for or potential risk to public health, safety and welfare.
Erosion	The process whereby the land surface is worn away by the action of water, wind, ice or other processes, and by geologic events such as gravitational creep or landslides.
Federal Emergency Management Agency Hazard Mitigation Grant Program	Authorized under Section 404 of the Stafford Act. Provides funding for Hazard Mitigation projects that are cost-effective and comply with existing post-disaster mitigation programs and activities. These projects cannot be funded through other programs to be eligible.
Floodplain	Areas inundated with water that are typically adjacent to streams, rivers, lakes, and coastlines and are susceptible to strong winds.
Floodplain (100 Year)	Floodplains that have the potential to flood once every 100 years, or that have a one percent chance of flooding equal to or in excess of that in any given year.
Flood Way	An area of land immediately adjacent to a stream or river channel that, in times of flooding, becomes an enlarged stream or river channel and carries the floodwater with the highest velocity.
Hazard Mitigation	Any action taken to reduce or permanently eliminate the long-term risk to human life and property and the environment posed by a hazard.
Hazard Mitigation Plan	The plan resulting from a systematic evaluation of the nature and extent of vulnerabilities posed by a hazard present in society that includes the strategies needed to minimize future vulnerability to hazards.
Landslide Hazard Areas	Areas potentially subject to landslides, based on a combination of geologic, topographic, and hydrologic factors. This includes areas with any combination of bedrock, soil, slope, structure, and hydrology.
LIDAR	Light Detection and Ranging Airborne Laser Mapping. LIDAR compliments other remote sensing such as ortho-photography and traditional topographic mapping. LIDAR is able to sense through vegetation (remove the trees) and produce a map of the actual topography.
Liquefaction	Liquefaction occurs in areas that have certain soils, which lack

KITSAP COUNTY MULTI-HAZARD MITIGATION PLAN

cohesion and where the water table is close to the surface. Such soils can lose shear strength and flow like a liquid even during earthquakes originating beyond Kitsap County.

Riparian Zones Areas typically consisting of vegetated corridors or areas adjacent to streams, wetlands, lakes or tidewater and may include some uplands depending on site conditions. Native vegetation in these areas is considered to provide a natural barrier, which can prevent or significantly reduce the amount of pollutants from reaching waterbodies.

Seismic Hazard Areas Areas subject to severe risk of damage because of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting. Settlement can occur in areas with loose, unconsolidated soil, which can either slide or suddenly drop when shaken.

Wildfire Urban Interface Wildland vegetation and forest areas adjacent to or intermingled with residential developments.

CITIES OF KITSAP COUNTY

Bainbridge Island

Bremerton

Port Orchard

Poulsbo



**City of Bainbridge Island
Mitigation Plan Revision 2013**

**Jurisdiction-Specific Vulnerability Assessment and Mitigation
Strategies**

Contact Information:

Douglas Schultz

City Manager
City of Bainbridge Island
280 Madison Ave North
Bainbridge Island, Wa.
(206) 842-2545

Attachments:

Appendix BI-1: City of Bainbridge Island Asset Profile
Appendix BI-2: Mitigation City Council Hearings and Public Notices

City Profile

Overview

Bainbridge Island is located east of the main Kitsap peninsula, separated generally by Agate Passage to the north; the main body of Puget Sound to the east; Rich Passage Inlet to the south; and Port Orchard Bay to the west. Through island annexes in 1991, the City of Winslow, 2 miles square and a little of 3,000 residents grew to over 27 square miles and a population to day of 23,290.

Bainbridge Island has state, county, and municipal parks in addition to shoreline access from many city-owned road ends. There are golf courses, tennis courts, and youth play fields on the Island.

Age and Population Distribution

Bainbridge Island has a diverse population of 23,290 (2010 census). A large group of professionals transit daily to downtown Seattle for employment. The island is characterized by professional scientific employment, construction and education.

Table BI-1 shows the distribution of age on Bainbridge Island. Overall, the City's population is has a typical distribution with a slightly higher "baby boomer" group. There is a number of senior/assist facilities on the island mostly located in the city's urban center. The senior population has grown consistent with national trends.

Exhibit BI-1 shows the population density for Bainbridge Island. The City is mostly rural with an urban center (formerly the City of Winslow) located at the ferry landing.

City of Bainbridge Island			
Population Age (2010 Census)	Total	23,025	100%
	Age 0-18	5,449	23.7
	18-62	12,514	54.3
	62-Older	5,062	22.0

Table BI-1 Population by Age: Bainbridge Island

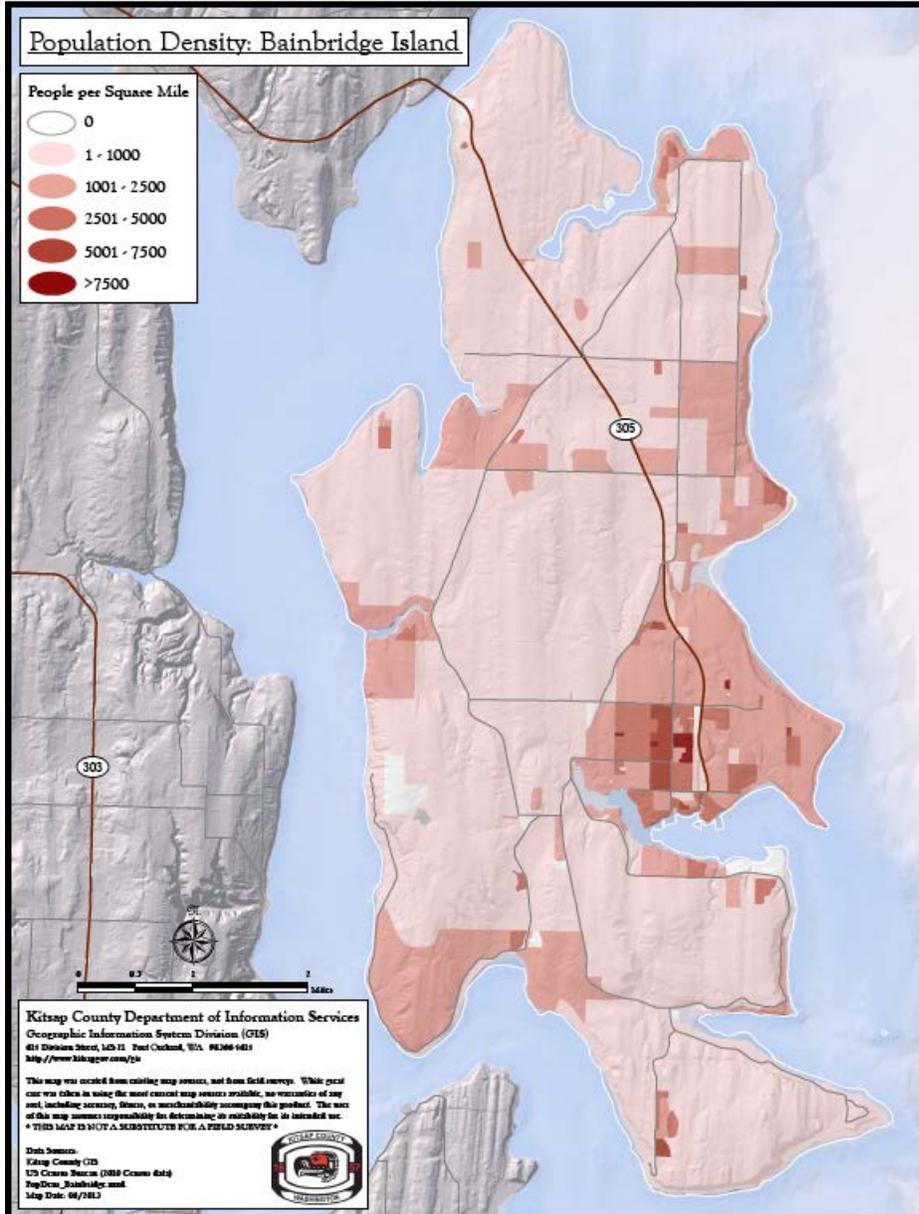


Exhibit BI-1 Population Density: Bainbridge Island

Source: Kitsap County Department of Information Services 2013

Geographical/Topographical Description

The City (Island) is characterized by an irregular coastline of approximately 45 miles with numerous bays and inlets. The topography is generally of low rolling hills with several ridges oriented mostly north to south at 250 to 300 feet elevation.

Bainbridge Island is surrounded by the waters of Puget Sound. There are numerous streams and creeks in addition to Gazzam Lake, a year-round freshwater lake. Environmentally sensitive areas on Bainbridge Island include wetlands, aquifer recharge areas, geologically hazardous areas, continuous and seasonal streams and waters including the waters of Puget Sound, and fish and wildlife habitat. There are over 170 documented wetlands, although more exist that are unmapped. Exhibit BI-2 illustrates the topography of the island noting the rolling hills and valleys of Bainbridge Island.

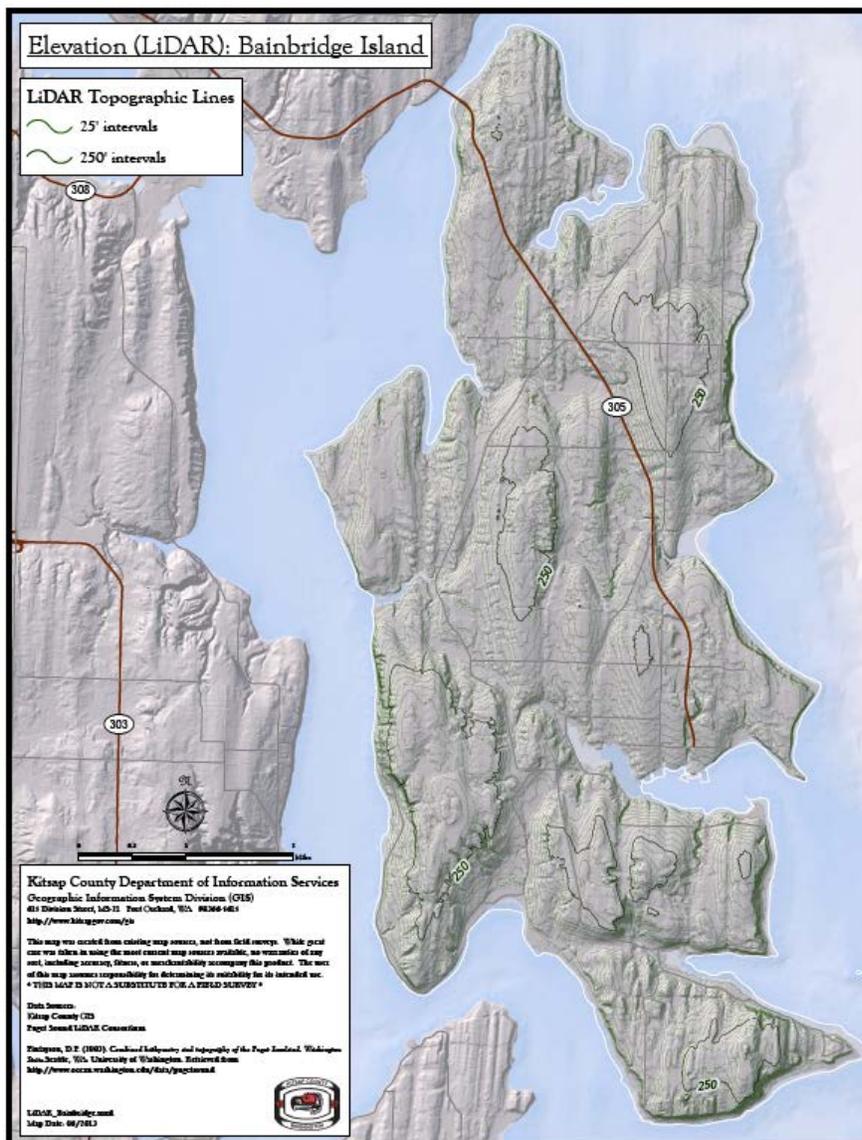


Exhibit BI-2 Topographical Map of Bainbridge Island

Source: Kitsap County Department of Information Services 2013

Land Use

Land uses on Bainbridge Island are primarily residential with some commercial, light manufacturing, recreation, agriculture, and open space. Median household income is \$98,608. Table BI-2 and BI-3 provide information on housing units on Bainbridge Island. As noted in Table BI-3, a majority of the island's structures are recently building structures. Total building stock is 12,639 with 83 critical facilities. Critical facilities are those identified by the City as critical to emergency response and citizen safety. They are part of Kitsap County's Damage Assessment Program.

City of Bainbridge Island			
Housing Units (2010 Census)	Total	10,584	100%
	Detached	7883	77.5
	Attached	2453	23.2
	Mobile Homes	218	2.1
	Boat/RV	30	.2

Table BI-2 Housing Units: City of Bainbridge Island

City of Bainbridge Island			
Housing Age (2010 Census)	Total Built	10,584	100%
	1990-Later	4,254	39.1
	1950-1989	4,637	27.7
	1949-Earlier	1,154	1.1

Table BI-3 Housing Age: City of Bainbridge Island

Business and Industry

The city is primarily residential with some commercial light Manufacturing, recreation, agriculture and open space. The principle economic base is retail outlets/offices, Bainbridge Island School District and light industry. As noted earlier, a significant number of citizens on the Island commute via ferry to Seattle daily.

Transportation, Communications, and Utilities

Bainbridge Island is served by the Washington State Ferries systems, which docks in the downtown Winslow area. State Route 305 connects the ferry terminal with SR 3 in Poulsbo. In addition, the Island has an extensive system of arterials, suburban, and local public streets. Kitsap Transit operates a commuter system in the City which is coordinated with the ferry schedule in addition to a dial-a-ride service. There are several designated transit stops in Winslow, but for the rest of the island, transit stops are generally where riders flag down buses on their routes.

The city is serviced by Puget Sound Energy and maintains it own sewer and water system. The Agate Pass Bridge, build in the 1950's is the only fixed transportation route to the island. The island is not serviced by any other bridge and therefore must rely on maritime service should the bridge be damaged in a disaster.

City Infrastructure

There is a variety of different types of building structures on Bainbridge Island. Most structures are wood construction. **Appendix B.1** shows the City's capital asset profile.

Critical City Owned facilities include:

- City Hall
- Public Works Facilities
- Police Station
- Main Waste Water Treatment Facility
- Fort Ward Waste Water Treatment Facility
- Reservoir Facilities at High School Road and Knechtel and Grand
- Well fields at the Head of the Bay, Fletcher Bay, High School Road, and Rockaway Beach.

History of Disasters

Bainbridge Island, through recent studies, shows historical signs of past earthquakes. The island is obviously vulnerable to earthquakes, but also tsunamis and landslides. In 1996, a landslide on the Rolling Bay Walk, pushed a home down a deep embankment killing the family that occupied the home. Additional information on this event can be found in Section III: Land CAT III Land Shifts. Table BI-4 shows the history of events on Bainbridge Island. As noted in the last 10 years, Bainbridge Island has been mostly affected by severe winter storms, but not serious enough to require any federal assistance.

Event Date	Type of Event	Declaration?	Declared Disaster?
Dec 2008	Severe wind and rain	Local	No assistance
Dec 2007	Severe wind and rain	Local, State, and Federal	Yes
Jan 2006	Severe wind and rain	Local	Did not meet PA threshold
Dec 2006	Severe wind and rain	Local	Did not meet PA Threshold
Oct 2003	Severe wind and rain	Local, state, and Federal	Local PA Threshold not met. IA paid out
Jan 2002	Severe wind and rain	Local and State	State Only; presidential denied
Feb 2001	Nisqually Earthquake	Local, state, and Federal	YES
June 1997	Rolling Bay mudslide	Local	No assistance
Dec 1996	Severe rain and snow runoff storm	Local, State, and Federal	Yes
Nov 1995	Severe wind and rain	Local, State, and Federal	Local PA threshold not met
Jan 1993	Severe wind and rain	Local, State and Federal	No record on file
Jan 1992	Severe wind and rain	Local	No assistance
Dec 1990	Severe wind and rain	Local, State and Federal	Yes

Dec 1982	Severe wind and rain	Local	No assistance
May 1965	Earthquake	Local, state, and Federal	No record on file
Oct 1962	Severe wind and rain	Local, state and Federal	No record on file

Table BI-4 Emergency/Disaster History for Bainbridge Island

Mitigation Planning

Risk Assessment

Section III of this plan provides a thorough assessment of hazards associated with Kitsap County and its incorporated cities. Although, each city is affected differently, risks significant to the City of Bainbridge Island are floods, earthquakes, land shifts, tsunamis, and winter storms. Section III is a synopsis of the County and cities. This profile provides additional information specific to Bainbridge Island.

Rating System

The rating system for Bainbridge Island is consistent with the general plan. A rating for each hazard is defined as high, medium and low based on the information provided in Section II to this plan. Additional ratings are applied for priority mitigation strategies and Cost analysis.

Overview

As noted earlier, the City of Bainbridge Island has a history of severe winter storms, land shifts, and earthquakes. These vulnerabilities can cause serious damage and isolate the island should the Agate Pass Bridge become impassable. Although other alternatives are possible, mitigation strategies can provide improvement to the city infrastructure and minimize the loss of life from such events. Major east/west fault lines in the Puget Sound Region intercept the southern end of the Island. Bainbridge Island is also vulnerable to potential inland and ocean tsunamis depending on the earthquake magnitude and location. The City of Bainbridge Island contributes and uses the County Hazard Identification and Vulnerability Assessment (HIVA) to set priorities on natural hazardous events. Although annually the City is hit by severe winter storms, the greatest threat to Bainbridge Island is an earthquake and potentially associated tsunami. This catastrophic event possibly along the Seattle fault would cause significant damage to the island and possibly isolate the City from the mainland.

Planning Process

As noted in the basic HMP Plan Update, the City of Bainbridge Island assigned personnel to the mitigation plan update and through the planning update process, were assigned to the Kitsap HMP planning committee. Additionally the City solicited for inputs from City Departments, City Council, and the citizens of Bainbridge Island. The city conducted a notice of public hearing and review of the HMP for the City as noted in the attachments.

Every effort should be afforded to incorporate mitigation strategies into city ordinances and plans where appropriate. The mitigation plan and its strategies should be reviewed when other plans are up for revision. As noted below, each plan provides mitigation strategies for capital improvement and land use.

Plans and Ordinances

In an effort to maximize hazard mitigation planning, the following city plans are used to support and mandate mitigation efforts throughout the city:

1. Comprehensive Land Use Plan

The plan guides the growth and long range vision of the community towards its 5 overriding principals listed below.

- Preserve the special character of the Island;
- Protect fragile water resources;
- Foster diversity;
- Consider costs and benefits to property owners when making land use decisions;
- Promote sustainable development.

The Comprehensive Plan also includes a Land Use Map linked to the land use and environmental policies that establishes areas of the City for residential, commercial, industrial and other land uses.

2. Zoning Ordinances

Changes and updates to Zoning Ordinances is the responsibility of Planning and Community Development. Its mission is to coordinate and manage land use activity. Mitigates against building in hazardous locations

3. Critical Areas Ordinances (includes flood damage prevention and geologically hazardous areas provisions).

This ordinance defines critical areas (wet lands, areas of critical recharging effect on aquifers used for water, fish and wildlife habitat.) as required by the Growth Management Act. This ordinance regulates, protects and defines these Areas under Bainbridge Island Municipal Code Section 16.20. It prohibits developments in ecological sensitive areas or adjacent to sensitive areas that may be affected by hazards from those sites.

4. Capital Facilities Plan

This 6 year plan identifies and prioritizes Parks, Open Spaces and Shoreline Improvements and mitigation between 2009 and 2014. It is part of the Comprehensive Land Use Plan required by the Growth Management Act. Effective use of lands to mitigate developments in flood zones and areas associated with natural or man made hazards.

5. Surface and Storm Water Management Plan and Ordinance

The SSWMP divides the duties and responsibilities into four areas Regulatory Program Activities, Local Storm Water Activities, Program Overhead & CID and Equipment and Technical Memos. This 5 year Plan defines staffing, funding and mitigation goals. Mitigates run off from roads and potential damage from winter-storm or flooding. Mitigates run off of hazardous materials into ecological sensitive systems.

6. International Building and Fire Codes

Establish codes and regulations for building structures for safe occupancy. Mitigates against accidents and natural or man-made causes.

7. Bainbridge Island Municipal Code

These plans and policies regulate the infrastructure, environment and building codes for the City of Bainbridge Islands. The city follows these codes to mitigate potential damage during catastrophic events. Mitigate seismic events and other hazards through building structures to withstand or minimize the effects of these hazards.

Mitigation Goals and Strategies

2012 Mitigation Goals

The following goals have been defined by the City of Bainbridge Island and are consistent with those in the basic HMP update.

Goal 1: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Goal 2: Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.

These goals are applied to each of the hazard categories noted below with associated strategies for 2012.

The Table below provides updates to strategies outlined in the HMP 2004. Strategies may have been dropped due to lack of funding or resolved. The following categories include unresolved strategies from 2004 or new 2012 strategies. For priority purposes, the strategies listed in each category are done so in order of importance.

Category	Strategy	Probability of Occurrence	Implementation time	Remarks/Status
II	Inspect and identify trees and other object that can pose a hazard during a storm	High	Ongoing	Ongoing strategy. Significant improvements have been made with city funds
IV	Pursue seismic upgrades to equipment, infrastructure, and critical facilities	High	Ongoing	Some improvements. HMP funds may be sought for high end projects
IX	Aid both the private and public sectors in understanding the risks they may be exposed to and fund programs to mitigate.	High	Ongoing	Bainbridge has extensively provided disaster preparedness to citizens and businesses throughout the island, although ongoing commitment may require funds to amplify the program

Hazard Assessments Bainbridge Island

Category I: Flooding

Probability of Occurrence: Medium

Bainbridge Island is prone to some flooding, mostly due to significant rainfall. The Island does not have any significant rivers or streams (Exhibit BI-4), but does have rolling hills and lowlands susceptible to urban flooding. Comprehensive land management has helped in years to reduce urban flooding. Changes to the National Flood Insurance Program and coastal studies noted in Section III are defining changes to shoreline management aiding building codes and regulations. Exhibits BI-3 shows areas susceptible to flooding. Some areas are coastal, but all inland areas are remote with no critical facilities affected and minimal residential housing.

National Flood Insurance program (NFIP)

The City of Winslow entered the Emergency Program on August 14, 1975 then converted to the National Flood Insurance Program (NFIP) effective February 5, 1986. The Island was incorporated in 1991, and became the City of Bainbridge Island with a NFIP Effective Date of March 1, 1991. The most recent review of the city's participation in the NFIP was conducted in 2004. During this Community Assistance Visit (CAV) the summarized findings from the CAV included the need for an amendment to the City's flood chapter 15.16, preparation of procedures to implement Chapter 15.16, and additional information on eleven specific cases that were cited in their field work. As of February 2005, all these items were cleared and our CAV was closed.

In conclusion, it is anticipated that every 10 years, Bainbridge Land may experience severe storms enough to cause flooding and possibly land shift resulting in private and public losses. Bainbridge Island has been modernizing its storm water systems to mitigate urban flooding throughout the Island.



Exhibit BI-3 Flood Zones: Bainbridge Island

Source: *Kitsap County Department of Information Services 2013*



Exhibit BI-4: Streams and Surface Water, City of Bainbridge Island

Source: Kitsap County GIS Department

Category II: Severe Storms
Probability of Occurrence: High

As noted in Table BI-4, the City of Bainbridge Island is vulnerable to severe weather typically in the winter months. High winds, significant rainfall, and snow can cause some urban flooding as well as damage from falling trees and the potential for landslides due to saturated soils. This can result in loss of life, damage to homes, and significant power outages. Although earthquakes have the potential for significant damage and loss of life, severe storms are annual occurrences, and any mitigation can also minimize the loss of life and damage from other hazards.

Severe storms affect the entire City of Bainbridge Island. Although the Island does not have any major rivers or tributaries, urban flooding from over-taxed stormwater systems can cause damage to residential and retail outlets. The Island is heavily wooded with significant old growth timber. The location of the island is ideal for being in the Puget Sound convergent zones during significant weather events and vulnerable to strong winds as weather fronts move over the Olympic Mountains. This results in falling trees and significant power outages. Exhibit BI-4 shows the streams and surface water on Bainbridge Island. Over the past couple of years, the City of Bainbridge Island and Puget Sound Energy have been working to reduce the number

and length of power outages on the Island. Additionally, community programs have been established to reduce power consumption.

Table BI-5 notes how severe storms affect building stock and the citizens on the Island. In all categories, 100% of the island has the potential for damage and loss of life from severe storms.

City of Bainbridge Island

Total Population	Population in Hazard Area	% Population Affected By Hazard
22,010	22,010	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
12,639	12,639	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
83	83	100

Table BI-5 Hazard Data for Severe Storms and Flooding: Bainbridge Island

Source: Kitsap County GIS and Census 2010

Category III: Land Shifts

Probability of Occurrence: High

The City of Bainbridge Island is vulnerable to land shifts as noted in Exhibit BI-5, mostly coastal cliffs potentially vulnerable during an earthquake or significant rainfall when ground are saturated. LIDAR studies noted in Section III, noted numerous areas on the Island that are vulnerable to land shifts. The City of Bainbridge Island has 27 known areas that have the potential to slide based on USGS LIDAR studies. These areas are known to City Planners. Additional studies of building stock located in these areas will be conducted in the future. Initial estimates define residential stock in these locations and critical facilities. Long term mitigation efforts include restrictions on developing these areas for use, while in the short term, areas are monitored by Public Works during significant weather events.

Table BI-5 shows the potential building stock affected by potential land shifts. These are residential homes that dot the coastal areas of Bainbridge Island. As noted in Section III to the Basic Plan, Bainbridge Island's tragic event in 1996 where a family was killed during a land shift, notes the risk involved in building in these areas. Ongoing land use studies and ordinances have prevented develop in high risk areas.

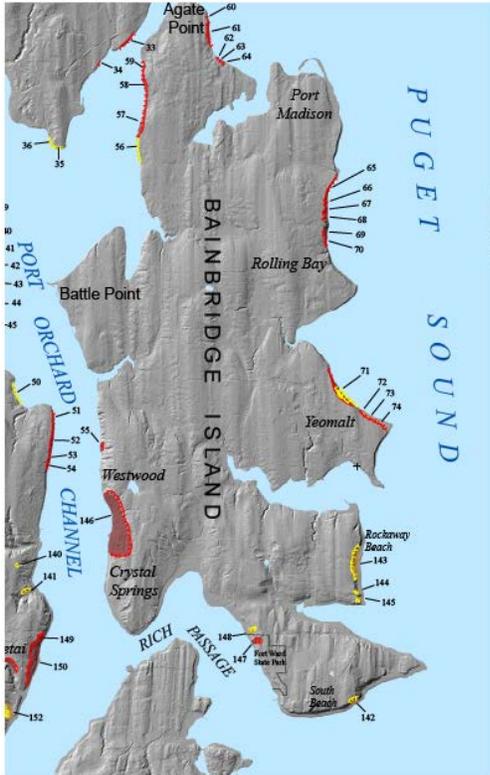


Exhibit BI-5 LIDAR Data on Land Shift: Bainbridge Island
 Source: USGS

City of Bainbridge Island

Total Population	Population in Hazard Area	% Population Affected By Hazard
22,010	3,528	1.6
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
12,639	2190	17.3
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
83	00	0.0

Table BI-6 Hazard Data for Land Shifts: Bainbridge Island
 Source: Kitsap County GIS and Census 2010

Category IV: Earthquakes
Probability of Occurrence: High

The City of Bainbridge Island is obviously vulnerable to earthquakes. Bainbridge Island is affected by known faults including the east/west Seattle Fault. Earthquake modeling shows Bainbridge vulnerable to numerous Puget Sound faults should there be an earthquake. A significant Puget Sound earthquake could potentially cause significant damage to the Island

including isolation to the mainland should the Agate Pass Bridge be lost. This includes the possibility of land shifts, infrastructure damage, and transportation disruptions. Although the Island has very few older structures and the majority of the island is wood structures. Some areas are vulnerable to liquefaction including the urban downtown formerly the city of Winslow as noted in Exhibit BI-6 below. In Table BI-7, the entire population and building stock are potentially at risk of damage from an earthquake depending on the size and location of the event.

Earthquakes continue to be the number 1 priority for mitigation strategies due to the significant losses that may occur during an event. Ongoing land use and building regulation help to manage vulnerability to earthquakes.

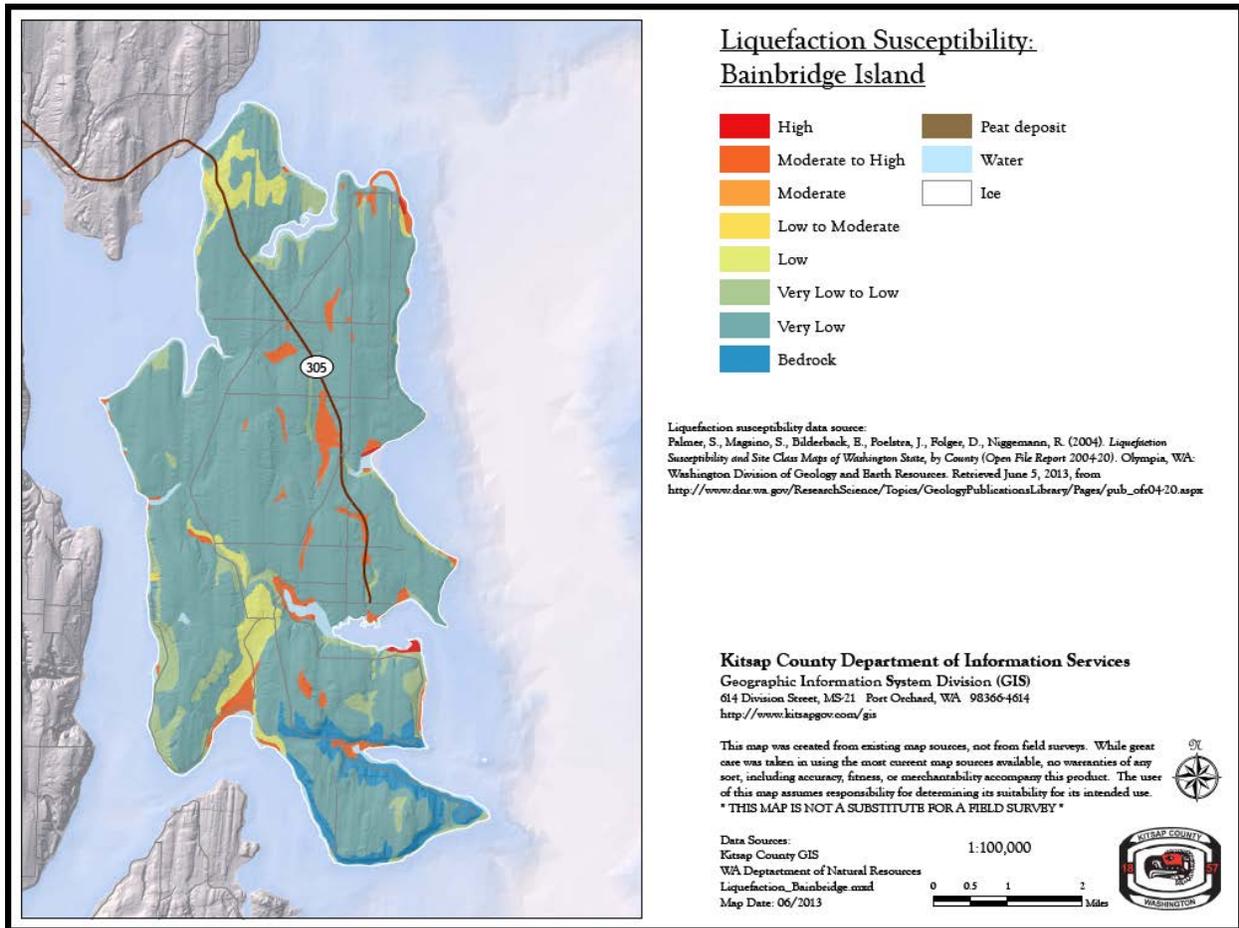


Exhibit BI-6 Liquefaction on Bainbridge Island
 Source: Kitsap County Department of Information Services 2013

City of Bainbridge Island

Total Population	Population in Hazard Area	% Population Affected By Hazard
22,010	22,010	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
12,639	12,639	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
83	83	100

Table BI-7 Hazard Data for Earthquakes: Bainbridge Island

Source: Kitsap County GIS and Census 2010

Category VI: Tsunamis

Probability of Occurrence: Medium

Bainbridge Island is susceptible to tsunamis depending on the magnitude and location of any given earthquake. In recent years, USGS and other organizations has studied locations throughout the Puget Sound Region to better define the impact of tsunamis on the region. The USGS and the National Weather Service have installed warning system to warn the public of a potential tsunami and reduce the risk of loss of life. Regardless, an tsunami from the ocean can cause damage to shorelines, but an inland tsunami has the potential for no warning resulting in significant damage to shorelines and loss of life.

Warning systems are our best bet to save lives, but due to the short time to response, may not be able to mitigate loss of life. As noted below in Table BI-8, a ocean generated tsunami significant enough to travel the length of the Juan Defuca’s inland may generate a wave that will cause damage to coastlines. On the other hand, an inland tsunami from a large magnitude earthquake in the Puget Sound would have devastating affects on the City’s urban center.

City of Bainbridge Island

Total Population	Population in Hazard Area	% Population Affected By Hazard
22,010	3,714	17.0
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
12,639	1238	9.7
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
83	5	6.0

Table BI-8 Hazard Data for Tsunamis: Bainbridge Island

Source: Kitsap County GIS and Census 2010

Mitigation Strategy

BI-1

Action: Develop and implement projects to improve control of runoff and flooding.

Lead Department: Engineering

Support Agency: Community Development

Category and Priority: Cat I/Medium

Probability of Occurrence: High

Implementation timeline: Based on size of project and availability of funds

Implementation Costs: \$250,000 per year

Benefit to Cost: Reduces erosion and road/infrastructure maintenance

Options and Discussion: When funds are available.

BI-2

Action: Improve citizen preparedness programs to include mitigating residential structures.

Lead Department: Kitsap County Emergency Management

Support Agency: City of Bainbridge Island and Bainbridge Island Fire Department

Category and Priority: All Categories/High

Probably of Occurrence: High

Implementation Timeline: Ongoing

Implementation Costs: \$10,000 per year

Benefit to Cost: Increase disaster preparedness and improve ability for structures to weather a disaster

Options and Discussion: This project is ongoing and involves a continued effort to get neighborhoods involved in preparedness. Bainbridge Island has done over 75 neighborhoods, but the program involves continued outreach to keep communities involved in preparedness. Options involve introducing the CERT program on Bainbridge Island.

BI-3

Action: Identify slide-prone areas and study specific mitigation steps to reduce existing risk and prevent increase risks

Lead Department: Bainbridge Island Engineering

Support Agency: Bainbridge Island Community Develop, Kitsap County DEM

Category and Priority: Cat III/High

Probably of Occurrence: High

Implementation Timeline: When Funds are available

Implementation Costs: \$5 Million Plus

Benefit to Cost: Low, most vulnerable areas involve residential homes.

Options and Discussion: Bainbridge Island has many potential slide areas along coastal ways including rockaway Beach area, Rolling Bay Walk and Fort Ward Hill. These areas are mostly residential and roads vulnerable to landslides.

BI-4

Action: Conduct community outreach programs to land slide prone residents to discuss options for identifying indicators of land movements and life safety measures.

Lead Department: Bainbridge Island Community Development

Support Agency: Bainbridge Island Engineering

Category and Priority: Cat III/High

Probably of Occurrence: High. The best and least costly mitigation is citizen awareness.

Implementation Timeline: 2014-15

Implementation Costs: \$15,000

Benefit to Cost: Best method to improve life-safety and afford homeowners to improve structure integrity.

Options and Discussion: Outreach campaigned to effected homeowner can be beneficial during periods when landslide probability rises.

BI-5

Action: Develop a program to identify at risk seismic assessment of structures in need of retrofiting.

Lead Department: Bainbridge Island Community Development

Support Agency: Bainbridge Island Fire Department and Engineering

Category and Priority: Cat IV/High

Probably of Occurrence: Medium

Implementation Timeline: 1-6 years

Implementation Costs: \$500,000

Benefit to Cost: Medium. Mitigation funds would be supplemented by homeowners or business owners to conduct retrofiting.

Options and Discussion: Options include providing training and discounts for homeowners desiring to retrofit their homes.

BI-6

Action: Develop a project to discuss potential tsunami risk for Bainbridge Island. This program will include community and city preparedness options, need for evacuation routes, and the education of waterfront residents and commercial organizations

Lead Department: City of Bainbridge Island

Support Agency: Bainbridge Island Community Development and Kitsap County DEM

Category and Priority: Cat VI/Medium

Probably of Occurrence: Medium

Implementation Timeline: 1-4 years

Implementation Costs: \$50,000

Benefit to Cost: Medium

Options and Discussion: At a minimum, a community could be formed to discuss the implication of tsunamis on Bainbridge Island both Inland and Subduction zones.

BI-7

Action: Study Tsunamis and improve mapping of tsunami risk areas on Bainbridge Island

Lead Department: Bainbridge Island Community Development

Support Agency: Kitsap County GIS

Category and Priority: Cat VI/Medium

Probably of Occurrence: Medium

Implementation Timeline: 1-2 years

Implementation Costs: \$25,000

Benefit to Cost: None

Options and Discussion: Improving mapping of tsunami risk areas based on solid tsunami information can help to focus education and outreach programs to most prone to such an event.

BI-8

Action: Evaluate land use plans and ordinances for changes based on improved tsunami reach and information

Lead Department: City of Bainbridge Island

Support Agency: None
Category and Priority: Cat VI/Medium
Probably of Occurrence: Medium
Implementation Timeline: 1-2 years
Implementation Costs: \$50,000
Benefit to Cost: None
Options and Discussion: Based on improved research and study of Bainbridge Island coastal areas.

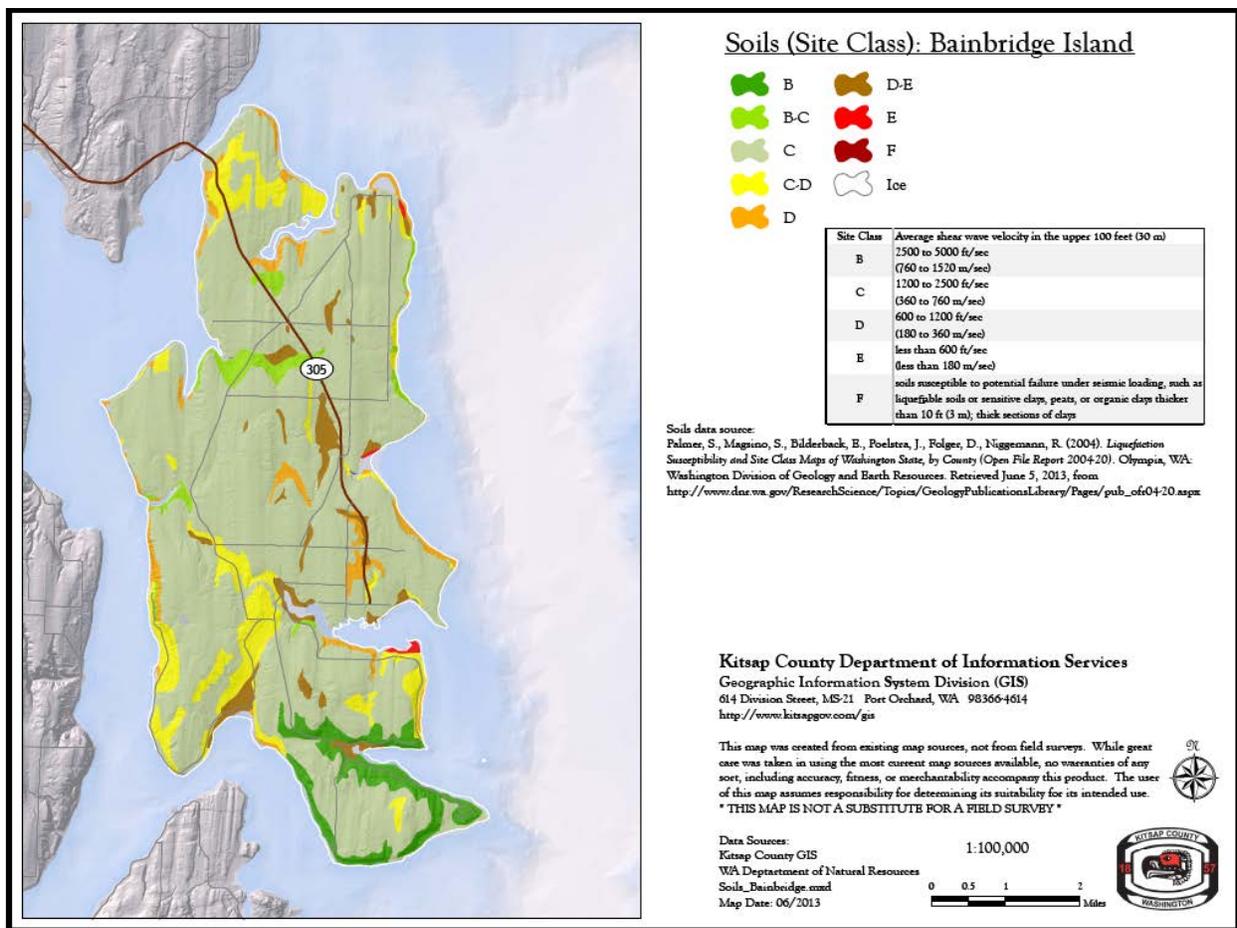


Exhibit BI-7: Soil (Site Class): Bainbridge Island
Source: Kitsap County Department of Information Services 2013

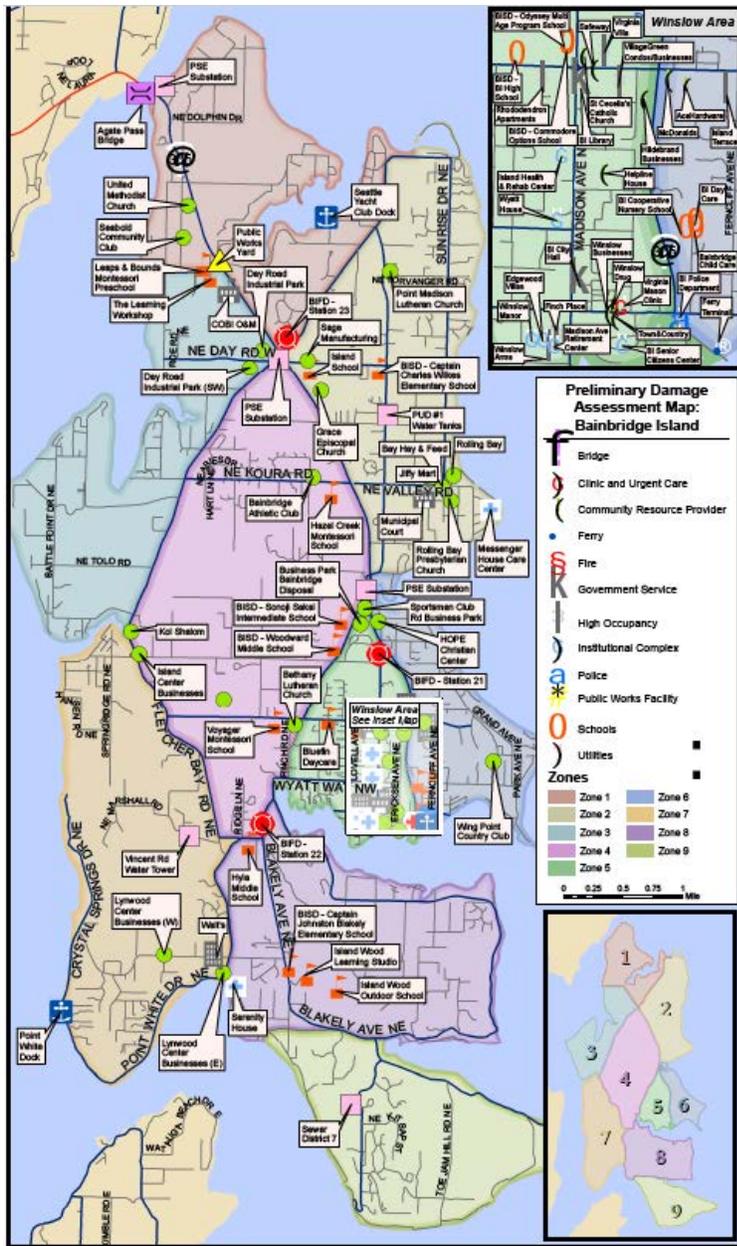


Exhibit BI-8: Kitsap County Damage Assessment Map: Bainbridge Island
 Source: Kitsap County Emergency Management 2010

Appendix B.1 City of Bainbridge Island (COBI) Asset Profile

Map #	Location COBI Facilities (Critical Facilities: High, Medium and Low)	Zip Code	Prop. Value	Contents	Year Built	Type of Construction	Stories	Square Footage	Type of Protection	Critical Facility (Yes/No)
1	280 Madison Ave, Bainbridge Island, WA City Hall (High)	98110	\$ 2,461,605	\$ 10,906,441	1999	Wood	2	19,051 ft ²	Alarm System	Yes
2	625 Winslow Way East, Bainbridge Island, WA Police Department (High)	98110	\$ 548,550	\$ 380,160	1967	Wood	2	3,953 ft ²	Alarm System	Yes
14	Water Front Park, Bainbridge Island, WA Senior Center/Commons/Health District (Medium)	98110	\$ 110,240	\$ 482,274	1996	Wood	1	5,640 ft ²	Alarm System	Yes
16	200 Madison Ave, Bainbridge Island, WA Bainbridge Island Performing Arts (Low)	98110	\$ 2,065,000	\$ 100,000		Wood	2			No
3	1220 Donald Place, Bainbridge Island, WA Wastewater Treatment Plant	98110	\$ 425,640	\$13,000,000	2009	Cinderblock	1	12,000 ft ²	Intrusion Alarm, Fenced	Yes
4	Bainbridge Island, WA Fletcher Bay Pump Station	98110	\$ 90,000	\$ 300,000	1977	Wood	1	475 ft ²	Intrusion Alarm, Fenced	Yes
5	Bainbridge Island, WA Sands Ave Pump Station	98110	\$ 82,860	\$ 1,361,014	1988	Wood	1	390 ft ²	Intrusion Alarm, Fenced	Yes
6	Bainbridge Island, WA Head of the Bay Pump Station	98110	\$ 118,480	\$ 270,983	1970	Wood	1	651 ft ²	Intrusion Alarm, Fenced	Yes
7	Bainbridge Island, WA Taylor Ave Pump Station	98110		\$ 872,930	1994	Cinderblock	1	247 ft ²	Intrusion Alarm, Fenced	Yes
8	Bainbridge Island, WA Grand Ave Tank	98110	\$ 43,045	\$ 126,817	1979	Steel			Fenced	Yes

Appendix B.1: City of Bainbridge Island
Kitsap County Hazard Mitigation Plan 2012

9	Bainbridge Island, WA High School Tank	98110	Leased	\$ 529,216	1990	Steel			Fenced	Yes
10	Bainbridge Island, WA High School Tank	98110	Leased	\$ 303,528	1977	Steel			Fenced	Yes
11	Bainbridge Island, WA Commodore Pump Station	98110	Leased	\$ 731,000	1995	Cinderblock	1	260 ft ²	Intrusion Alarm	Yes
17	Bainbridge Island, WA Weaver RD Pump Station	98110	\$ 105,520	\$ 50,000	1950's	Wood	1	153 ft ²	None	No
12	Bainbridge Island, WA Creosote Rd Tank	98110		\$ 500,000	1995	Concrete, Cinderblock			BLD has intrusion Alarm	Yes
13	Bainbridge Island, WA Public Works Yard	98110	\$ 1,471,516	\$ 2,928,540	1998	Steel, T1-11	2	3,426 ft ²	Gate	Yes
15	Bainbridge Island, WA Telemetry Building	98110	\$ 119,700	\$ 183,000		Steel, T1-11	1	190 ft ²	Gate	Yes
18	10255 NE Valley RD, Bainbridge Island, WA Municipal Court	98110	Leased	Leased		Wood	1	2,362 ft ²	None	Yes
19	282 Knechtel Way NE, Bainbridge Island, WA Helpline House (Med)	98110	\$ 360,180	\$ 464,520	1982	Wood	2		None	Yes
TOTAL				\$ 8,002,336	\$33,490,423					

Regular City Council Meeting

Feb 24 2010

**CITY OF BAINBRIDGE ISLAND
REGULAR CITY COUNCIL MEETING
WEDNESDAY FEBRUARY 24, 2010
280 MADISON AVENUE N., BAINBRIDGE ISLAND, WASHINGTON**

AGENDA

**1. CALL TO ORDER / PLEDGE OF ALLEGIANCE
7:00 PM**

**2. ADDITIONS AND DELETIONS/AGENDA ACCEPTANCE/CONFLICT OF
INTEREST DISCLOSURE
7:05 PM**

**3. PUBLIC COMMENT
7:10 PM**

**4. PUBLIC HEARING
7:30 PM**

A. Multi-Hazard Mitigation Plan Update AB 10-027 – Public Works *Conduct Public Hearing/Receive Public Comment*

7:40 PM

B. Resolution No. 2010-10, Transfer of Recreational and Open Space Properties to Bainbridge Island Metropolitan Park District (Yama Property, Nute's Pond and Aaron Tot Lot Green Belt) AB 09-106 – Executive *Conduct Public Hearing/Receive Public Comment/Consider Approval*

**5. CONSENT AGENDA
7:50 PM**

- A. Accounts Payable Vouchers and Payroll Approval – Finance *Approve*
- B. Special City Council Meeting/Workshop Minutes January 26, 2010 *Approve*
- C. Special City Council Meeting Study Session Minutes February 3, 2010 *Approve*
- D. Special/Regular City Council Meeting Minutes February 10, 2010 *Approve*
- E. Public Defender Contract, Thomas Alpaugh, \$47,000 AB 10-030 – Executive *Approve*
- F. Suzuki Property Volunteer Trail Construction AB 10-029 – Public Works *Approve*

- G. Interlocal Agreement, Port of Bremerton, City of Bremerton and City of Poulsbo, Phase II of Application for Shared Resource Conservation Manager with Kitsap County Local Governments AB 09-160 – Franz *Approve*
- H. Resolution No. 2010-11, Amending Grant Amount Received by the City Related to the Williams Property Transfer to the Park District AB 09-145 – Executive *Approve*
- I. Resolution No. 2010-12, Hyla Middle School, Request for School Zone Signage AB 10-028 – Public Works *Approve*
- J. Committee Liaison and other Council Assignments AB 10-031 – Knobloch *Approve*
- K. Proclamation: "Proclaiming March 2010 as Traumatic Brain Injury Awareness Month" – Legislative *Approve*

6. NEW BUSINESS

7:55 PM

- A. Resolution No. 2010-08, North Town Drive NE Speed Limit AB 10-032 – Public Works
Consider Recommended Motions

8:10 PM

- B. City Manager Recruitment Proposals AB 10-026 – Legislative *Discuss/Next Steps*

8:30 PM

- C. Appointment of Mayor Pro Tem for March through April, 2010 – Legislative *Appoint*

7. EMERGING ISSUES/FIRST TOUCHES

8:35 PM

8. ADJOURNMENT

9:00 PM

For special accommodations, please contact the City Clerk (206) 780-8624

****PLEASE NOTE: ALL TIMES LISTED ARE ESTIMATED****



**NOTICE OF
PUBLIC HEARING**

**MULTI-HAZARD MITIGATION PLAN
WEDNESDAY FEBRUARY 24, 2010**

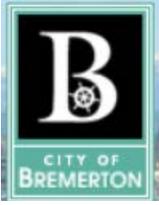
YOU ARE HEREBY NOTIFIED the Bainbridge Island City Council will conduct a Public Hearing to receive public comment regarding the City's update of their Hazard Identification Vulnerability Assessment to be included in the Kitsap County Multi-Hazard Mitigation Plan.

The Public Hearing will be held Wednesday, February 24, 2010, as part of the special/regular City Council meeting that begins at 7:00 PM in the Council Chambers at Bainbridge Island City Hall, 280 Madison Avenue North, Bainbridge Island, Washington. If you are unable to attend, comments may be submitted to the City Clerk via hand-delivery, first class mail or email (rlassoff@ci.bainbridge-isl.wa.us).

**CITY OF BAINBRIDGE ISLAND
ROSALIND D. LASSOFF
CITY CLERK**

Published: Friday 02/12/10

Posted: Website, City Hall, Ferry Terminal, Chamber of Commerce and Library Friday 02/12/10



**City of Bremerton, Wa.
Mitigation Plan Revision 2012**

**Jurisdiction-Specific Vulnerability Assessment and
Mitigation Strategies**

Contact Information:

Al Duke, Fire Chief
Bremerton Fire Department
911 Park Avenue, Bremerton, WA 98337
(360) 478-5380

Attachments:

Appendix BR.1: City of Bremerton Asset Profile
Appendix BR.2: City of Bremerton Record of Hearings and Resolutions, Mitigation Plan

City of Bremerton, Wa. Profile

Overview

The City of Bremerton is located in Kitsap County. The city lies east of the Olympic Mountains directly across Puget Sound from Seattle. Attached is a map showing the city boundaries and areas that are associated Urban Growth Areas.

For over a century, Bremerton has been the home to Puget Sound Naval Shipyard that continues to service US Navy ships and its 8000 civilian and many active duty personnel.

The City of Bremerton was incorporated on October 14, 1901, and operates as a charter city with a Mayor/Council form of government. The City's downtown core is undergoing a comprehensive revitalization with the building of a new Conference Center, Parking Garage, Hotel on the waterfront, a Public Safety and Headquarters Fire Station.

Population

The population of the City of Bremerton is 36,620(2010 Census). During the day, the population swells another 9000 because of the huge Puget Sound Naval Shipyard and support organizations. An increase in population of 13,000 is forecast through 2025. (2025 Population Forecast for City Limits and Urban Growth Area)

Age and Vulnerable Population Distribution

Table BR-1 shows the distribution of age and vulnerable population in the City of Bremerton. Overall the City's population is well dispersed and there are numerous senior/assist facilities on the island mostly located in the city's urban center. The senior population has grown consistent with those nationwide.

City of Bremerton			
Population Age (2010 Census)	Total	37,729	100%
	Age 0-18	7,356	15.5
	18-62	24,923	70.1
	62-Older	5,450	14.4

Table BR-1: Population by Age Group, City of Bremerton

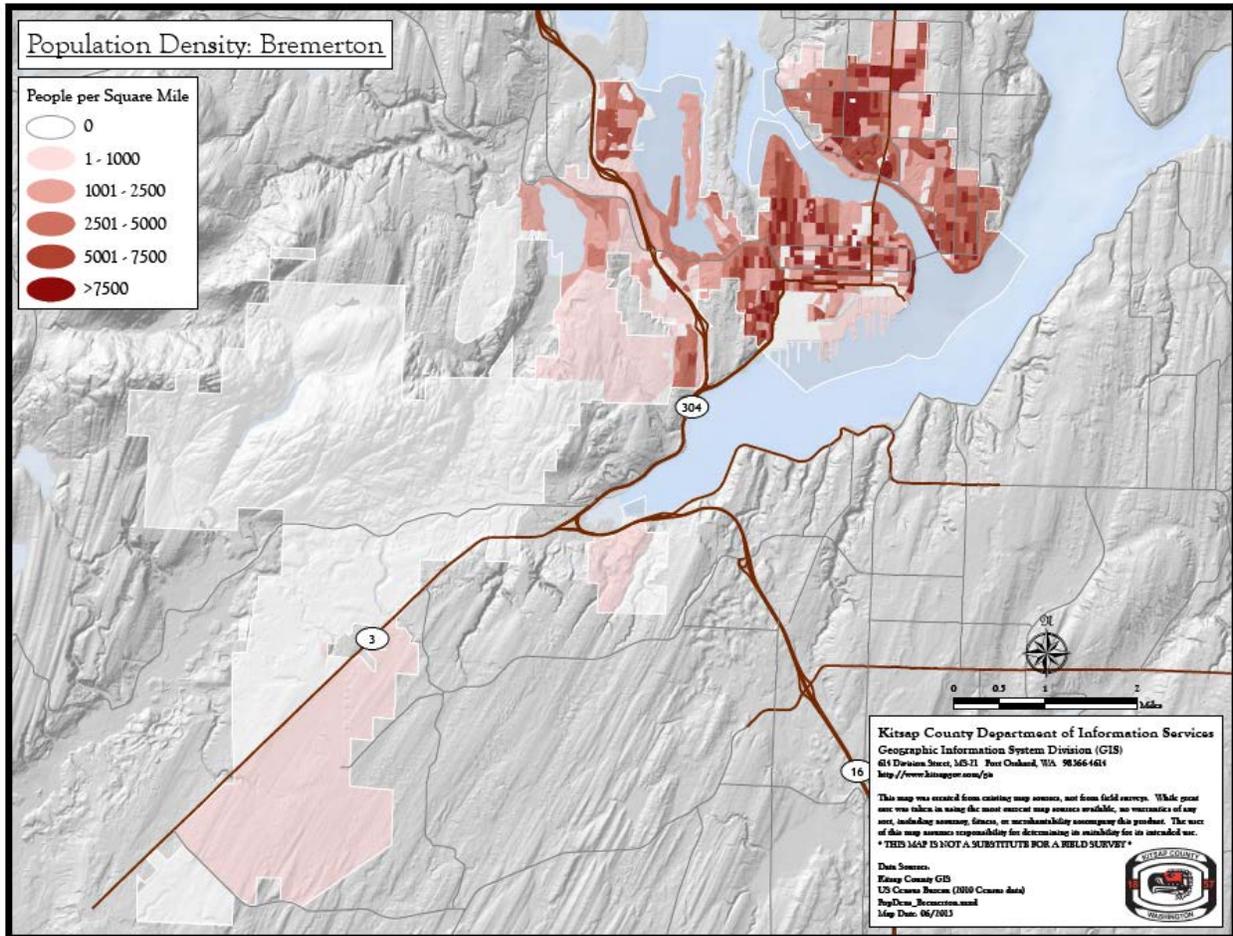


Exhibit BR-1: Population Density Bremerton
 Source: Kitsap County Department of Information Services 2013

Geographical/Topographical Description

The City of Bremerton is 28.44 square miles. The topography in the area is low rolling hills, generally trending north to south. There are few streams and wetlands, and some high liquefaction area to the East and lots of shorelines. The Casad Dam provides water for the city of Bremerton.

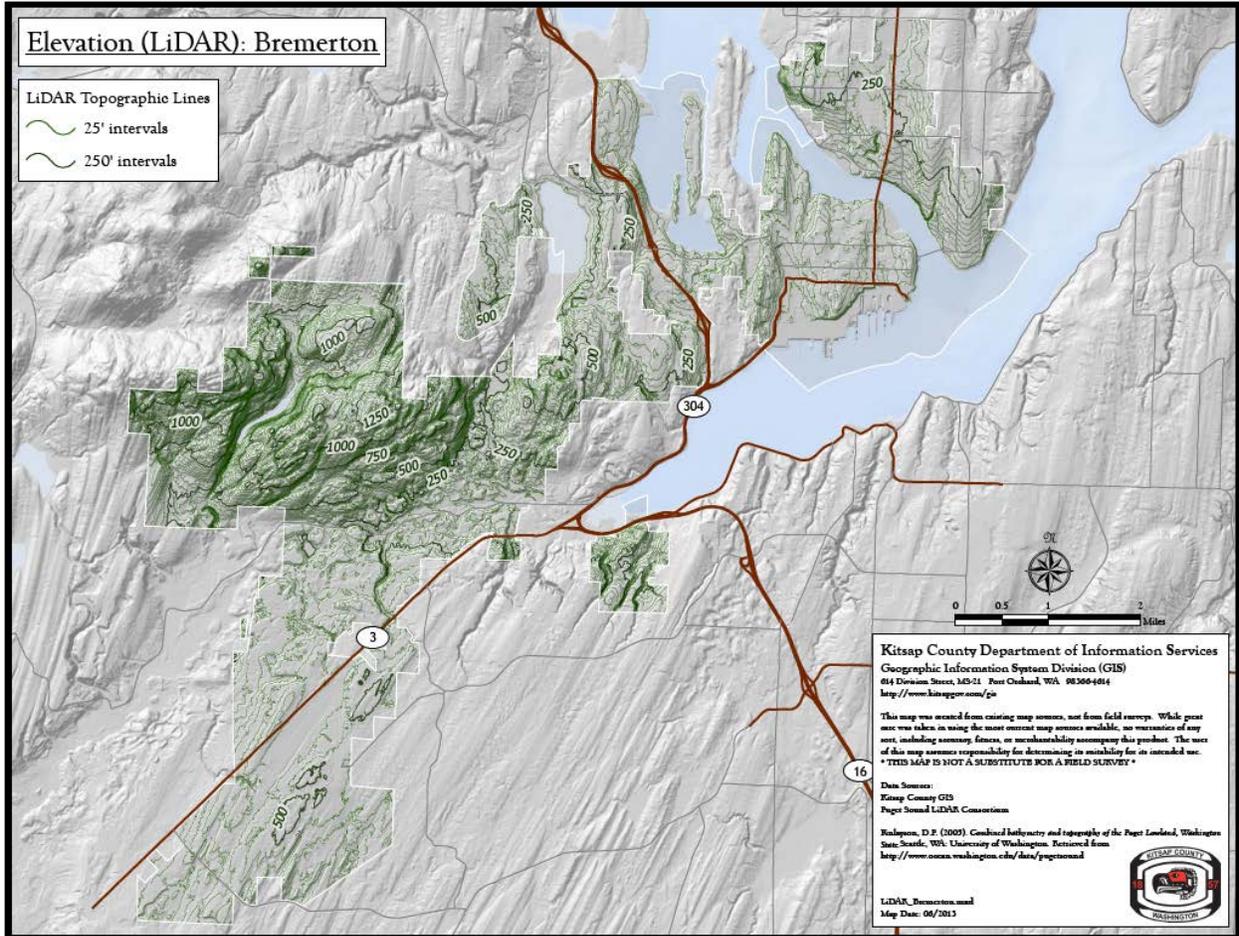


Exhibit BR-2: Topographical Feature, City of Bremerton
 Source: Kitsap County Department of Information Services 2013

Land Use

Land uses in Bremerton include residential, commercial, industrial and open space. The city includes the Bremerton School District and Olympic College. Median Household income is \$38,061 – US Census Bureau.

City of Bremerton			
Housing Units (2010 Census)	Total	17,423	100%
	Detached	8,515	48.8
	Attached	8,578	49.2
	Mobile Homes	280	1.6
	Boat/RV	50	.2

Table BR-2: Housing Units, City of Bremerton

City of Bremerton			
Housing Age (2010 Census)	Total Built	17,423	100%
	1990-Later	1,798	10.3
	1950-1989	8,623	49.4
	1949-Earlier	7,002	40.2

Table BR-3: Housing Age in the City of Bremerton

Business and Industry

The City is mostly retail and service oriented organizations like the Bremerton Conference Center. The city also includes contractors that support the Shipyard as well as a primary County hub for medical and health services including Harrison Medical Center.

Transportation, Communications, and Utilities

The City of Bremerton is service by numerous state routes including SR3, Kitsap Way, and Hwy 303 to the east. The city has two bridges (Manette and Warren Ave) that connect East and West Bremerton. The city also has ferry service via Washington State Ferries to downtown Seattle, and local service to Port Orchard.

City Infrastructure

The city has many government and non-government buildings including libraries, dams, medical and health services, and city and county government buildings. Primary structures include:

- The Norm Dicks Building housing City government, Kitsap Public Health
- Public Works Campus
- Olympic College
- Bremerton Schools District
- Casad Dam
- Bremerton Fire Department and facilities
- Bremerton Police Department and Courthouse
- Kitsap Mental Health Services
- American Red Cross

History of Disasters

Bremerton's history of emergency/disasters is much like the remainder of the county. Kitsap is a micro-climatic region in which winds, rain, and temperatures can differ throughout the County. Although, like other cities, Bremerton is susceptible to earthquakes, tsunamis, urban flooding, and land shifts. As noted below, typical issues are winter storm events, although, Bremerton experienced the Nisqually earthquake and suffered damages greater than other cities in the County.

Event Date	Type of Event	Declaration?	Declared Disaster?
Dec 2008	Severe wind and rain	Local	No assistance
Dec 2007	Severe wind and rain	Local, State, and Federal	Yes
Jan 2006	Severe wind and rain	Local	Did not meet PA threshold

Dec 2006	Severe wind and rain	Local	Did not meet PA Threshold
Oct 2003	Severe wind and rain	Local, state, and Federal	Local PA Threshold not met. IA paid out
Jan 2002	Severe wind and rain	Local and State	State Only; presidential denied
Feb 2001	Nisqually Earthquake	Local, state, and Federal	YES
June 1997	Rolling Bay mudslide	Local	No assistance
Dec 1996	Severe rain and snow runoff storm	Local, State, and Federal	Yes
Nov 1995	Severe wind and rain	Local, State, and Federal	Local PA threshold not met
Jan 1993	Severe wind and rain	Local, State and Federal	No record on file
Jan 1992	Severe wind and rain	Local	No assistance
Dec 1990	Severe wind and rain	Local, State and Federal	Yes
Dec 1982	Severe wind and rain	Local	No assistance
May 1965	Earthquake	Local, state, and Federal	No record on file
Oct 1962	Severe wind and rain	Local, state and Federal	No record on file

Table BR-4: History of Disaster, City of Bremerton

Mitigation Planning

Risk Assessment

Section III of this plan provides a thorough assessment of hazards associated with Kitsap County and its incorporated cities. Although, each city is affected differently, risks significant to the City of Bremerton are floods, earthquakes, land shifts, tsunamis, and winter storms. Section III is a synopsis of the County and cities. This profile provides additional information specific to Bremerton.

Rating System

The rating system for Bremerton is consistent with the general plan. A rating for each hazard is define by high, medium and low based on the information provided in Section II to this plan. Additional ratings are applied for priority mitigation strategies and Cost analysis.

Overview

The purpose of this profile is to assess the vulnerability of the City of Bremerton in regards to the various natural hazards previously identified in Section III 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 mitigation profile.

As part of the vulnerability assessment process, City of Bremerton government completed an inventory of all critical facilities and has considered these critical facilities in our planning and mitigation strategy development process. The City of Bremerton has no repetitive loss properties.

Planning Process

To complete the vulnerability assessment process, various city staff utilized a series of locally developed forms. The information collected with these forms is included in this portion of the plan. As part of the vulnerability assessment process, City of Bremerton government completed an inventory of all critical facilities and has considered these critical facilities in our planning and mitigation strategy development process. Representatives from City of Bremerton government worked closely with other jurisdictions, agencies, Indian tribes, and the Kitsap County Mitigation Planning Committee to develop a comprehensive, coordinated mitigation plan intended to reduce the vulnerability to natural hazards within the City of Bremerton.

The information contained in this document presents the results of this effort to identify the specific natural hazards threatening the City of Bremerton, to characterize the vulnerability of the City of Bremerton 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 City of Bremerton 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 City of Bremerton government were used in the planning, including assumptions and approximations that were believed to be reasonable. In addition, straight-forward, simplified technical analyses were used for tasks such as estimating property values, determining the size of populations affected, and so forth. The reliance on 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. In any event, mitigation strategies identified in this plan will be incorporated when appropriate into other land use or capital improvement plans. Mitigation will be addressed with each plan revision.

City of Bremerton 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 Bremerton 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, Indian tribes, and jurisdictions to make the City of Bremerton more resistant to the damages and hardships that could otherwise be the result of future natural disasters.

Plans and Ordinances

In an effort to maximize hazard mitigation planning, the following city plans are used to support and mandate mitigation efforts throughout the city:

Current Hazard Mitigation Codes/Plans/Ordinances:

1. Comprehensive Land Use Plan 2004

Bremerton's Comprehensive Land Use Plan is a policy and legal document that reflects the community's desires, goals and the needs of the future within the context of the Growth Management Act. The plan was adopted in December of 2009 and is updated yearly as part of the annual amendment process.

2. Comprehensive Transportation Plan

This transportation plan provides the framework to guide short and long term development and maintenance of the multi-modal transportation system within the city of Bremerton. It addresses the mandates of the Growth Management Act under the Revised Code of Washington, Title 36.70A.070.

3. Comprehensive Water System Plan 2009

This plan includes goals and policies to protect the natural environment and mitigate the impacts of future growth. It is in compliance of the Growth Management Act and the Critical Areas Ordinance.

4. Comprehensive Sewer System Plan

Responsible for collection, treatment and disposal of all sanitary sewer waste from commercial and residential customers. Operates the City's Wastewater Treatment Plant and maintains 33 pump stations in the City. The plan is designed to identify, design and implement mitigation and upgrades for the waste water system for the City of Bremerton.

5. Comprehensive Stormwater System Plan 2009

This responsibility includes the protection and preservation of the natural resources of the area that play such a large role in sustaining the City's quality of life. Within the City, the responsibility for storm and surface water management and the protection of groundwater have been entrusted to the Department of Public Works and Utilities. It is the mission of the Stormwater Program within the Department to control flooding, enhance water quality, protect sensitive habitat areas, and optimize the recharge of local aquifers.

6. Capital Improvement Plan 2009

The purpose of the Capital Facilities Plan is to demonstrate that all capital facilities serving Bremerton have been addressed. The plan covers roads, parks, water and sewer lines, police facilities and administrative buildings. It is compliant with the Growth Management Act.

7. International Building and Fire Code

The City of Bremerton adopted the 2009 International Fire Codes with state amendments under Chapter 15.04 of the Building Code. These codes define building, fire and mitigation practices.

8. Municipal Code

The Bremerton Municipal Code are plans and policies regulate the infrastructure, environment and building codes for the city. The city follows these codes to mitigate potential damage during catastrophic events.

9. Zoning Ordinance

The zoning code contains regulations to manage the community's growth in a manner that ensures efficient use of land, preserves regulated critical areas, and encourages good urban design. Specifically, the code supports the vision of the city and is designed to implement the comprehensive plan and by reference the requirements of the Washington State Growth Management Act.

10. Subdivision Ordinance

The purpose of this title is to implement the comprehensive plan in accordance with the Growth Management Act; to regulate the subdivision of land and to promote the public health, safety and general welfare.

11. Critical Areas Ordinance

This ordinance defines critical areas (wet lands, areas of critical recharging effect on aquifers used for water, fish and wildlife habit, frequently flood areas and geologically hazardous areas) as required by the Growth Management Act. This ordinance regulates, protects and defines these Areas under Bremerton Municipal Code Chapter 16.20.

12. Participation in National Flood Insurance Program

Bremerton's participation in the NFIP allows them to use the resources of FEMA to use mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses.

13. Participation in the Community Rating System Program

Bremerton's involvement in The Community Rating System (CRS) through FEMA NFIP allows them to benefit in reduced insurance rates and by using the CRS floodplain management system enhances public safety, reduce damages to property and public infrastructure, avoid economic disruption and losses, reduce human suffering, and protect the environment.

Mitigation Goals and Strategies

2012 Mitigation Goals

The following goals have been defined by the City of Bremerton and are consistent with those in the basic HMP update.

Goal 1: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Goal 2: Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.

The Table below provides updates to strategies outlined in the HMP 2004. Strategies may have been dropped due to lack of funding or resolved. The following categories include unresolved strategies from 2004 or new 2012 strategies. For priority purposes, the strategies listed in each category are done so in order of importance.

Category	Strategy	Probability of Occurrence	Implementation time	Remarks/Status
IV	Pursue seismic upgrades to the Bremerton water system and its components as identified in the report by Dames & Moore, March 1997 and	High	6 years	Completed reservoir upgrades in 2009

	in the City of Bremerton's 6-year Capital Improvement Plan.			
IV	Pursue seismic upgrades to the dam and provide improved monitoring and an early warning system in the event of an uncontrolled release of the reservoir caused by a dam failure as identified in the report by Woodard-Clyde Consultants, July 1997 and in the City of Bremerton's 6-year Capital Improvement Plan	Low	1 year	Progress; Completed seismic bracing for the Casad Dam intake tower. Provide Mason County with telephone warning system. Still looking for funding for early warning system in the event of an uncontrolled release.
IV	Pursue seismic upgrades to equipment, infrastructure, and critical facilities	High	Ongoing	Ongoing program. Need additional funding
IX	Aid both the private and public sectors in understanding the risks they may be exposed to and fund programs to mitigate.	High	Ongoing	Support the County's Bolt and Brace Program for retrofitting older homes in Bremerton

Category I: Flooding
Probability of Occurrence: Medium

The City of Bremerton does not have any rivers or large tributaries that cause significant flooding in the City limits. There are creeks and streams that can be overwhelmed during periods of heavy rain and will overflow their banks. Additionally, significant rain will cause urban flooding in areas noted for poor drainage. Except for earthquakes, flooding is the next costly event and mitigation efforts can help reduce the effect of life and property. Efforts to reduce stormwater overflows have been successful, and there are areas that need attention. Flooding may also occur along the shoreline of the City of Bremerton due to high tides. Recent changes to the National Flood Insurance Program has incorporated these areas to include the requirement for flood insurance. Exhibit BR-3 shows the few flood zones in the City limits. As noted in Table BR-5, all the residents and housing units are susceptible to urban flooding, no one actually lives in the flood zone areas identified in Exhibit BR-3.

National Flood Insurance program (NFIP)(Excerpt from the Basic Plan 2012)

The City of Bremerton entered the National Flood Insurance Program on May 27, 1975. The most recent review of the city's participation in the NFIP was conducted July 23, 2008. During the visit, the City issued 2 permits that were properly conditioned for the flood elevation certificates; however the final Elevation Certificate was inadvertently missed. The corrective action taken by the city was to modify the permitting system computer software to more definitively request flood zone information at the time of initial application for a building permit

and at construction inspection stages including prior to framing and prior to release of final inspection certification.

As most communities in Kitsap County, after the last major flood, 2007, we reviewed our flooding issues and once again determined we have no repetitive loss areas in the City of Bremerton. The City of Bremerton has amended their processes as recently as August, 2007 resulting in a successful CAV in July, 2008.

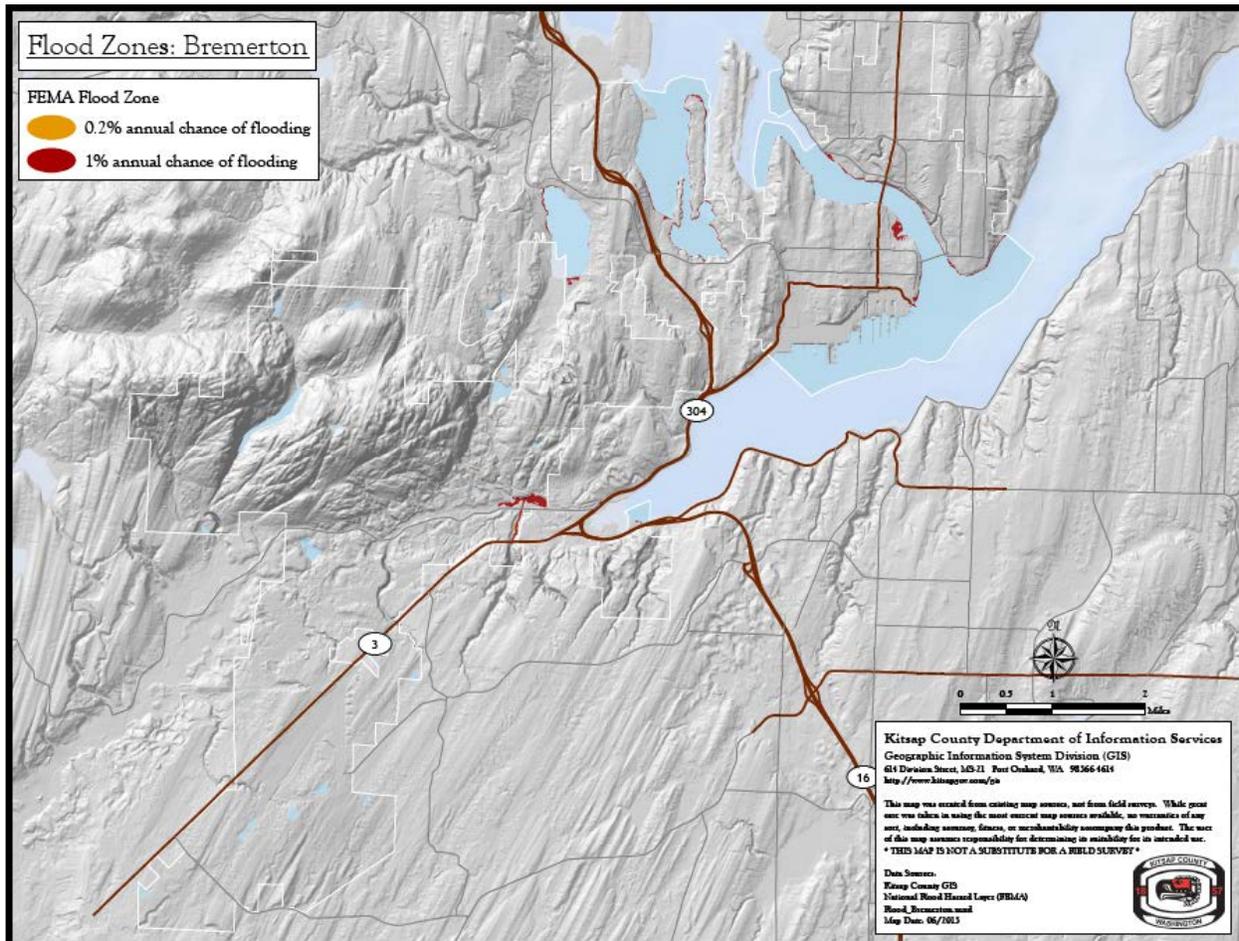


Exhibit BR-3: Flood Zones, City of Bremerton

Source: Kitsap County Department of Information Services 2013

Category II: Severe Storms **Probability of Occurrence: High**

Flooding and severe storms work hand-in-hand. Severe winter storms are the typical event that has the highest probability of cause damage to property. These event which occur annually, results in a variety of mixed events of snow, rain, low temperatures, and severe winds. The combination of these events generally results in significant power outages, urban flooding, and loss of work and revenue to the economy. Should the event become significant with long-term heavy rainfall, major creeks like Gorst Creek, would overflow and flood areas downstream along the shoreline. Table BR-5 notes how severe storms affect building stock and the citizens on the

Island. In all categories, 100% of the City has the potential for damage and loss of life from severe storms.

City of Bremerton

Total Population	Population in Hazard Area	% Population Affected By Hazard
37,729	37,729	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
13,683	13,683	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
64	64	100

Table BR-5: Hazard Data for Severe Storms and Flooding, Bremerton

Source: Kitsap County GIS and Census 2010

Category III: Land Shifts Probability of Occurrence: High

The city of Bremerton has some areas vulnerable to land shifts. These areas are mostly in East Bremerton along Puget Sound. Land shifts may be caused by earthquakes or significant prolong rainfall and ground saturation. These areas are known to City Planner. There are no critical facilities in these areas. Building stock is mostly residential based on initial estimates. The areas noted in Exhibit BR-4 156-165 are in unincorporated Kitsap County and not the city of Bremerton. Housing and personnel affected by land shifts are noted in Table BR-6.

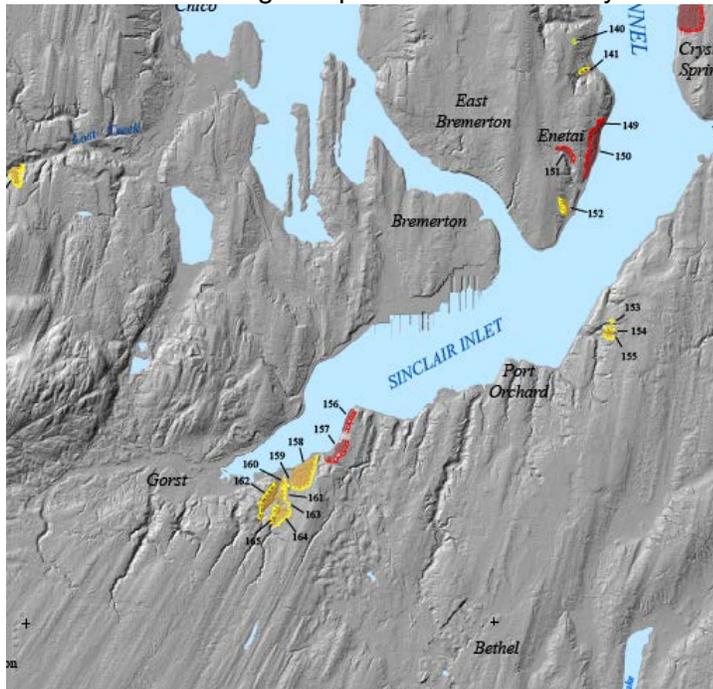


Exhibit BR-4: LIDAR Data on Land Shift, Bremerton

Source: USGS

City of Bremerton

Total Population	Population in Hazard Area	% Population Affected By Hazard
37,729	1808	4.8
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
13,683	625	4.5
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
64	00	0.0

Table BR-6: Hazard Data for Land Shifts, Bremerton

Source: Kitsap County GIS and Census 2010

Category IV: Earthquakes
Probability of Occurrence: High

The city of Bremerton’s greatest danger is an earthquake. Like other cities in Kitsap, it is vulnerable to the known faults that run east/west through the Puget Sound Region. Bremerton has many older buildings, storefronts and residents as well as historical buildings. Some homes and businesses have gone through retrofitting or brought up to earthquake codes established in 1980’s. 89% of the homes were built before 1989. A significant Puget Sound earthquake could potentially cause significant damage to the city and affect their primary economic base, merchants and the Naval Shipyard, as well as city infrastructure. A significant earthquake could also damage the only airport in the area, Bremerton Airport, as well as the Casad Dam, a facility build in the 1930’s as the city water supply. Damage to the dam could result in flooding to the west into residence near the dam but also down the Union River and into Mason County. As noted in Exhibit BR-5, few areas have a high degree of liquefaction susceptibility. These areas are mostly areas that have few residence and no critical facilities. Two bridges provide transportation to Bremerton from the east side. One bridge is less that 3 years old and the other in good condition. Table BR-7 shows all of Bremerton housing and residents affected by potential earthquakes.

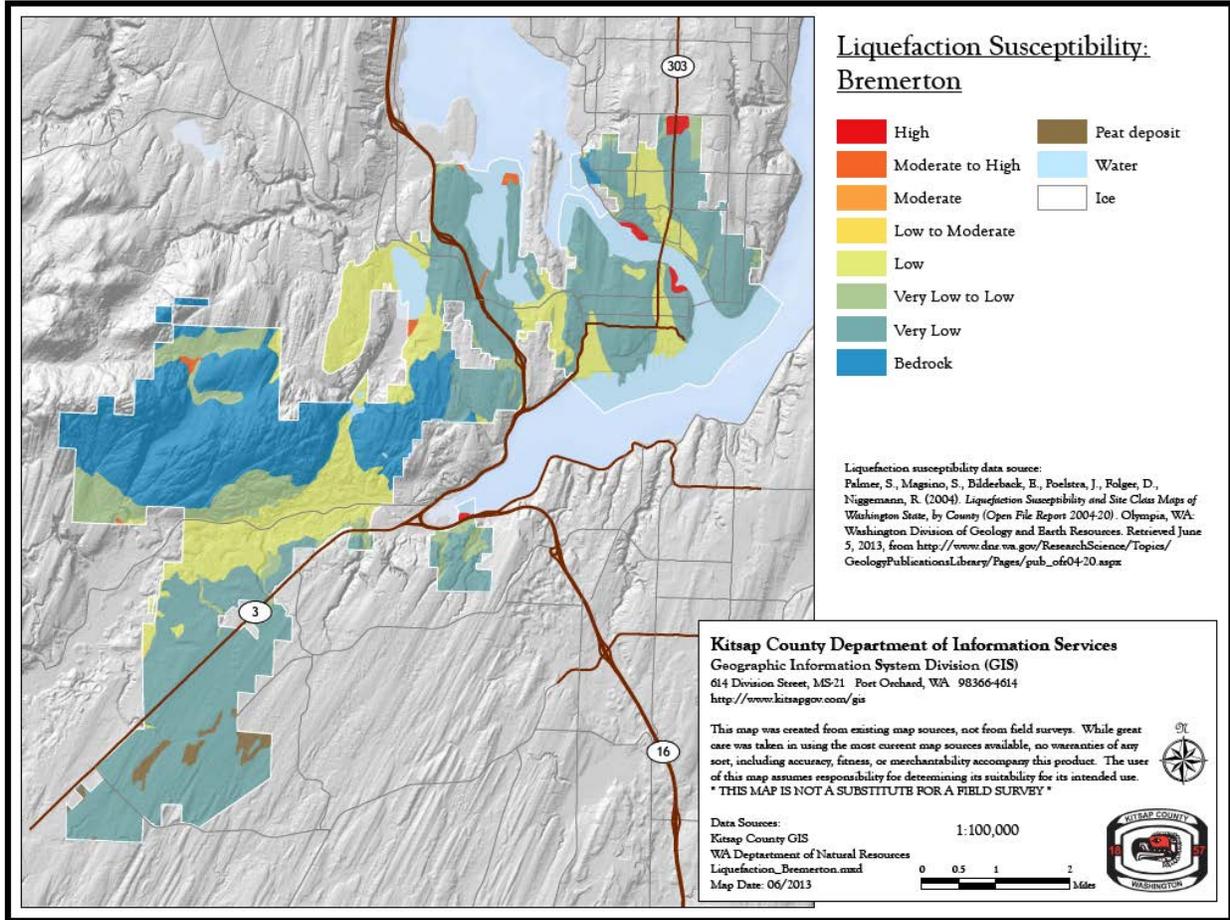


Exhibit BR-5: Liquefaction Areas, City of Bremerton
Source: Kitsap County Department of Information Services

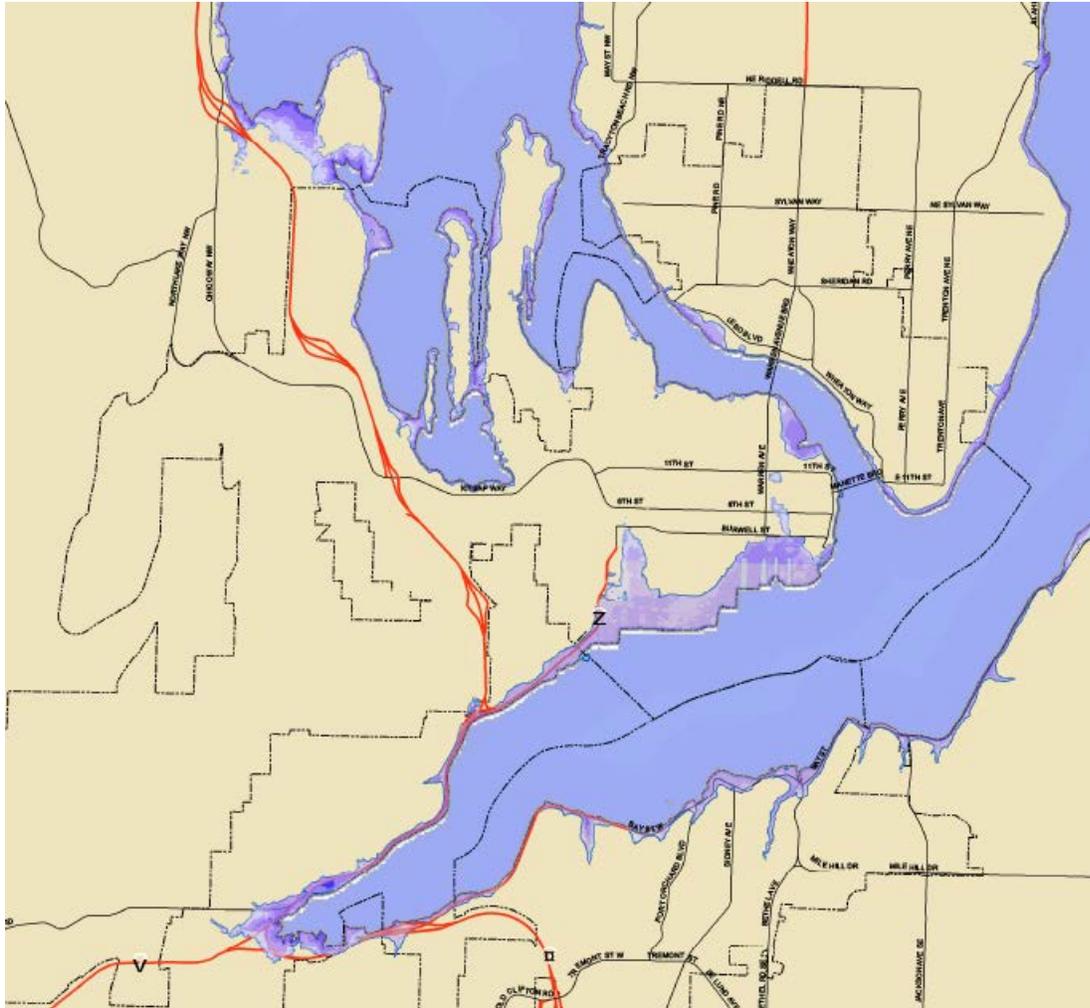
City of Bremerton

Total Population	Population in Hazard Area	% Population Affected By Hazard
37,729	37,729	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
13,683	13,683	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
64	64	100

Table BR-7: Hazard Data for Earthquakes, City of Bremerton
Source: Kitsap County GIS and Census 2010

Category VI: Tsunamis
Probability of Occurrence: Medium

Bremerton can be affected by tsunamis, mostly in the area along the shipyard. The greatest threat is inland tsunamis caused by an earthquake and subsequent tsunami in the Puget Sound waters. Such a tsunami would have little warning and may cause loss of life and significant damage to areas noted in Exhibit BR-6. The worst areas were discussed in Section III of the Kitsap County Plan for its history of known tsunami's probably caused by an inland type and earthquake. Although, there may be a surge of water, a Pacific Ocean subduction zone earthquake may force a higher than normal surge in the area causing unexpected flooding in the City of Bremerton. Such a surge would disrupt transportation lines and ferries, and other potential hazards. Based on tsunami models, Table BR-8 shows the potential effect of citizens and building stock in the City of Bremerton.



BR-6: Tsunami Inundation, City of Bremerton
 Source: Kitsap County Department of Information Resources

City of Bremerton

Total Population	Population in Hazard Area	% Population Affected By Hazard
37,729	2214	5.8

Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
13,683	739	5.4
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
64	4	6.2

Table BR-8: Hazard Data for Tsunamis: Bremerton

Source: Kitsap County GIS and Census 2010

Mitigation Strategy

BR-1

Action: Pursue seismic upgrades to the dam and provide improved monitoring and an early warning system in the event of an uncontrolled release of the reservoir caused by a dam failure as identified in the report by Woodard-Clyde Consultants, July 1997 and in the City of Bremerton's 6-year Capital Improvement Plan

Lead Department: City of Bremerton Public Works & Utilities

Support Agency: Washington Department of Ecology Dam Safety Office and Mason County Division of Emergency Management

Category and Priority: Cat IV/High

Probably of Occurrence: Low

Implementation Timeline: 1 year

Implementation Costs: \$ 375,000 as per Woodard-Clyde Consultants

Benefit to Cost: Improve warning program for citizens downstream of Casad Dam.

Options and Discussion: Progress; Completed seismic bracing for the Casad Dam in-take tower. Provide Mason County with telephone warning system. Still looking for funding for early warning system in the event of an uncontrolled release.

BR-2

Action: Improve citizen preparedness programs to include mitigating residential structures.

Lead Department: Kitsap County Emergency Management

Support Agency: City of Bremerton

Category and Priority: All Categories/High

Probably of Occurrence: High

Implementation Timeline: Ongoing

Implementation Costs: \$10,000 per year

Benefit to Cost: Increase disaster preparedness and improve ability for structures to weather a disaster

Options and Discussion: This project is ongoing and involves a continued effort to get neighborhoods involved in preparedness.

BR-3

Action: Pursue seismic upgrades to the Bremerton water system and its components as identified in the report by Dames & Moore, March 1997 and in the City of Bremerton's 6-year Capital Improvement Plan. Includes seismic protection of Jackson Park/NAD water main, seismic restraint/isolation valves on the Warren Avenue Bridge main.

Lead Department: City of Bremerton Public Works & Utilities

Support Agency: Washington State Department of Health Drinking Water Programs

Category and Priority: Cat IV/Medium

Probably of Occurrence: Medium
Implementation Timeline: 1-8 years
Implementation Costs: \$ 400,000 as per Dames & Moore Report
Benefit to Cost: Unknown
Options and Discussion: Progress; Completed reservoir upgrades in 2009

BR-4

Action: Provide pipeline redundancy and seismic protection for the cross town main and transmission main under SR 3.
Lead Department: City of Bremerton Public Works & Utilities
Support Agency: Washington State Department of Health and Department of Ecology
Category and Priority: All Cats/Low
Probably of Occurrence: Low
Implementation Timeline: Undetermined
Implementation Costs: \$ 3,100,000
Benefit to Cost: Unknown
Options and Discussion: Improve water supply service after an earthquake.

BR-5

Action: Improve retrofitting of older residence in the City of Bremerton
Lead Department: City of Bremerton Public Works & Utilities
Support Agency: Kitsap County Department of Emergency Management
Category and Priority: Cat IV/High
Probably of Occurrence: Medium
Implementation Timeline: 1-4 years
Implementation Costs: \$ 50,000
Benefit to Cost: High due to reducing uninsured damages after an earthquake
Options and Discussion: Provide training and loans/funds to residence for retrofitting their home to reduce the effects of a potential earthquake.

BR-6

Action: Develop and implement projects to improve control of runoff and flooding.
Lead Department: City Engineering
Support Agency: Community Development
Category and Priority: Cat I/Medium
Probability of Occurrence: High
Implementation timeline: Based on size of project and availability of funds
Implementation Costs: \$250,000 per year
Benefit to Cost: Reduces erosion and road/infrastructure maintenance
Options and Discussion: When funds are available.

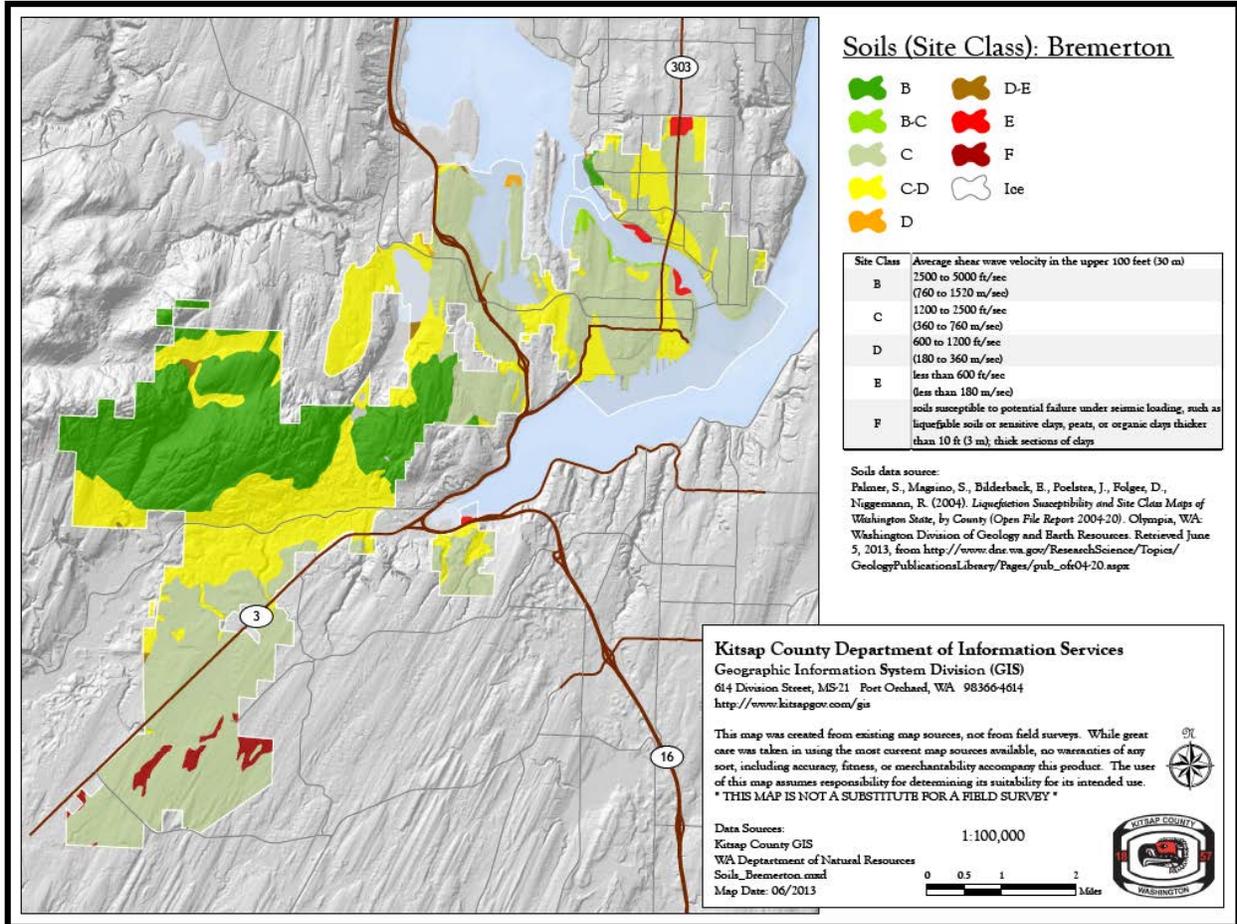


Exhibit BR-7: Soil (Site Class): Bremerton
 Source: Kitsap County Department of Information Services 2013



Exhibit BR-8: Kitsap County Damage Assessment Map, City of Bremerton

Source: Kitsap County Emergency Management 2010

Appendix BR.1: City of Bremerton Asset Profile

Description	Building	Contents	Content w/Bldg	Const Type	# of Stories	SQ. FT.	Year Built	Flood Plain	Zip Code	Responsible Dept.
City Hall 239 4th Street	3,080,031	4,080,000	No	Masonry Joisted	3	31,915	1930s	No	98337	Finance
		-								
Fire Station 1 817 Pacific Avenue	2,480,640	619,696	No	Masonry Joisted	2	12,800	1930s	No	98337	Fire
		-								
Special Investigative Unit	378,169	89,735	No	Frame	2	5,400	1930s	No	98312	Police
Ted Tillet Fire Station 3031 Olympus	1,805,400	315,654	No	Masonry Joisted	2	11,800	1979	No	98310	Fire
		-								
M. Meigs Fire Station	1,469,004	315,654	No	Masonry Joisted	2	9,598	1981	No	98312	Fire
5005 Kitsap Way		-								
Golf Course Maintenance Sheds 7263 Old Belfair Highway	630,360	607,028	No	Masonry Joisted	1	9,600	1990s	No		Parks
		-								
Sheridan Park Headquarters	2,337,361	263,925	No	Masonry Joisted	2	30,000	1940s	No	98310	Parks
680 Lebo Boulevard		-								
Storage Shed and Contents	47,841	-	Yes	Frame	1	2,100	1940s	No	98310	Parks
640 Lebo Boulevard		-								
Service Building	4,080	95,013	No	Frame	2	949	1950s	No	98310	Parks
629 Lebo Boulevard		-								
Garages Lebo Boulevard	12,530	26,393	No	Masonry Joisted	1	468	1940s	No	98310	Parks
		-								

		-								
Police Special Operations Bldg 3029 Olympus Drive	170,860	105,570	No	Steel Frame	1	7,200	1980s	No	98310	Police
	-	-								
Reservoir #4	6,267,134	-	Yes	Fire Resistive	1		1940	No		Water
Reservoir #5	2,050,316	-	Yes	Fire Resistive	1		1950	No		Water
Reservoir #6	284,766	-	Yes	all steel	1		1950	No		Water
Reservoir #21	1,708,597	-	Yes	all steel	1		1983	No		Water
Reservoir #8	1,594,690	-	Yes	all steel	1		1970	No		Water
Reservoir #11	1,047,939	-	Yes	Fire Resistive	1		1930s	No		Water
Reservoir #12	1,118,561	-	Yes	Fire Resistive	1		1930s	No		Water
Reservoir #13	569,532	-	Yes	Fire Resistive	1		1930s	No		Water
Reservoir #15	740,392	-	Yes	all steel	1		1960s	No		Water
Reservoir #16	740,392	-	Yes	all steel	1		1970s	No		Water
Reservoir #17	740,392	-	Yes	all steel	1		1970s	No		Water
Reservoir #18	740,392	-	Yes	all steel	1		1970s	No		Water
Reservoir #19	1,139,065	-	Yes	all steel	1		1970s	No		Water
Reservoir #20	740,392	-	Yes	all steel	1		1980s	No		Water
Glen Jarstad Aquatic Center 500 Magnuson Way	3,151,800	84,660	No	Fire Resistive	2	21,000	1970s	No	98310	Parks
	-	-								
Senior Citizens Center 1140 Nipsic	765,000	204,000	No	Frame	1	5,000	1940s	No	98310	Parks
	-	-					2003			

Reservoir #10	948,740	-	No	all steel	1		1970s	No		Water
Anderson Creek Well #8	99,807	-	No	Masonry Joisted	1	104	1970s	No		Water
Bridle Ridge Well #9	194,361	-	No	Masonry Joisted	1	140	1970s	No		Water
Pump Station #2	498,910	188,970	No	Masonry Joisted	1	1,128	1980s	No		Water
Residence: Pump Station #2	52,397	-	No	frame	1	936	1930s	No		Water
Gorst Creek Pump Station #1	213,005	127,740	No	Fire Resistive	1	2,700	1940s	No		Water
		-								
Forestry Division Office	30,755	26,393	No	Mobile	1	1,375	1970s	No		Water
Forestry Garage Building	71,761	23,225	No	frame	1	2,000	1960s	No		Water
Biosolids Storage Cover	63,240	-	No	Metal	1	3,200	2002	No		Water
Pump Station #3	71,761	-	Yes	Masonry Joisted	1	180	1990s	No		Water
Pump Station #8	561,000	-	Yes	Masonry	1	950	2003	No		Water
Pump Station #11	71,761	-	Yes	Masonry Joisted	1	225	1991	No		Water
Pump Station #12	71,761	-	Yes	Masonry Joisted	1	323	1966	No		Water
Pump Station #14	71,761	-	Yes	Masonry Joisted	1	160	1995	No		Water
Pump Station #4	71,761	-	Yes	Frame	1	187	1950s	No		Water
McKenna Falls Screen Building	113,906	73,899	No	Masonry Joisted	1	323	1983	No		Water
McKenna Falls Intake	-	-								
Chlorine Facility McKenna Falls Intake	256,290	73,899	No	Masonry Joisted	1	768	1996	No		Water
	-	-								
Pump Station #16	322,355		Yes	Masonry	1	520	1975	No		Water

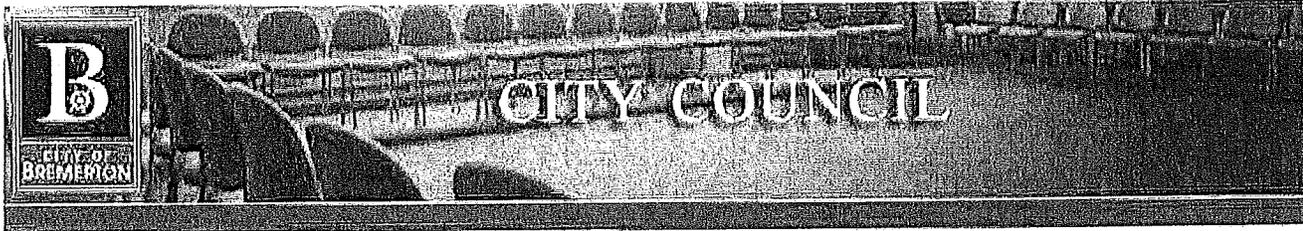
		-		Joisted						
Residence/Laboratory McKenna Falls	176,555	21,114	No	Masonry Joisted	2	2,200	1940S	No		Water
	-	-								
Lion's Park Boat Dock	48,932	-		Frame	1		1950s	No	98310	Parks
Eastside Treatment Plant	4,727,700	-	Yes	Fire Resistive	1	3,981	2002	No	98310	WW
Water Utility Building 3027 Olympus Drive	627,625	1,913,984	No	Fire Resistive	2	15,200	1980s	No	98310	Utilities
	-	-								
Well #14	73,542	12,668	No	Masonry Joisted	1	104	1982	No		Water
Sewage Treatment Plant 1600 Oyster Bay Avenue	34,741,241	2,040,000	No	Fire Resistive	3	100,08 2	1984	No	98312	WW
	-	-								
Police Patrol Headquarters 4846 Auto Center Way	191,363	80,233	No	frame	1	3,700	1950s	No	98312	Police
	-	-								
Well #17	73,542	29,560	No	Masonry Joisted	1		1986	No		Water
Permit Center 286 4th Street	287,044	333,601	No	Masonry Joisted	3	3,000	1930s	No	98337	Comm. Devel.
	-	-								
Overwater Park & Statues (Propeller, Shipyard Worker, Little Boy)	2,775,900	45,395	No	Fire Resistive	-		1980s	No		Parks
	-	-								
Casad Dam	3,464,731	-	No	Fire Resistive			1940S	No		Water
Pump Station CE1	6,303,600	-	Yes	Fire Resistive	2	4,182	1984	No		WW
Pump Station WB3	5,610,000	-	Yes	Fire Resistive	2	2,050	1984	No		WW
Pump Station CW1	2,626,500	-	Yes	Fire Resistive	2	1,302	1984	No		WW

Watershed Bridges	369,706	-		Fire Resistive		1,200	2000	No		Water
Public Works Complex 100 Oyster Bay	2,731,560	918,000	No	Masonry Joisted	2	30,900	1990s	No	98312	Street/Storm
	-	-								
Warehouse at PW Complex	315,180	204,000	No	Masonry Joisted	1	8,074	1990s	No	98312	Street/Storm
100 Oyster Bay	-	-								
Booster Station #3	12,530	-	Yes	Fire Resistive	1		1970s	No		Water
Booster Station #5	59,231	-	Yes	Masonry Joisted	1	256	1992	No		Water
Pump Station #13	69,483	-	Yes	Fire Resistive	1		1942	No		Water
Pump Station #17	193,641	-	Yes	Masonry Joisted	1	480	1991	No		Water
Well #2R	73,542	-	No	Fire Resistive	1	30	1980	No		Water
Well #3	73,542	-	No	Fire Resistive	1	30	1950	No		Water
Well #7	94,554	-	No	Fire Resistive	1		1992	No		Water
Well #13	73,542	-	No	Frame	1	80	1990	No		Water
Well #15	73,542	-	No	All Steel	1	80	1992	No		Water
Well #18	73,542	-	No	Fire Resistive	1	336	1988	No		Water
Well #19	73,542	-	No	Fire Resistive	1		1992	No		Water
Well #20	73,542	-	No	Masonry Joisted	1	336	1990	No		Water
Well #21	99,807	-	No	Fire Resistive	1	80	1988	No		Water
Equipment Storage Building (Biosolids App. Area - Gorst)	14,808	8,446	No	Steel	1	800	1994	No		Water
McKenna Falls Head Tank	-	-								
	-	-								

		-								
Booster Station #8	22,781	-	Yes	All Steel	1		1998	No		Water
Well #16	78,795	-	Yes	Fire Resistive	1		1981	No		Water
Gorst Production Well	63,036	-	Yes	Fire Resistive	1		1993	No		Water
Booster Station #6	22,781	-	Yes	Fire Resistive	1		1992	No		Water
Booster Station #7	22,781	-	Yes	Fire Resistive	1		1992	No		Water
Police Locker Room/An. Control Office 48462 Auto Center Way	56,953	31,671	No	Masonry Joisted	1	450	1960	No		Police
	-	-								
Pump Station CE-2	525,300	-	Yes	All Steel	1	36	1970s	No		WW
Pump Station CE-3	1,050,600	-	Yes	Fire Resistive	2	450	1970s	No		WW
Pump Station CE-4	4,727,700	-	Yes	Fire Resistive	2	3,906	1980s	No		WW
Pump Station CE-6	2,101,200	-	Yes	Fire Resistive	2	966	1980s	No		WW
Pump Station CW-2	787,950	-	Yes	Fire Resistive	0	264	1940s	No		WW
Pump Station CW-3	78,795	-	Yes	All Steel	1	36	1970s	No		WW
Pump Station CW-4	525,300	-	Yes	Fire Resistive	0	100	1960s	No		WW
Pump Station EB-2	3,570,000	-	Yes	Fire Resistive	2	400	1970s	No		WW
Pump Station EB-3	1,575,900	-	Yes	Fire Resistive	2	480	1970s	No		WW
Pump Station EB-4	210,120	-	Yes	All Steel	0	48	1960s	No		WW
Pump Station EB-5	157,590	-	Yes	All Steel	1	36	1970s	No		WW
Pump Station EB-6	525,300	-	Yes	Fire Resistive	1	144	1940s	No		WW
Pump Station EB-8	262,650	-	Yes	All Steel	1	36	1970s	No		WW

Pump Station EB-9	262,650	-	Yes	All Steel	0	12	1970s	No		WW
Pump Station KL-1	1,575,900	-	Yes	Fire Resistive	2	675	1970s	No		WW
Pump Station KL-2	787,950	-	Yes	Fire Resistive	2	630	1970s	No		WW
Pump Station KL-3	682,890	-	Yes	Fire Resistive	2	450	1970s	No		WW
Pump Station KL-4	787,950	-	Yes	Fire Resistive	2	450	1970s	No		WW
Pump Station PB-1	787,950	-	Yes	All Steel	1	64	1970s	No		WW
Pump Station PB-2	1,050,600	-	Yes	All Steel	1	64	1970s	No		WW
Pump Station OB-1	4,727,700	-	Yes	Fire Resistive	2	1,260	1970s	No		WW
Pump Station OB-2	1,575,900	-	Yes	Fire Resistive	2	480	1970s	No		WW
Pump Station OB-3	1,575,900	-	Yes	Fire Resistive	2	450	1970s	No		WW
Pump Station OB-4	1,575,900	-	Yes	Fire Resistive	2	450	1970s	No		WW
Pump Station OB-5	1,575,900	-	Yes	Fire Resistive	2	480	1970s	No		WW
Pump Station OB-7	525,300	-	Yes	Masonry Joisted	1	240	1990s	No		WW
Pump Station MD-1	315,180	-	Yes	Fire Resistive	1	56	1990s	No		WW
Pump Station WB-4	262,650	-	Yes	All Steel	1	36	1970s	No		WW
Odor Control Station #3	315,180	-	Yes	Fire Resistive	1	120	1990s	No		WW
Odor Control Station #1	315,180	-	Yes	Fire Resistive	1	240	1990s	No		WW
Odor Control Station #2	315,180	-	Yes	Fire Resistive	1	336	1990s	No		WW
Composite Sampling Station SS-1	78,795	-	Yes	Fire Resistive	1	100	1980s	No		WW
Composite Sampling Station SS-2	78,795	-	Yes	Fire Resistive	1		1980s	No		WW
Corrosion Control Facility	1,116,730		Yes	Masonry	2	1,290	1998	No		WW

		-		Joisted						
Generator Storage Facility at Well 14	12,284	-	Yes	Frame	1	240	1997	No		Water
W Branch Water Intake Facility	647,703	-	Yes	Fire Resistive	1		1990s	No		Water
McKenna Falls Water Intake Facility	647,703	-	Yes	Masonry Joisted	1		1990s	No		Water
Booster Station #10	86,990	-	Yes	Masonry Joisted	1	504	1970s	No		Water
Fire Department Warehouse 3031 Olympus	154,200	102,000		Steel Frame	1	5,000	2003	No		Fire
	-	-								
Pump Station WB-6	3,570,000	-	Yes	Fire Resistive	1	900	2003	No		WW
Office Building	2,050,000	-	No	Masonry	2	20,200	1977	No		Econ Devel
607 6th Street	-	-								
Conference Center 100 Washington Avenue	7,000,000	408,000	No	Masonry	1		2004	No		Econ Devel
	-	-								
Government Center 345 6th Street	10,000,000	2,000,000		Steel Frame	5		2004	No	98337	Finance
Fire Station # 1 911 Park Avenue	3,000,000	650,000		Wood Frame/Steel	1		2004	No	98337	Fire
Totals		189,777,209	16,120,125							



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City Attorney

City Auditor

City Council

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February 24, 2010

February 17, 2010

February 10, 2010

February 3, 2010

January 27, 2010

January 20, 2010

January 13, 2010

January 6, 2010

December 16, 2009

December 9, 2009

December 2, 2009

November 18, 2009

November 10, 2009

November 4, 2009

October 21, 2009

October 14, 2009

October 7, 2009

September 30, 2009

September 16, 2009

September 10, 2009

September 9, 2009

September 2, 2009

August 19, 2009

August 12, 2009

August 5, 2009

July 29, 2009

July 22, 2009

July 16, 2009

July 9, 2009

July 1, 2009

June 24, 2009

June 17, 2009

June 10, 2009

May 27, 2009

May 20, 2009

May 13, 2009

May 6, 2009

April 29, 2009

April 22, 2009



CITY COUNCIL 345 6th Street, Suite 600, Bremerton, WA 98337 ☐ Phone (360) 473-5280

**** AMENDED ****

**FEBRUARY 3, 2010
CITY COUNCIL MEETING AGENDA**

1. **BRIEFING: 5:00 – 5:30 P.M. in COUNCIL CONFERENCE ROOM 003**
 - A. General Council Business
2. **CALL TO ORDER: 5:30 P.M. in FIRST FLOOR CHAMBERS**
 - A. Pledge of Allegiance
 - B. Invocation
3. **MAYOR'S REPORT**
4. **PUBLIC RECOGNITION & ANNOUNCEMENTS**
5. **CONSENT AGENDA**
 - A. Claims & Check Register
 - B. Minutes of Meeting – January 20, 2010
 - C. Minutes of Study Session – January 27, 2010
 - D. Ordinance No. 5102 to amend Bremerton Municipal Code (BMC) Chapter 18.06 entitled "Ambulance Services"
 - E. Award Contract to PROSPECT CONSTRUCTION, INC. for construction of the Bremerton UV Treatment Facility
 - F. Approve Contract with POTELOCO, INC. for Puget Sound Energy (PSE) Power Relocation and Easement for Relocated Utility
 - G. Professional Services Agreement with PARAMETRIX for Washington Avenue Sewer Replacement Pre-Design
 - H. Professional Services Agreement with SHANNON & WILSON for Washington Avenue Sewer Replacement Geotechnical Support
 - I. Acceptance of EPA Grant for South Kitsap Industrial Area (SKIA) Sub-Area Plan
6. **PUBLIC HEARING**
 - A. Public Hearing to seek input on the Hazard Identification and Vulnerability Assessment
7. **GENERAL BUSINESS**
 - A. Resolution No. 3109 authorizing the City to execute the Local Agency Agreement for Bremerton Highway Safety Program
8. **COUNCIL MEMBER REPORTS**
9. **ADJOURNMENT OF CITY COUNCIL BUSINESS MEETING**

DATE SUBMITTED: 1-6-10

6A

AGENDA BILL
CITY OF BREMERTON
CITY COUNCIL

SUBJECT: Public Hearing seeking input from the public on the Hazard Identification & Vulnerability Assessment.

Committee Meeting Date: 1-27-10
COUNCIL MEETING Date: 2-3-10
Department: Fire
Presenter: Al Duke, Fire Chief
Phone: 473-5380

SUMMARY: In 1999, Kitsap County and the City of Bremerton adopted a Hazard Mitigation Plan. The plan was revised again in 2005 and is now time to revise the plan again. Part of the planning process is to identify Hazards and Vulnerabilities within the City of Bremerton and to allow the public to have input. This is a public meeting seeking input for hazards and vulnerabilities within the City of Bremerton

ATTACHMENTS: Draft "Hazard Identification & Vulnerability Assessment"

FISCAL IMPACTS (Include Budgeted Amount): None at this time.

APPROVALS:

DEPARTMENT DIRECTOR:
CITY ATTORNEY:
FINANCE DIRECTOR:
MAYOR:

[Handwritten signatures for Department Director, City Attorney, Finance Director, Mayor, Committee Chair, and Council President]

COMMITTEE CHAIR
COUNCIL PRESIDENT:

CONSENT AGENDA	<input type="checkbox"/>
GENERAL BUSINESS	<input type="checkbox"/>
PUBLIC HEARING	<input checked="" type="checkbox"/>

RECOMMENDED MOTION:

No Action Required

COUNCIL ACTION: Approve Deny Table Continue No Action

**City of Bremerton
345 6th Street
Bremerton, WA 98337**

Jurisdiction-Specific Vulnerability Assessment & Mitigation Strategies

City of Bremerton Overview:

Contact Information:

Bremerton Fire Department, Al Duke, Fire Chief
911 Park Avenue, Bremerton, WA 98337
(360) 478-5380

Population of Jurisdiction: 36,620 (Office of Financial Management 2009)
13,000 (2025 Population Forecast for City Limits and Urban Growth Area)

Land Profile:

28.44 square miles

The City of Bremerton is located in Kitsap County. The city lies east of the Olympic Mountains directly across Puget Sound from Seattle.

For over a century, Bremerton has been the home to Puget Sound Naval Shipyard that continues to service US Navy ships and its 8000 civilian and many active duty personnel.

The City of Bremerton was incorporated on October 14, 1901, and operates as a charter city with a Mayor/Council form of government. The City's downtown core is undergoing a comprehensive revitalization with the building of a new Conference Center, Parking Garage, Hotel on the waterfront, a Public Safety and Headquarters Fire Station.

The purpose of this section of the plan is to assess the vulnerability of the City of Bremerton 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. The information collected with these forms is included in this portion of the plan.

As part of the vulnerability assessment process, City of Bremerton government completed an inventory of all critical facilities and has considered these critical facilities in our planning and mitigation strategy development process.

The City of Bremerton has no repetitive loss properties.

Representatives from City of Bremerton government worked closely with other jurisdictions, agencies, Indian tribes, and the Kitsap County Mitigation Planning

Committee to develop a comprehensive, coordinated mitigation plan intended to reduce the vulnerability to natural hazards within the City of Bremerton.

The information contained in this document presents the results of this effort to identify the specific natural hazards threatening the City of Bremerton, to characterize the vulnerability of the City of Bremerton 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 City of Bremerton 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 City of Bremerton government were used in the planning, including assumptions and approximations that were believed to be reasonable. In addition, straight-forward, simplified technical analyses were used for tasks such as estimating property values, determining the size of populations affected, and so forth. The reliance on 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.

City of Bremerton 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 Bremerton 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, Indian tribes, and jurisdictions to make the City of Bremerton more resistant to the damages and hardships that could otherwise be the result of future natural disasters.

Principal Economic Base:

Retail sales

Economic Characteristic: Median Household income is \$38,061 – US Census Bureau

Current Hazard Mitigation Codes/Plans/Ordinances:

- Comprehensive Land Use Plan - 2004
- Comprehensive Transportation Plan -2003
- Non-motorized Transportation Plan - 2007
- Capital Improvement Plan -2009
- Surface Water Management Plan and Code -2009
- Water System Plan
- Wastewater Comprehensive Plan
- International Uniform Building and Fire Code 2006 (updating in 2010)
- Bremerton Municipal Code
 - Chapter 20 -Zoning Ordinance
 - Chapter 20 - Critical Areas Ordinance
 - Chapter 20 – Shoreline Development
- Participation in National Flood Insurance Program

- Participation in the Community Rating System Program

2005 MITIGATION STRATEGIES:

#1

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Category: IV - Earthquake

Strategy: Pursue seismic upgrades to the Bremerton water system and its components as identified in the report by Dames & Moore Group Company Job No. 05793-007-004, March 1997 and in the City of Bremerton's 6-year Capital Improvement Plan.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington State Department of Health Drinking Water Programs

Probability of Occurrence: Medium

Probability of Future Occurrence: Medium

Implementation Time: 1-8 years

Implementation Cost: \$ 1,750,000 as per Dames & Moore Report

Progress: Completed reservoir upgrades in 2009

#2

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Categories: IV - Earthquake & VII - Multi-Hazard

Strategy: Pursue seismic upgrades to the dam and provide improved monitoring and an early warning system in the event of an uncontrolled release of the reservoir caused by a dam failure as identified in the report by Woodard-Clyde Consultants, July 1997 and in the City of Bremerton's 6-year Capital Improvement Plan.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington Department of Ecology Dam Safety Office
Mason County Division of Emergency Management

Probability of Occurrence: Low

Probability of Future Occurrence: Low

Implementation Time: 1 year

Implementation Cost: \$ 375,888 as per Woodard-Clyde Consultants

Progress: Completed seismic bracing for the Casad Dam In-take tower. Provided Mason County with telephone warning system. Still looking for funding for early warning system in the event of an uncontrolled release.

#3

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Category: VII - Terrorism

Strategy: Pursue upgrades to security of water system facilities and components as identified in the Security Assessment of the Water Supply System prepared by Acres International, November 4, 2003, and in the City of Bremerton's 6-year Capital Improvement Plan.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington State Department of Health Drinking Water Programs
Washington Department of Ecology Dam Safety Office

Probability of Occurrence: Low

Probability of Future Occurrence: Medium

Implementation Time: 1-5 years

Implementation Cost: \$ 50,000 as per Acres, International Report, November 2003.

Progress: Have implemented most of the recommended changes, still need to install cameras as communication upgrades are made.

2010 MITIGATION STRATEGIES:

#1

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Category: IV - Earthquake

Strategy: Pursue seismic upgrades to the Bremerton water system and its components as identified in the report by Dames & Moore, March 1997 and in the City of Bremerton's 6-year Capital Improvement Plan. Includes seismic protection of Jackson Park/NAD water main, seismic restraint/isolation valves on the Warren Avenue Bridge main.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington State Department of Health Drinking Water Programs

Probability of Occurrence: Medium

Probability of Future Occurrence: Medium

Implementation Time: 1-8 years

Implementation Cost: \$ 400,000

#2

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Categories: IV - Earthquake & VII - Multi-Hazard

Strategy: Pursue seismic upgrades to the dam and provide improved monitoring and an early warning system in the event of an uncontrolled release of the reservoir caused by a dam failure as identified in the report by Woodard-Clyde Consultants, July 1997 and in the City of Bremerton's 6-year Capital Improvement Plan.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington Department of Ecology Dam Safety Office
Mason County Division of Emergency Management

Probability of Occurrence: Low

Probability of Future Occurrence: Low

Implementation Time: 1 year

Implementation Cost: \$ 375,000

#3

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Category: VII - Terrorism

Strategy: Pursue upgrades to security of water system facilities and components as identified in the Security Assessment of the Water Supply System prepared by Acres International, November 4, 2003, and in the City of Bremerton's 6-year Capital Improvement Plan.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington State Department of Health Drinking Water Programs
Washington Department of Ecology Dam Safety Office

Probability of Occurrence: Low

Probability of Future Occurrence: Medium

Implementation Time: 1-5 years

Implementation Cost: \$ 50,000

#4

Goal: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Categories: IV – Earthquake & VII – Multi-Hazard

Strategy: Provide pipeline redundancy and seismic protection for the cross town main and transmission main under SR 3.

Lead Agencies: City of Bremerton Public Works & Utilities

Support Agencies: Washington Department of Ecology
Washington Department of Health

Probability of Occurrence: Low

Probability of Future Occurrence: Low

Implementation Time: 1 year

Implementation Cost: \$ 3,010,000

CITY COUNCIL MEETING MINUTES

Wednesday, February 3, 2010

COUNCIL
APPROVED
FEB 17 2010

The weekly meeting of the City Council of the City of Bremerton was called to order Wednesday, February 3, 2010, at 5:00 PM in Council Conference Room 603 of the NORM DICKS GOVERNMENT CENTER, 345 6th Street, Bremerton, Washington, with Council President Nick Wofford presiding. Council Members present were Will Maupin, Carol Arends, Dianne Robinson, Greg Wheeler, Roy Runyon, Adam Brockus, Cecil McConnell and Jim McDonald. Also present were City Attorney Roger Lubovich; City Clerk Carol Etgen; and Legislative Assistant Lori Smith.

A COUNCIL BRIEFING was then held to discuss General Council Business at 5:00 PM in the Council Conference Room. At 5:30 PM the meeting was moved to the Meeting Chambers.

The Pledge of Allegiance was led by Council Member Jim McDonald followed by the invocation provided by Council Member Carol Arends.

MAYOR'S REPORT Mayor Lent provided a summary of her recent activities:

- Was a guest speaker at Drug Court where 13 participants were graduating from a program that has a proven 98% success rate bringing citizens back into the community drug and alcohol free;
- Participated in a discussion on affordable housing at the Kitsap Homebuilders Breakfast;
- Inducted the Officers and Board Members for the Puget Rental Owners Association; and at the conclusion of the program PROA members asked what they could do for the City of Bremerton and the response she provided was for them "to be good landlords". This led into a discussion on a possible one-day retreat with a Council-appointed Committee to talk about the things that affect the community, their concerns as landlords, and to study their issues.
- Reported on her attendance at a Change of Command Ceremony onboard the USS ABRAHAM LINCOLN in Everett; a welcome party for the USS PENNSYLVANIA submarine; and tomorrow will welcome the USS LOS ANGELES;
- Met with Central City's Mayors and the Puget Sound Regional Council's leaders to talk about the things that could be done collectively with respect to transit, and will continue to meet monthly;
- Attended the all-day Kitsap Transit Retreat last Saturday with Council Member Will Maupin;
- Announced the Groundbreaking Event for the Gorst Sewerage & Ultraviolet Treatment Facility Project at 9:00 AM on Friday, February 5;
- Asked if there was anyone interested in applying for a current opening on the Planning Commission to please call Pam Bykonen at (360) 473-5202;
- Planned to attend the Blessing, Dedication, & Open House for the Birkenfeld-Stella Maris House, a shelter for homeless women at 11:00 AM also on Friday, February 5;
- Will be attending the Award Ceremony to present the Juror's Selections for the Art, Best of Show, at the Collective Visions Gallery on Saturday; and
- Lastly, she has been attending a number of Neighborhood Meetings

PUBLIC RECOGNITION & ANNOUNCEMENTS

Donald Stauff owner of Boston's Deli & Pizza, expressed his concerns about the City's plan to extend the two-way traffic one block further down Washington Avenue to the block in front of the Hampton Inn. He was told the request was made by the condominium owners to allow them to make a left turn, but he said that is happening anyway so the City does not need to conduct a "study" of the traffic patterns, or change the street to two-way traffic, they simply need to remove the "No Left Turn" sign.

CONSENT AGENDA

- A. Check Numbers 335861 through 336098; EFT-9518 through EFT-9567 in the amount of \$1,379,831.87; and Regular Payroll for the pay period ending January 15, 2010 in the amount of \$804,104.00; Regular Payroll for the pay period ending January 31, 2010 in the amount of \$746,069.04; and Retiree Payroll for the pay period ending January 31, 2010 in the amount of \$83,349.16.

- B. Minutes of Meeting – January 20, 2010
- C. Minutes of Study Session – January 27, 2010
- D. Ordinance No. 5102 to amend Bremerton Municipal Code (BMC) Chapter 18.06 entitled "Ambulance Services"
- E. Award Contract to PROSPECT CONSTRUCTION, INC. for construction of the Bremerton UV Treatment Facility
- F. Approve Contract to POTELCO, INC. for PUGET SOUND ENERGY (PSE) Power Relocation and Easement for Relocated Utility
- G. Professional Services Agreement with PARAMETRIX for Washington Avenue Sewer Replacement Geotechnical Support
- H. Professional Services Agreement with SHANNON & WILSON for Washington Avenue Sewer Replacement Pre-Design
- I. Acceptance of EPA Grant for South Kitsap Industrial Area (SKIA) Sub-Area Plan

There were no comments from the public...

05:43:08 M/S/C/U (Arends/Runyon) Move to approve the CONSENT AGENDA as presented.

PUBLIC HEARING

6A – PUBLIC HEARING TO SEEK INPUT ON THE HAZARD IDENTIFICATION AND VULNERABILITY

ASSESSMENT: Fire Chief Al Duke explained that in 1999, Kitsap County and the City of Bremerton adopted a Hazard Mitigation Plan. The plan was revised in 2005 and it is now time to revise the plan again. Part of the planning process is to identify hazards and vulnerabilities within the City of Bremerton and to allow the public to have input. This is a public hearing to seek input for hazards and vulnerabilities within the City of Bremerton. No action is required by the City Council.

President Wofford opened the public hearing.

With no comments made, President Wofford then closed the public hearing.

GENERAL BUSINESS

7A – RESOLUTION NO. 3109 AUTHORIZING THE CITY TO EXECUTE THE LOCAL AGENCY

AGREEMENT FOR BREMERTON HIGHWAY SAFETY PROGRAM: Larry Matel stated that the Public Works & Utilities Department applied for and was awarded a \$940,500 grant for engineering and construction of pedestrian, bicycle and traffic safety improvements at a number of intersections in Bremerton. The attached agreement obligates Federal Grant dollars, administered through the Washington Department of Transportation, to conduct preliminary engineering at a cost of \$90,500. Upon completion and approval of engineering plans another Local Agency Agreement will be entered into for approximately \$855,000. A brief PowerPoint presentation was made with highlights

Donald Stauff suggested that to be "pedestrian friendly", the City should adjust the crosswalks to allow pedestrians to cross soon after they hit the button instead of having to stand there waiting for traffic.

05:55:03 Motion was made and seconded; Council Members then began their discussion...

Greg Wheeler, Roy Runyon, and Dianne Robinson each thanked Mr. Matel for pursuing the grant.

Cecil McConnell asked if a similar study will be completed for areas in the East side of Bremerton. Mr. Matel stated that after studying all of the data recently received from WSDOT it was possible that other intersections could be targeted for improvements.

05:58:00 M/S/C/U (Runyon/Robinson) Move to approve the Local Agency Agreement and Prospectus, and authorize the Mayor to finalize and execute the Agreement with substantially the same terms and conditions as presented, and adopt Resolution No. 3109 authorizing the execution of the agreement.

COUNCIL MEMBER REPORTS

Jim McDonald reported on his attendance at the KRCC Transportation Policy Board Meeting and CK & SK Corridor Study Meeting.

Adam Brockus provided information on a free walk-in H1N1 Vaccination Clinic offered by the Kitsap County Health District from Monday, February 8 through Thursday, February 11; and Tuesday, February 16 through Friday, February 19 from 10:00 AM to 3:00 PM in the Meeting Chambers of the Norm Dicks Government Center. Please contact (360) 337-5240 for more information.

Roy Runyon announced that Naval Facilities Engineering Command Northwest (NAVFAC NW) will be conducting an outreach event for service disabled and veteran owned small businesses on Thursday, March 4 from 9:00 AM to 1:00 PM at the Naval Undersea Museum in Keyport. Please contact Steve Shapiro at (360) 396-0038 for more information and reservations. There is no cost.

Greg Wheeler attended his first Kitsap Regional Coordinating Council (KRCC) Executive Board Meeting where a discussion was held on housing for the homeless; and encouraged citizens to attend the rally for the School Support Levy on Saturday from 11:00 AM to 1:00 PM near the Warren Avenue Bridge.

Dianne Robinson reported on the major issues that were discussed at the AWC Legislative Action Conference, which she attended in Olympia last Wednesday with fellow Council Member Adam Brockus.

Carol Arends further commented on the highlights of the Traffic Study presented earlier by Larry Matel.

Will Maupin reported on his attendance at the all day Kitsap Transit Retreat; his attendance at the KRCC Executive Board Meeting; and tomorrow he will be going to Olympia to promote the Passenger Only Ferry system with representatives from Kitsap Transit.

Nick Wofford encouraged the public to attend the First Friday Art Walk event this week; and to please mail in your ballot!

With no further business, **President Wofford** adjourned the Council Meeting at 6:15 PM.

Prepared and Submitted by:



LORI SMITH
Legislative Assistant

Attest:


CAROL ETGEN, City Clerk
NICK WOFFORD, City Council President

NW:CE:ls:cg



**City of Port Orchard, Wa.
Mitigation Plan Revision 2012**

**Jurisdiction-Specific Vulnerability Assessment and
Mitigation Strategies**

Contact Information:

Mark Dorsey, Director
Department of Public Works
City of Port Orchard, Wa.
216 Prospect Street, Port Orchard, WA 98366
(360) 876-4991

Attachments:

Appendix PO.1: City of Port Orchard Asset Profile
Appendix PO.2: city of Port Orchard Record of Hearings: Hazard Mitigation

City of Port Orchard, Wa. Profile

Overview

The City of Port Orchard was first established along the south shore of Sinclair Inlet and has grown southward for more than 100 years. As the county seat, the City has been an important urban area for Kitsap County, and particularly South Kitsap. Its proximity along Sinclair Inlet provides an easily accessible saltwater shoreline and stunning views of the Olympic Mountains. Blackjack Creek and Ross Creek are protected by natural ravines and maintain a rural belt in an urban area. There is convenient access to Bremerton with regularly scheduled passenger ferry service, with connections to Seattle via the Washington State Ferry system. The marine Park and downtown waterfront host numerous community activities, concerts, and the weekly Farmer's Market. Boating is enhanced with the Port Orchard Marina, one of the best boat launches in the area, and numerous other marinas and boating services.

Population

Port Orchard has a diverse population of (2010 census). A large group of professionals transit daily to downtown Seattle for employment. The island is characterized by professional scientific employment, construction and education. Exhibit PO-1 shows the City's population density and urbanization.

Age and Vulnerable Population Distribution

Table PO-1 shows the distribution of age and vulnerable population In Port Orchard. Overall the City's population is diverse and there is a number of senior/assist facilities on the island mostly located in the city's urban center. The senior population has grown consistent with those nationwide.

City of Port Orchard			
Population Age (2010 Census)	Total	11,144	100%
	Age 0-18	2,621	23.5
	18-62	6,669	59.3
	62-Older	1,854	16.6

Table PO-1: Population by Age, City of Port Orchard

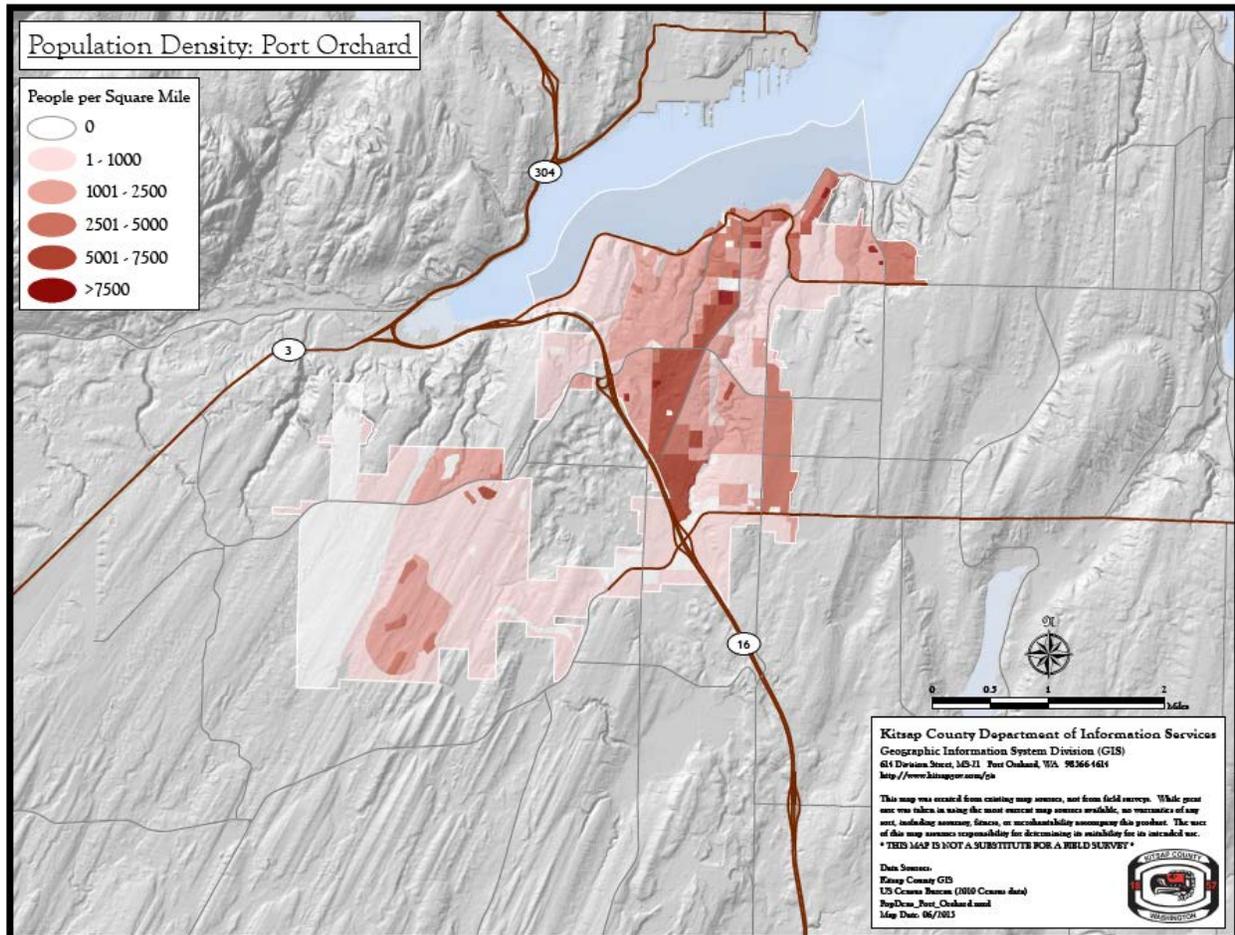


Exhibit PO-1: Population Density: Port Orchard
 Source: *Kitsap County Department of Information Services 2013*

Geographical/Topographical Description

The City is characterized by a typical port boarded by hills and cliffs above the downtown corridor. The city is currently 5,500 acres. Marinas border the waterfront as well as merchants and parking areas. The city includes some rivers and streams and because it is the county seat, includes the Kitsap County Administration Building, courthouse, and adjoining Corrections Center. Land use does include numerous residential areas and commercial zones.

Land use is depicted in Exhibit PO2 below.

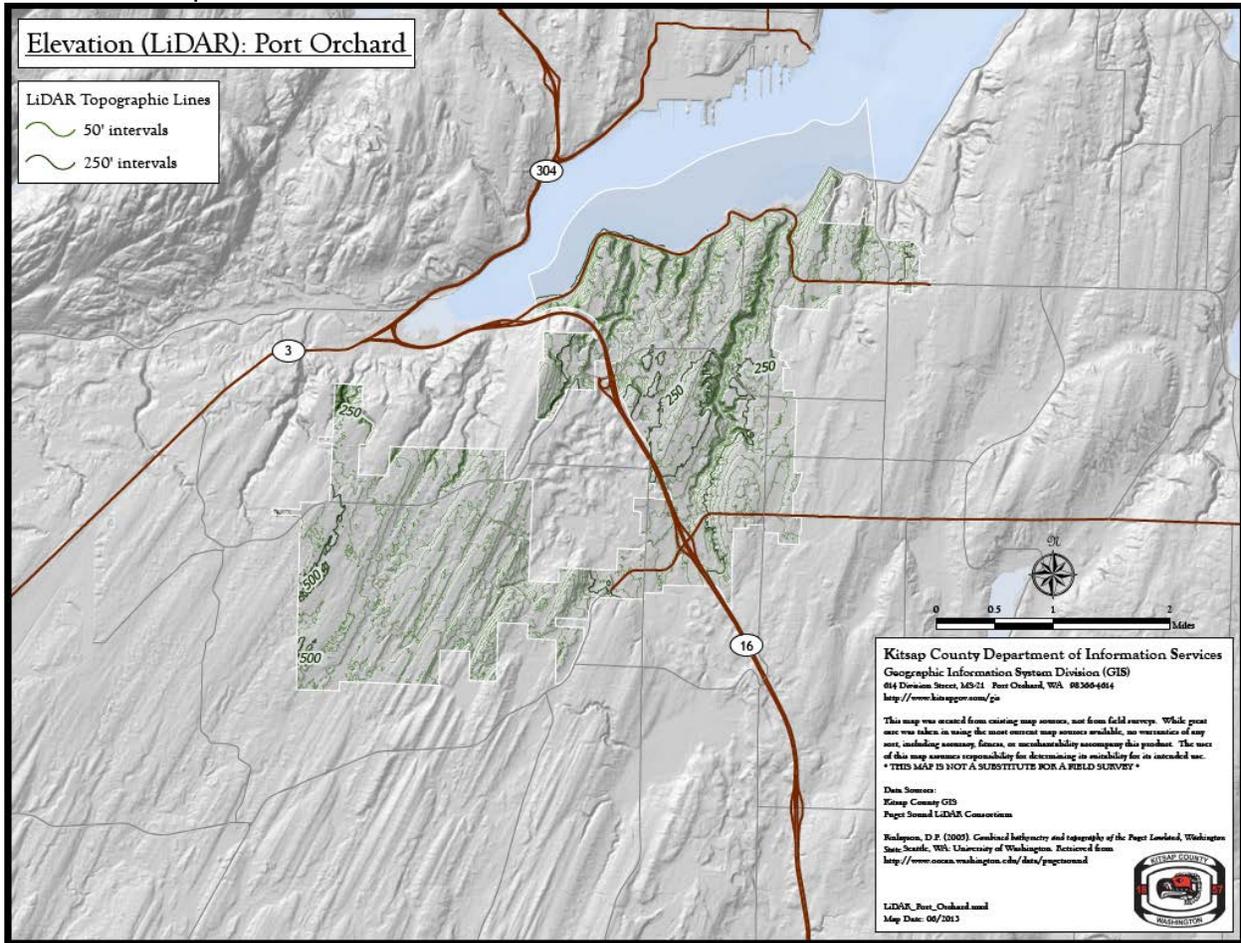


Exhibit PO-2: Land Use City of Port Orchard
 Source: Kitsap County Department of Information Services 2013

Land use in Port Orchard is primarily residential housing, government, retail, and waterfront marinas. As part of the Management Growth Act, Port Orchard has annexed land in recent years to accommodate city growth. There are a number of critical facilities in the City of Port Orchard including those identified as the County seat. These facilities are part of the County's Damage Assessment Program.

City of Port Orchard			
Housing Units (2010 Census)	Total	4,931	100%
	Detached	3,133	63.5
	Attached	1,608	32.6
	Mobile Homes	190	3.8
	Boat/RV	00	0.0

Table PO-2: Housing Units in the City of Port Orchard

City of Port Orchard			
Housing Age (2010 Census)	Total Built	4,931	100%
	1990-Later	1,999	49.5
	1950-1989	1,949	39.5
	1949-Earlier	983	19.9

Table PO-3: Housing Age City of Port Orchard

Business and Industry

The City's economy is primarily based on the Puget Sound Naval Shipyard, local commerce as seen on the Port Orchard Industrial Park, and employment in the Seattle-Tacoma area. The City's downtown corridor is characterized by working private shipyards, marinas, and merchants providing a variety of retail services to the citizens.

Principal Economic Base

Federal Defense Agencies; Naval Station Bremerton, Puget Sound Naval Shipyard, Naval Submarine Base Banger, Naval Keyport Center and support facilities.

Economic Characteristic: Median Household income is \$43,094.

Transportation, Communications, and Utilities

Major thoroughfares include: State Highway 16, Bay Street, Tremont Street, Sidney Avenue, Sedgwick, Port Orchard Blvd, and Bethel. The city has an extensive system of local public streets with commuter service provided by Kitsap Transit. The city of Port Orchard is serviced by Puget Sound Energy, West Sound Utilities Districts and Wave Cable for internet and television service.

City Infrastructure

Appendix PO.1 identifies the Asset Profile for the City of Port Orchard. The City Hall is a new structure build within the last 10 years and serves as City administration, courts, and the emergency operations center during emergencies.

Critical Facilities (within city limits):

- City of Port Orchard City Hall and Public Works Shop
- South Kitsap School District: South Kitsap High School, Cedar Heights Jr. High
- Givens Community Center
- Kitsap County Courthouse Complex and County Jail
- Fire District #7 – Fire Station #31
- Health Facilities: Group Health Coop of Puget Sound, Harrison Memorial Hospital
- Joint Wastewater Treatment Facility Wells: 5 wells and one transmission main from the City of Bremerton

History of Disasters

Table PO-4 below shows the history of natural hazards in Port Orchard. Any damage that has occurred has associated with heavy rains and high tides or land slides. The downtown area is prone to flooding during significant rainfall and tides. Some mitigation has been performed, but more is needed to improve the situation.

Natural Hazard Events: taken from table 2.1 Disaster History

Date of Incident	Type of Incident	Declaration Level
12/11/2008	Severe Winter Shelter	Local
12/03/2007	Severe Winter Storm	Local, State
12/16/2006	Severe Storm	Local
01/30/2006	Severe Storm	Local
12/05/2005	Severe Winter Storm	Local, State, Federal
08/29/2005	Hurricane	Federal
10/20/03	Flooding	Local, State, Federal
07/02	Flooding	Local, State
09/11/2001	Terrorist Attack	Federal
02/01 02/28/01	Earthquake – Nisqually	Local, State, Federal
03/97	Flooding	Local, State, Federal
12/96	Severe Storm	Local, State, Federal
04/96	Mudslide	Local
02/96	Flooding	Local, State, Federal
11/95	Severe Storm –Wind/flooding	Local, State, Federal
12/94	Flooding	Local
01/93	Wind Storm	Local, State, Federal
01/92	Severe Storm	No declaration
12/90	Severe Storm	Local, State, Federal
12/82	Severe Storm	Local, State, Federal
05/80	Mt. St. Helens, volcano	State, Federal
01/74	Severe Storm	Local, State, Federal
05/65	Earthquake	Local, State, Federal
10/62	Severe Storm – Wind	Local, State, Federal

Table PO-4: Natural Hazards Emergencies/Disaster Port Orchard

Mitigation Planning

Risk Assessment

Section III of this plan provides a thorough assessment of hazards associated with Kitsap County and its incorporated cities. Although, each city is affected differently, risks significant to the City of Port Orchard are floods, earthquakes, land shifts, tsunamis, and winter storms. Section III is a synopsis of the County and cities. This profile provides additional information specific to Port Orchard.

Rating System

The rating system for Port Orchard is consistent with the general plan. A rating for each hazard is defined by high, medium and low based on the information provided in Section II to this plan. Additional ratings are applied for priority mitigation strategies and Cost analysis.

Overview

As noted earlier, the City of Port Orchard has a history of severe winter storm, land shifts, and earthquakes. These vulnerabilities can cause serious damage and in some cases, limit mobility of the city around these hazards. Major east/west faults line in the Puget Sound Region intercept the southern end of the Island as well as being vulnerable to potential inland and ocean tsunamis.

Planning Process

As noted in the basic HMP Plan Update, the City of Port Orchard assigned personnel to the mitigation plan update and through the planning update process, were assigned to the Kitsap HMP planning committee. Additionally the City solicited for inputs from City Departments, City Council, and the citizens of Port Orchard. The city conducted a notice of public hearing and review of the HMP for the City as noted in the attachments.

Plans and Ordinances

In an effort to maximize hazard mitigation planning, the following city plans are used to support and mandate mitigation efforts throughout the city:

Current Hazard Mitigation Codes/Plans/Ordinances

1. Comprehensive Land Use Plan, adopted December 2008 updated December 2012 by Ordinance 019-12.

This 20 year plan is vision for the City of Port Orchard which guides the development of the City into the future. The Plan's goals and policies give direction for managing future growth consistent with citizens' desired future and quality of life.

The Comprehensive Plan also includes a Land Use Map linked to the land use and environmental policies that establishes areas of the City for residential, commercial, industrial and other land uses

These actions will work to strengthen the natural environmental and the quality of the built environment and provided a plan for mitigation during natural or other disasters.

2. Transportation Improvement Plan, approved each July (projected 6 year plan)

The Transportation element identifies future system improvements derived from the analysis completed in both City Capital Facilities documents, the EIS for the Kitsap County 2006 Comprehensive Plan 10-Year Update and the Sidney/Pottery Multi-Modal Corridor Plan.

This 6 year plan which is updated annually also identifies hazardous area and plan for mitigating these areas.

3. Capital Facilities Plan

The purpose of the Capital Facilities Plan is to provide policy direction to decision makers regarding development regulations and expenditures for capital facilities associated with fire protection and emergency medical services, law enforcement, parks, schools, water, sewer, storm water and solid waste collection and disposal.

The plan also identifies and prioritizes Parks, Open Spaces and Shorelines and mitigation needs to the year 2015. It is an element of the Growth Management Act which plans for effective use and development in flood zones and areas associated with natural or man made disasters.

4. Surface Water Management Plan and/or Stormwater Management Code, finalized in December 2011

This Stormwater Management Program (SWMP) is intended, along with the City's Comprehensive Stormwater Management Plan, to assist the City in planning, funding, and implementing a comprehensive program for addressing current and future regulatory and policy requirements for managing and mitigating stormwater runoff, water quality, flooding problems, and the City's natural resources.

5. Uniform Building and Fire Code (updated to 2012 International Building Codes)

Establish codes and regulations for building structures for safe occupancy. Mitigates against accidents and natural or man-made causes.

6. Municipal Code effective through August 2013

These plans and policies regulate the infrastructure, environment and building codes for the City of Port Orchard. The city follows these codes to mitigate potential damage during catastrophic events. Mitigate seismic events and other hazards through building structures to withstand or minimize the effects of these hazards.

7. Zoning Ordinance Updated 2012

Changes and updates to Zoning Ordinances is the responsibility of Planning and Community Development. It's mission to coordinate and manage land use activity. Mitigates buildings and the environment in hazardous locations.

8. Subdivision Ordinance Incorporated in Title 16, 2013 POMC

The purpose of this chapter is to regulate the subdivision of land within the city limits of Port Orchard and to require accurate legal descriptions. The controls, standards and procedures set forth in this chapter shall serve to minimize any expected negative impact of the proposed property use and mitigates potential damage during catastrophic events

9. Critical Areas Ordinance 18 (includes Flood Damage Prevention), and Codified as Title 18, POMC. Effective through August 2013

This ordinance defines wet lands, areas of critical recharging area effect on aquifers used for water, fish and wildlife habitat as required by the Growth Management Act. This ordinance identifies and plans for future mitigation of these critical areas.

10. National Flood Insurance Program Ordinance 1435 and 1446 Revised 1989.

Port Orchard’s participation in the NFIP allows them to use the resources of FEMA to use mitigation planning is to identify policies and actions that can be implemented over the long term to reduce risk and future losses.

These plans inherently include strategies, policies and ordinances that approve mitigation strategies or deter improvements affected by hazards. In each case, mitigation planning is essential to the safety and security of the citizens of Port Orchard. As such, The City Engineers, the HMP representative for Port Orchard, will review mitigation strategies to insure other plans are consistent with the plan.

Mitigation Goals and Strategies

2012 Mitigation Goals

The following goals have been defined by the City are consistent with those in the basic HMP update.

Goal 1: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Goal 2: Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.

These goals are applied to each of the hazard categories noted below with associated strategies for 2012.

The information below provides updates to strategies outlined in the HMP 2004. Strategies may have been dropped due to lack of funding or resolved. The two categories noted are ongoing strategies as well as those mentioned in the continued strategies for the revised plan.

Category	Strategy	Probability of Occurrence	Implementation time	Remarks/Status
IV	Seismic upgrades to equipment, infrastructure, critical facilities	High	Ongoing	Small projects accomplished in house. Ongoing and remains part of our plan
II	Inspect and Identify trees and objects that pose a hazard during a storm	High	Ongoing	Ongoing projects are funded as funds become available. Remains part of the city’s strategy

The following categories include unresolved strategies from 2004 or new 2012 strategies. For priority purposes, the strategies listed in each category are done so in order of importance.

Category I: Flooding
Probability of Occurrence: Medium

The city center of Port Orchard sits along Sinclair Inlet of Puget Sound and is susceptible to high tides and urban flooding during the winter months. Extreme high tides coupled with significant rainfall can cause flooding in downtown Port Orchard as well as affect residential waterfront properties. The significant water puts significant pressure on stormwater systems forcing water on the streets and into nearby retail outlets downtown. In other areas of town,

land management and improvements in stormwater systems have reduced flooding during the winter storm season, although significant events will cause urban flooding. The City of Port Orchard is affected by creeks and streams, but there are no significant tributaries in the city. Exhibits PO-3 and 4 show flood zones and streams and surface water areas that contribute to urban flooding in the City of Port Orchard. There are no critical facilities inside the flood prone areas.

National Flood Insurance Program (NFIP)

The City of Port Orchard entered the National Flood Insurance Program in 1978. The most recent review of the city's participation in the NFIP was conducted in 2005. During this Community Assistance Visit (CAV) the summarized findings from the CAV, included the need for an amendment to the City's flood chapter 15.38, preparation of procedures to implement Chapter 15.38, and additional information on three specific cases that were cited in their field work.

On September 16, 2005 the Floodplain Management Specialist responded to the City's transmittal of information by approving Ordinance No. 016-05 bringing the city into full compliance with Federal and State floodplain management requirements.

The City provided the Floodplain Management Specialist with additional information on the 3 specific cases cited during their visit which cleared all of the findings and closed the CAV for Port Orchard. Their conclusion was that the City is effectively regulating development in the City's flood hazard areas and they would notify FEMA of this certification.

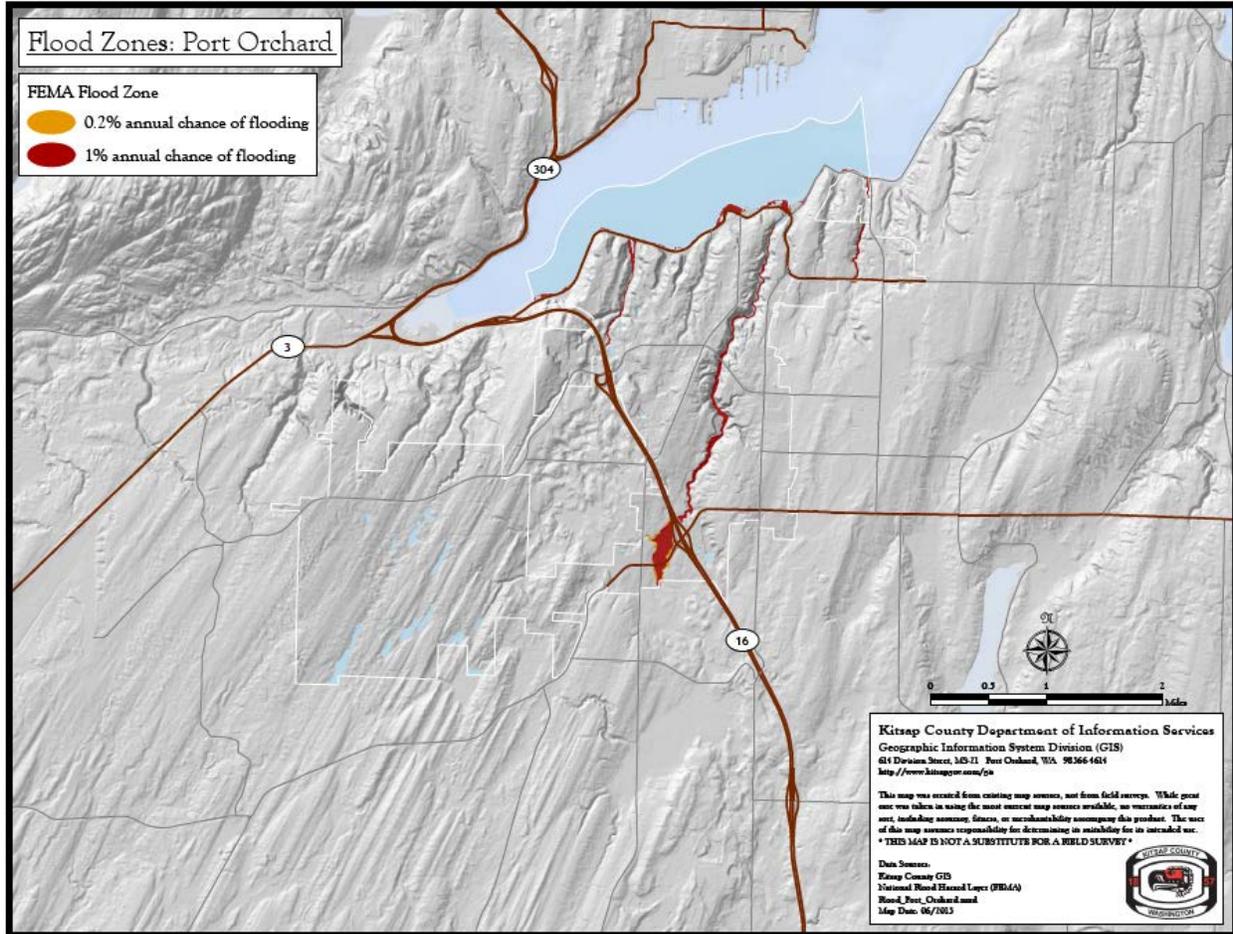


Exhibit PO-3: Flood Zones City of Port Orchard
Source: Kitsap County Department of Information Services 2013

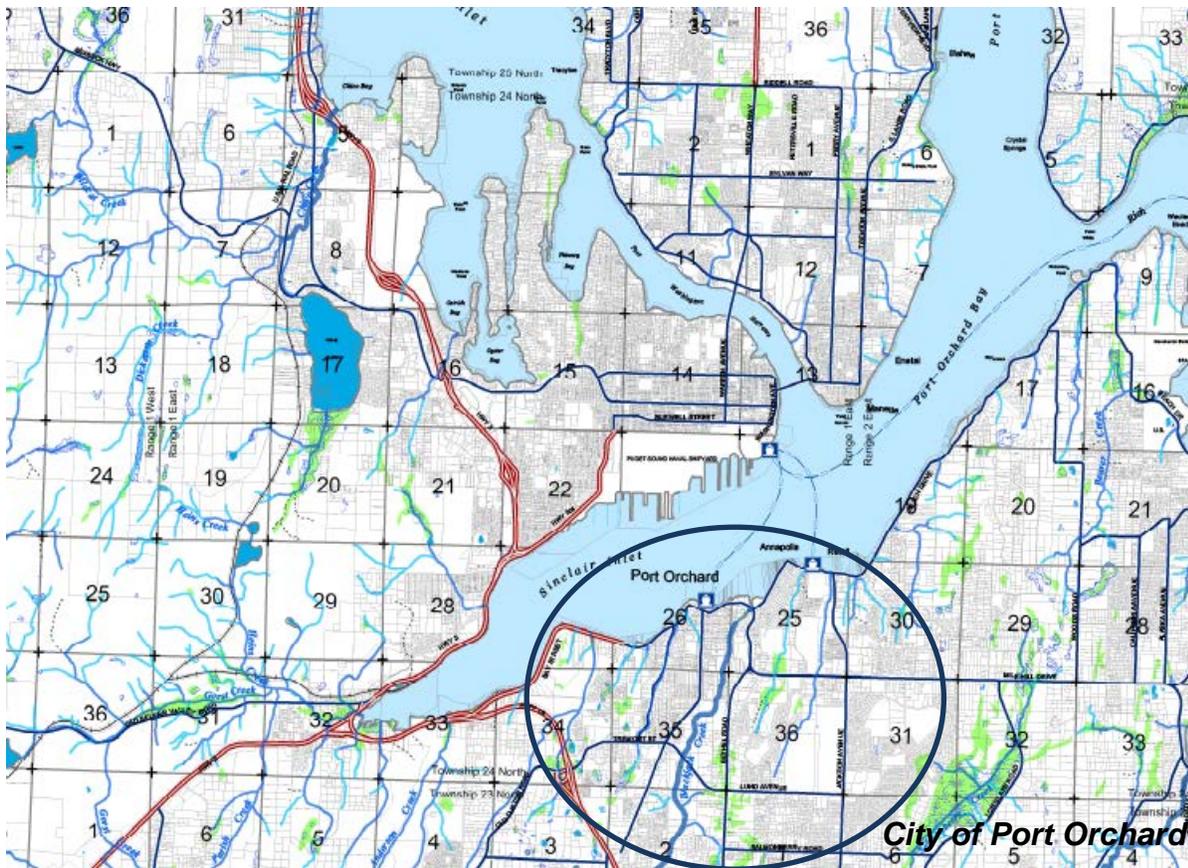


Exhibit PO-4: Streams and Surface Waters, City of Port Orchard

Source: Kitsap County GIS Department

Category II: Severe Storms
Probability of Occurrence: High

As noted in Table PO-4, the City of Port Orchard is vulnerable to severe weather typically in the winter months. High winds, significant rainfall, and snow can cause some urban flooding, damage from falling trees and the potential for landslides due to saturated soils. This can result in loss of life, damage to homes, and significant power outages. Although earthquakes have the potential for significant damage and loss of life, severe storms are annual occurrences, and any mitigation can also minimize the loss of life and damage from other hazards.

Severe storms affect the entire City. Although Port Orchard does not have any major rivers or tributaries, urban flooding from over-taxed stormwater system can cause damage to residential and retail outlets. The location of the city is ideal for being in the Puget Sound convergent zones during significant weather events and vulnerable to strong winds as weather fronts move over the Olympic Mountains. This results in falling trees or branches and significant power outages. Exhibit PO-4 shows the streams and surface water in the city. Downtown Port Orchard is vulnerable to flooding when heavy rains are combined with high seasonal tides, routinely in the winter months. The downtown area will experience temporary flooding of roads and some buildings while tides remain high. Some mitigation has been conducted, but significant changes to infrastructure would be necessary to reduce these symptoms.

Table PO-4 notes how severe storms affect building stock and the citizens on the Island. In all categories, 100% of the City has the potential for damage and loss of life from severe storms.

City of Port Orchard

Total Population	Population in Hazard Area	% Population Affected By Hazard
11,144	11,144	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
6,708	6,708	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
39	39	100

Table PO-4: Hazard Data for Severe Storms and Flooding Port Orchard

Source: Kitsap County GIS and Census 2010

Category III: Land Shifts
Probability of Occurrence: Medium

The City of Port Orchard is vulnerable to minor land shifts mostly on coastal cliffs vulnerable to an earthquake or when significant rainfall saturates vulnerable landslide areas. LIDAR studies noted in Section III and maps noted in Exhibit PO-5 show some minor vulnerable areas. The areas noting slide studies 156 through 165 are not within the city limits but do pose a threat to highways that lead to the downtown area. Additional studies of building stock located in these areas will be conducted in the future. Initial estimates define residential stock in these locations, but no critical facilities. Long term mitigation efforts including most restrictions on developing these areas for use, while in the short term, areas are monitored by Public Works during significant weather events. Refer to table PO-5 *Resident in Land Shift Areas*.

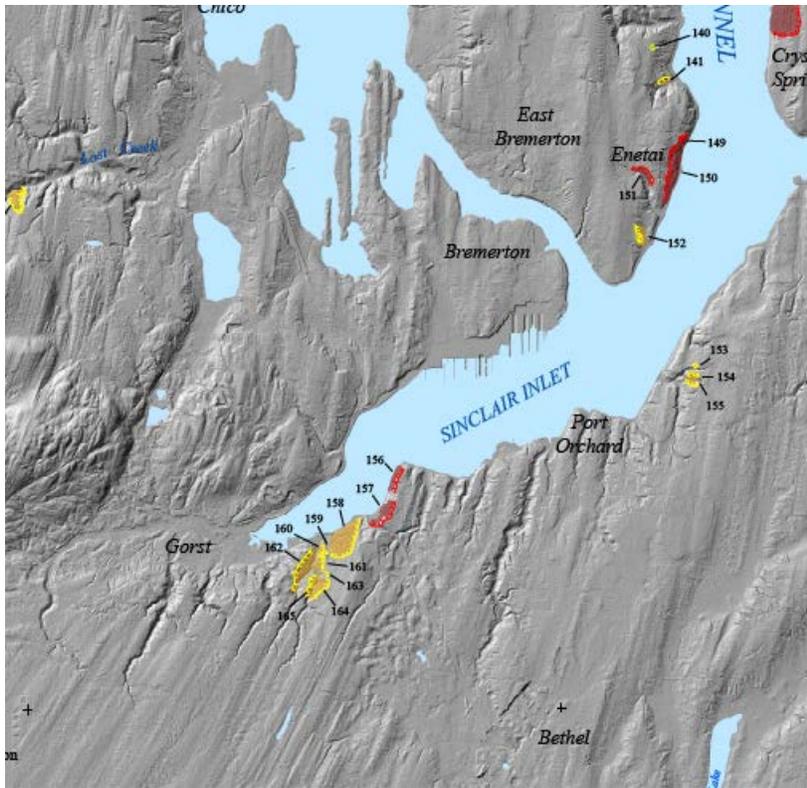


Exhibit PO-5: LIDAR Data on Land Shift Port Orchard
 Source: USGS

City of Port Orchard

Total Population	Population in Hazard Area	% Population Affected By Hazard
11,144	1031	9.3
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
6,708	739	11.0
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
39	00	0.0

Table PO-5: Hazard Data for Land Shifts Port Orchard
 Source: Kitsap County GIS and Census 2010

Category IV: Earthquakes
 Probability of Occurrence: High

The City of Port Orchard is vulnerable to earthquakes and associated inland tsunamis. The downtown corridor is also susceptible to liquefaction impacting merchants, waterfront marinas, and the infrastructure. Exhibit PO-6 shows liquefaction susceptibility. Red areas in downtown note the high risk areas in Port Orchard. Liquefaction in the downtown area could damage major

roads into downtown from the west, and damage residential and commercial buildings. Along this corridor are apartment complexes and senior assist facilities. Roads damage would disrupt life-safety response and alternative routes into downtown.

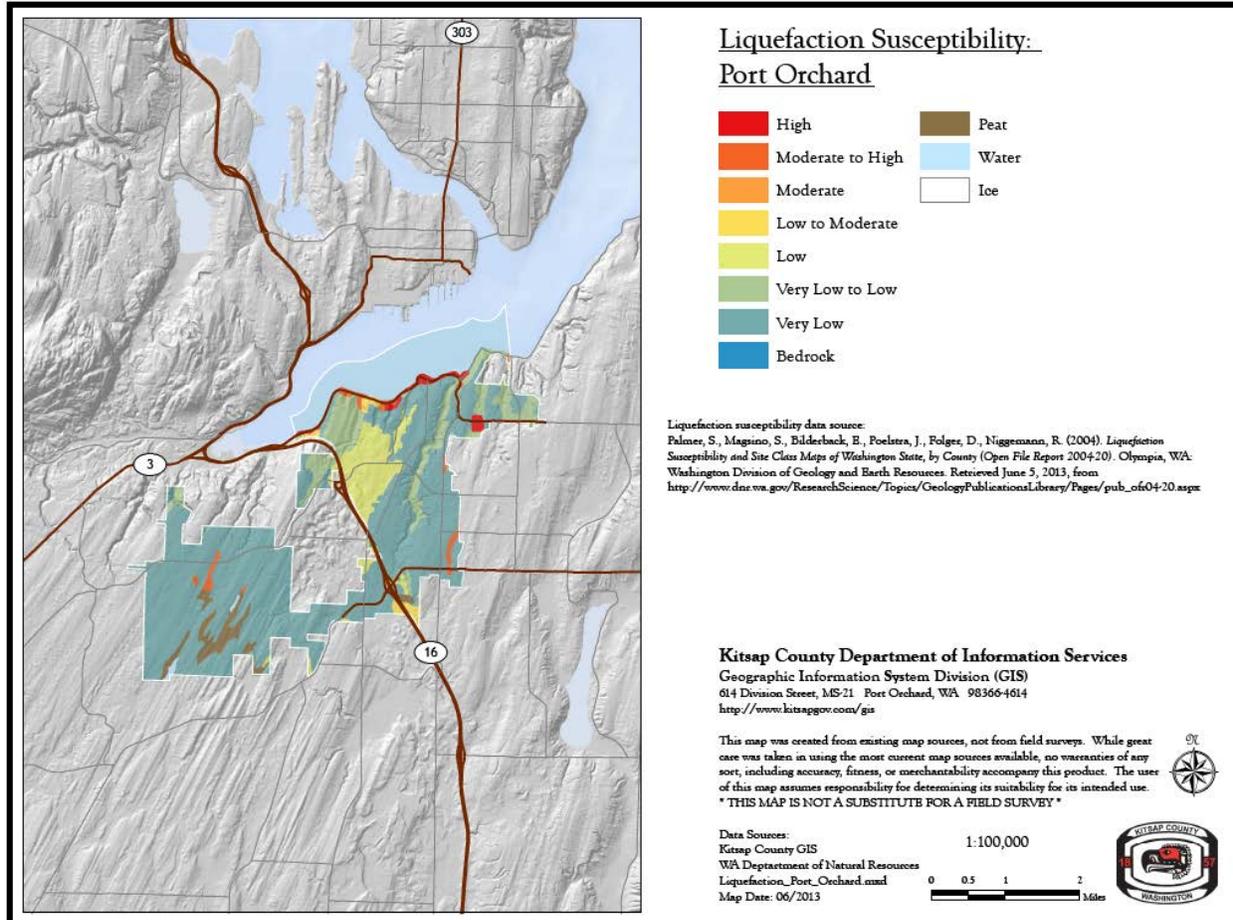


Exhibit PO-6: Liquefaction on Port Orchard
 Source: Kitsap County Department of Information Services

City of Port Orchard

Total Population	Population in Hazard Area	% Population Affected By Hazard
11,144	11,144	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
6,708	6,708	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
39	39	100

Table...hazard Data for Earthquakes: Port Orchard
 Source: Kitsap County GIS and Census 2010

Category VI: Tsunamis
Probability of Occurrence: Medium

There is some potential for a tsunami affecting the City of Port Orchard. Recent studies have shown that a tsunami affected the area thousands of years ago. Here is the excerpt from the Kitsap Plan regarding the event:

A recent study produced by Maria E. Martin Arcos entitle "*The A.D. 900–930 Seattle-Fault-Zone Earthquake with a Wider Coseismic Rupture Patch and Postseismic Submergence: Inferences from New Sedimentary Evidence*" suggest evidence of 4-5 m tsunami hitting the Gorst Area of Sinclair Inlet. The tsunami may have been an outcome of a Seattle fault earthquake or possibly other events cataclysmic enough to cause an 18 foot tidal wave in the Puget Sound. Maria Arcos conclusion is

"This study reiterates the threat of multiple hazards associated with earthquakes in the Puget Lowland, of which tsunamis are prominent in the case of Sinclair Inlet. Tsunami deposits at Gorst and tsunami modeling reiterate the tsunami threat in this inlet. Evidence for a tsunami in Sinclair Inlet is not unexpected based on the proximity to the Seattle fault zone and on previous tsunami models (Koshimura et al., 2002). Simulated wave heights of 4–5 m indicate tsunamis are not only a threat to the infrastructure in Gorst, but also to the naval base at Bremerton. Tsunami simulations demonstrate that the higher uplift documented in this study results in almost a meter higher tsunami wave along Sinclair Inlet. Even an order-of-magnitude smaller Tacoma fault-generated tsunami would generate strong currents in the narrow straits and harbors near Gorst. Further tsunami simulations in the Puget Lowland including different fault scenarios would help determine the degree of hazard posed by locally generated tsunamis."

Exhibit VI-1 (Basic Plan) shows the Gorst area of Kitsap County. As noted on the map, an 4-5 meter tsunamis can significantly affect the Cities of Bremerton and Port Orchard as well as the Puget Sound Naval Shipyard. This and other studies conclude that inland tsunamis can be potentially catastrophic and need more attention by those Counties in the Puget Sound Region.

Earthquakes along the Washington coast would cause a surge of seawater along the costal areas of the Straits of Juan De Fuca's. Such a tsunami may cause a surge of water in Puget Sound affecting the coastal water of the entire area. Considering the number of people living along the coastal water of Puget Sound, such a wave could have devastating effects on lives as well as property and infrastructure. Similar damage to life and the economy could occur in Port Orchard depending on the size of the surge. As noted below, 5.2% of the population resides in potentially dangerous areas. Damage from such an event may force boats and docks up along the shoreline damaging facilities and boats.

City of Port Orchard

Total Population	Population in Hazard Area	% Population Affected By Hazard
11,144	582	5.2
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
6,708	194	2.9
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
39	2	5.1

Table PO-6: Hazard Data for Tsunamis Port Orchard

Source: Kitsap County GIS and Census 2010

2012 Mitigation Goals and Strategies

Mitigation Strategy

PO-1

Action: Develop and implement projects to improve control of runoff and flooding.

Lead Department: City Engineering

Support Agency: Community Development

Category and Priority: Cat I/Medium

Probability of Occurrence: High

Implementation timeline: Based on size of project and availability of funds

Implementation Costs: \$250,000 per year

Benefit to Cost: Reduces erosion and road/infrastructure maintenance

Options and Discussion: When funds are available.

PO-2

Action: Improve citizen preparedness programs to include mitigating residential structures.

Lead Department: Kitsap County Emergency Management

Support Agency: City of Port Orchard

Category and Priority: All Categories/High

Probably of Occurrence: High

Implementation Timeline: Ongoing

Implementation Costs: \$10,000 per year

Benefit to Cost: Increase disaster preparedness and improve ability for structures to weather a disaster

Options and Discussion: This project is ongoing and involves a continued effort to get neighborhoods involved in preparedness. The County DEM KPREP program for neighborhood and school preparedness has been widely used, but funds are needed to provide ongoing training and equipment for preparedness. In addition, a Community Emergency Response Team (CERT) will be formed for the City of Port Orchard in 2014.

PO-3

Action: Pursue seismic upgrades to equipment, infrastructure, and critical facilities

Lead Department: City of Port Orchard Engineering

Support Agency: Kitsap County Department of Emergency Management

Category and Priority: Cat IV/High

Probability of Occurrence: High

Implementation timeline: Ongoing

Implementation Costs: To be determined as projects are authorized. Agency may pursue HMG funding and low interest loans to complete projects.

Benefit to Cost: Beneficial to earthquake survivability

Options and Discussion: None

PO-4

Action: Evaluate water and sewer utilities within 50 feet of shoreline

Lead Department: City of Port Orchard Engineering

Support Agency: West Sound Utilities District

Category and Priority: Cat I/High

Probability of Occurrence: High

Implementation timeline: 3 years

Implementation Costs: Based on initial assessment of mitigating high tide and winter storm flood events. Study would cost approximately \$150,000.

Benefit to Cost: Undetermined.

Options and Discussion: This project would reduce or remove the annual flooding of merchants in the downtown corridor and reduce flooding of sewer systems during winter storms. The project would determine the costs of improvements to downtown.

Additionally, the City of Port Orchard has reviewed the mitigation strategies in Section III of the Kitsap County Plan and will participate in those applicable to the hazards associated with Port Orchard. Please note that only the City Council can commit funds and significant resources to any strategy.

Flooding

- The City will participate in the review of flood control and riparian zone management process with regard to storm water management standards, zoning requirements, and building codes.
- The City will participate in the annual countywide meeting to review regulatory permitting and maintenance activities in flood-prone areas.
- When flooding problems are identified, the City will develop project proposals to reduce the flooding. Implementation would be dependent upon adequate financing and other factors.
- The City will maintain an inventory of privately-owned storm water systems and use this data when assessing potential flooding problems.

Severe Storms

- As part of its public education program, the City will continue to stress the importance of being self-sufficient for at least three days with food, water, and other essentials.
- The City will continue to maintain its emergency response plan for the water utility.

Land Shifting / Land Sliding

- The City will provide available information to the County GIS system to identify potential landslide areas for GIS mapping.

Earthquake

- The City will participate in the countywide seismic risk assessment program with the Department of Emergency Management as the lead agency.
- The City would provide relevant available data to help identify areas prone to ground motion, land slide, and liquefaction.
- To the extent feasible, the City would participate in Kitsap County's USGS-UW Geological mapping effort.
- The City's water and sanitary sewer systems will be included in the countywide assessment in regards to earthquake mitigation.
- If appropriate funding programs are available, the City would participate in a program to encourage seismic retrofitting of public and private properties.
- The City will continue to assess the water main and water delivery system and cooperate with the lead agency, as possible.
- The City would incorporate hazard mitigation improvements in the Water System Plan and Hazard Mitigation Plan, as appropriate.
- The City will continue to include seismic retrofit concepts in its public education efforts.

Drought

- The City will continue to partner with the water purveyors within the corporate limits to research and compile water resource data, particularly in the aquifer recharge areas, as they are identified.
- The City will continue to emphasize water conservation, particularly for times of drought.
- The City will formulate a policy for water distribution for times of drought

Tsunami

- The City will participate in countywide workshops to educate the public about tsunamis and responses to those events.
- The City will participate in countywide tsunami mitigation strategies, as funding is available.
- The City will post appropriate tsunami informational signs, if they are provided and comply with municipal codes.
- The City will participate in a countywide public educational effort by distributing informational brochures.
- The City will provide relevant and available information to Kitsap County GIS for its Kitsap County Shorezone Inventory.
- The City will participate in the countywide transportation mapping effort by providing relevant and available information to Kitsap County.
- If appropriate funding is available, the City would have a qualified person perform a geotechnical analysis of the water and sewer utilities within 50 feet of the shoreline.
- The City will participate in tabletop training exercises involving large-size debris removal associated with tsunami.
- The City would participate in a countywide review of zoning and land use rules as they relate to tsunamis.

Terrorism and Civil Disorder

- The City will participate in a countywide planning effort to address potential terrorism and civil disorder.

Multi-Hazards

- The City will participate in a comprehensive all-risk road plan.
- The City will provide relevant and available information for a countywide critical area hazard review.
- If appropriate funding is available, the City will participate in countywide studies of non-traditional areas of impacts.

Multi-Hazard Public Education Programs

- The City will enhance and support countywide public education programs for multi-hazard responses.

- The City will support on-going programs for countywide programs to include public participation in the planning effort.
- The City will participate in a countywide critical risk area educational program.
- If appropriate funding is available, the City will participate in countywide public educational program.
- The City will participate in public education programs.

Fire Mitigation Studies

- The fire authority for the City is Kitsap County Fire District #7 and the City has a close working relationship with the firefighting professionals and will continue to cooperate on joint ventures.

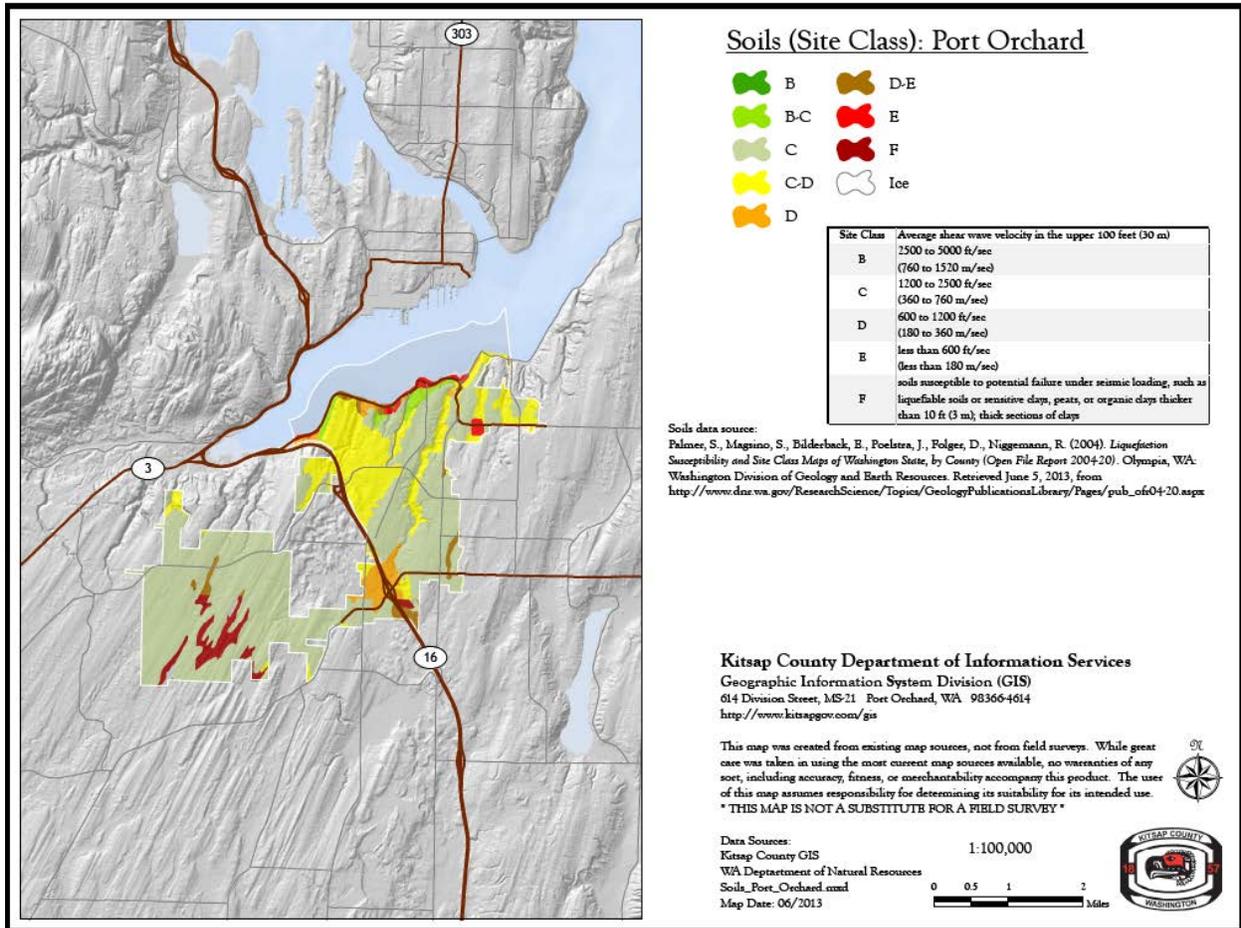


Exhibit PO-7: Soil (Site Class) Port Orchard
 Source: *Kitsap County Department of Information Services 2013*

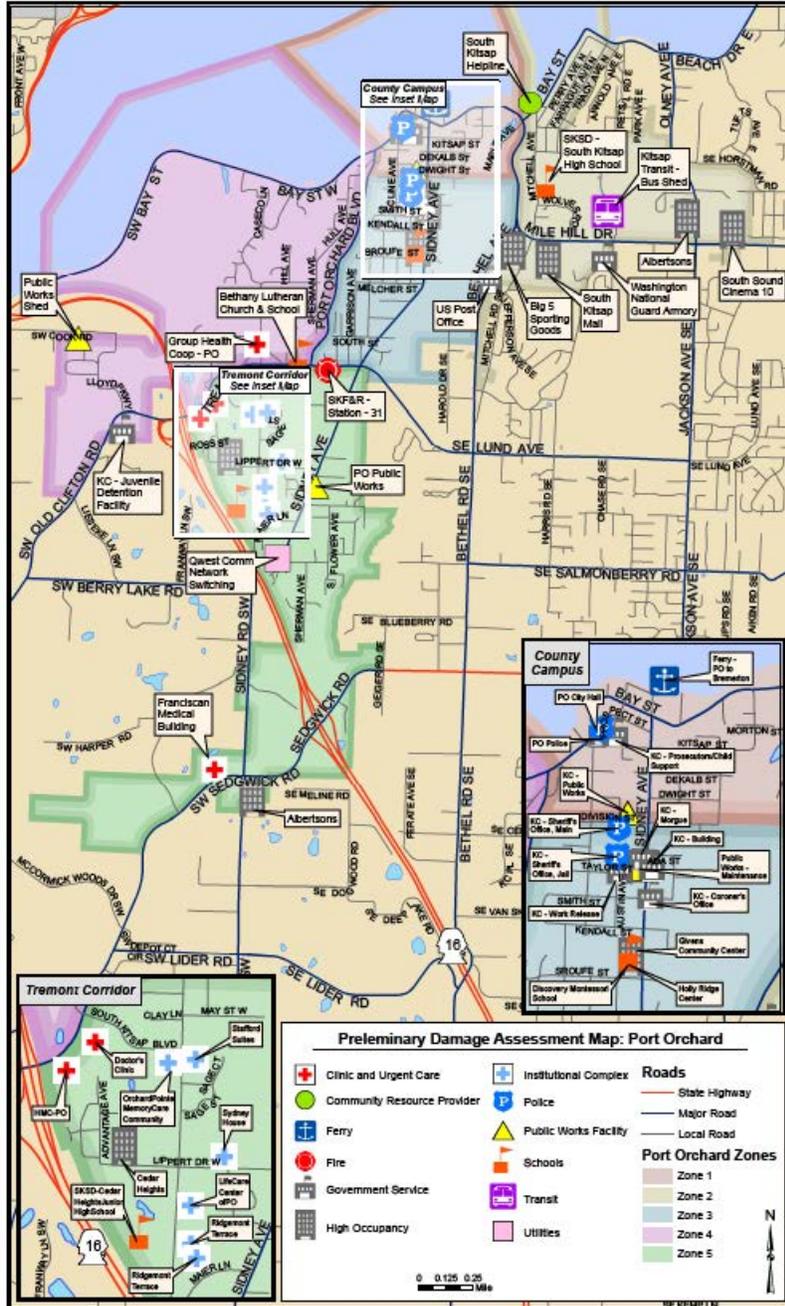


Exhibit PO-8: Kitsap County Damage Assessment Map Port Orchard
 Source: Kitsap County Emergency Management 2010

Appendix PO.1
City of Port Orchard Asset Profile

ASSET LISTING									
Location Port Orchard, WA	Zip Code	Prop. Value	Contents	Year Built	Type of Construction	Number Stories	Square Footage	Type of Protection	Critical Facility (Yes/No)
Givens Active Club 1025 Tacoma	98366	\$750,000	\$50,000	1962	Wood	2	7,500	Locked	No
City Hall 216 Prospect Street	98366	\$10,000,000	\$500,000	1999	Steel	4	28,000	Sprinkled	Yes
Public Works Facility 1535 Vivian Court	98366	\$2,000,000	\$500,000	2001	Steel	1	10,000	Alarmed	Yes
Port Orchard Library 87 Sidney Avenue	98366	\$3,000,000	\$1,000,000	1975	Masonry	1	10,000	Alarmed	No
South Shed Sidney Avenue	98366	\$1,000,000	\$100,000	1960	Steel	2	2,000	Locked	No
DeKalb Pier DeKalb Waterway	98366	\$1,000,000	0	1985	Wood	1	6,000		No
Van Zee Water Tank 2 MG	98366	2,000,000	0	1976	Concrete			Locked	Yes
Sedgwick Water Tank 1 MG	98366	\$1,000,000	0	2000	Steel			Fenced	Yes
Lloyd Parkway Water Tank, 1 MG	98366	\$1,500,000	0		Concrete				Yes
McCormick Water Tank 450,000 Gal	98367	\$750,000	0	1994	Steel			Fenced	Yes
Mc Cormick Water Tank #1 59,500 Gal	98367	500,000	0		Concrete			Fenced	Yes
Mc Cormick Water Tank #2 59,500 Gal	98367	500,000	0		Concrete			Fenced	Yes
Morton Street Water Tank, 90,000 Gal	98366	\$400,000	0	1990	Steel			Fenced	Yes

Appendix B.3: City of Port Orchard
Kitsap County Hazard Mitigation Plan 2013

Sidney Avenue Water Tank, 125,000 Gal	98366	\$500,000		1985	Steel			Fenced	Yes
Location Port Orchard, WA	Zip Code	Prop. Value	Contents	Year Built	Type of Construction	Number Stories	Square Footage	Type of Protection	Critical Facility (Yes/No)
Melcher Street Water Pump Station	98366	\$1,500,000	\$100,000	1976	Masonry	1	1,000	Fenced	Yes
City Hall Pump Station Kitsap/Cline	98366	\$1,000,000	\$200,000	1930	Masonry	2	2,000	Locked	Yes
Bremerton Water Pump Station, SR 16	98366	\$300,000	\$25,000	1983	Wood	1	200	Locked	Yes
Well 6 Maple Street	98366	\$1,000,000	\$50,000	1940	Wood/Concret e	1	600	Locked	Yes
Well 8 Sidney Avenue	98366	\$500,000	\$50,000	1986	Wood	1	400	Fenced	Yes
Well 9 Van Zee Park	98366	\$500,000	\$50,000	2004	Wood	1	400	Locked	Yes
McCormick Well Field	98366	\$1,000,000	\$100,000	1992	Wood	1	800	Fenced	Yes
Marina Sewer Pump Station	98366	\$3,000,000	\$500,000	1984	Concrete	1	1,000	Locked	Yes
Cedar Heights Sewer Pump Station, Pottery Avenue	98366	\$400,000	\$35,000	1969	Concrete			Locked	Yes
Harrison Sewer Pump Station, SK Blvd	98366	\$500,000	\$50,000	1995	Concrete			Fenced	Yes
Eagle Crest Sewer Pump Station,	98366	\$300,000	\$50,000	1997	Concrete			Fenced	Yes
Golden Pond Sewer Pump Station	98366	\$300,000	\$50,000	1999	Concrete			Fenced	Yes
Flower Meadows Sewer Pump Station	98366	\$400,000	\$50,000	2002	Concrete			Fenced	Yes
Bravo Terrace Sewer Pump Station	98366	\$500,000	\$50,000	1998	Concrete			Fenced	Yes
McCormick Woods Sewer Pump Station #1	98367	\$1,000,000	\$100,000	1996	Concrete			Fenced	Yes

Appendix B.3: City of Port Orchard
Kitsap County Hazard Mitigation Plan 2013

McCormick Woods Sewer Pump Station #2	98367	\$1,000,000	\$100,000	1996	Concrete			Fenced	Yes
Givens Field Restrooms	98366	100,000		2001	Masonry	1	507	Locked	No
Location Port Orchard, WA	Zip Code	Prop. Value	Contents	Year Built	Type of Construction	Number Stories	Square Footage	Type of Protection	Critical Facility (Yes/No)
Sander Rack Shed @ Well #6	98366	20,000		1998	Pole Bldg	1	720		No
213/215 Prospect	98366	400,000		1918	Wood	2	4888		No
Central Playfield Restroom	98366	50,000		1995	Masonry	1	1590	Locked	No
Van Zee Tennis Court	98366	100,000		1974	Asphalt	0	18000		No
Givens Tennis Court	98366	100,000		1974	Asphalt	0	18000		No
Boat Launch, 535 Bay	98366	250,000		1985	Concrete	0	555		No
Observation Deck @ Marina Pump Station	98366	20,000		1989	Concrete	2	530		No
Etta Turner/Blackjack Creek Park	98366	100,000		2005	Varies	0	18000		No
Central Park Retaining Wall	98366	50,000		2007	Concrete	0	800		No
Bay St Lift Station (Coast to Coast)	98366	1,500,000		1962	Concrete	2	100	Fenced	Yes
Tremont Place Lift Station	98366	150,000		1975	Concrete	1	100	Fenced	Yes
Annapolis Intertie Building (Wa Main)	98366	100,000		2007	Masonry	1	200	Locked	Yes
Wilkins Well	98366	100,000		1989					No
Well #7	98366	100,000		1961					Yes
Sedgwick Lift Station	98366	100,000		1995	Concrete	1	100	Fenced	Yes
MW Well #3 170ft	98367	150,000	25,300	Pchsd 1998				Fenced	Yes
MW Well #2 215ft	98367	150,000	20,200	Pchsd 1998				Fenced	Yes
MW Well #1 283ft	98367	200,000	18,200	Pchsd 1998				Fenced	Yes
Storage Bldg @ 1 MG Reservoir	98366	50,000		2004	Metal	1	200	Locked	No

Appendix B.3: City of Port Orchard
 Kitsap County Hazard Mitigation Plan 2013

WS Storage Shed	98366	25,000		2006	Wood	1	200	Locked	No
Well #10	98366	750,000		2007					Yes
The Ridge II Lift Station	98367	300,000	123,200	2007	Concrete	1	100	Fenced	Yes
Location Port Orchard, WA	Zip Code	Prop. Value	Contents	Year Built	Type of Construction	Number Stories	Square Footage	Type of Protection	Critical Facility (Yes/No)
Lowes Lift Station	98367	600,000	165,500	2007	Concrete	1	100	Fenced	Yes
The Ridge III Lift Station	98367	400,000	177,600	2007	Concrete	1	100	Fenced	Yes
Chemical Storage Shed	98367	30,000		2008	Wood	1	200	Locked	No
Shop Storage Canopy	98366	150,000		2002	Wood		3200	Fenced	No
Picnic Shelter @ Active Club	98366	50,000		1960	Masonry	1	720		No
Asset Profile Values		\$44,195,000	\$4,250,000						
Total Value of Listed Assets									

Port Orchard Independent
2950 S.E. Mile Hill Drive
Port Orchard
360.876.4414

Affidavit of Publication

STATE OF WASHINGTON }
COUNTY OF KITSAP } ss

Rich Peterson being first duly sworn, upon oath deposes and says: that he is the publisher of the Port Orchard Independent a once-weekly newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a once weekly newspaper in Port Orchard, Kitsap County, Washington and is and always has been printed in whole or part in the Port Orchard Independent and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Kitsap County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of City Notices - 2/9 Multi-Hazard Mitigation Plan PO314388 as it was published once a week in the regular and entire issue of said paper and not as a supplement form thereof for a period of 1 issue(s), such publication commencing on 1/8/2010 and ending on 1/8/2010 and that said newspaper was regularly distributed to its subscribers during all of said period.

The amount of the fee for such publication is \$ 14.75 which has been paid in full.

Rich Peterson

Subscribed and sworn before me on this
8th day of January,
2010.

Janis E. French

Notary Public in and for the State of
Washington, residing in Port Orchard,
Washington.

City of Port Orchard-LEGALS



NOTICE OF PUBLIC HEARING FOR THE MULTI-HAZARD MITIGATION PLAN
The Port Orchard City Council will hold a public hearing on the Multi-Hazard Mitigation Plan. The hearing will take place during the City Council meeting on Tuesday, February 9, 2010, starting at 7:00 p.m. The hearing will take place in the Robert Geiger Council Chambers, 216 Prospect Street, Port Orchard, WA.
Any person or public agency expressing interest in this project is invited to attend the public hearing and/or submit written comments to the City Clerk's Office on or before 4:30 p.m., February 9, 2010. Further information regarding this subject is available from the Public Works Department, City of Port Orchard, 216 Prospect Street, Port Orchard, WA 98366.
Mark R. Dorsey, P.E.
Public Works Director/City Engineer
Date of publication:
01/08/10
(PO314388)

PW

521.30.00



CITY OF PORT ORCHARD

Mayor:
Lary Coppola

Councilmembers:
Fred Chang
Chair: LTAC
Tourism Committee
Staff: Clerk's Office

Jerry Childs
Chair: Tourism Committee
Staff: Clerk's Office
Finance Committee

John Clauson
Chair: Finance Committee
Staff: City Treasurer
Utilities/SAC Committee
Kitsap County Health

Jim Colebank
Tourism Committee
KRCC/PSRC/KIBDA

Fred Olin
Chair: Public Property Committee
Staff: Planning Department
Utilities/SAC Committee

Carolyn Powers
Public Property Committee
KRCC/TransPo

Rob Putaansu
Chair: Utilities Committee
Staff: Public Works Department
Finance/SAC Committees
Kitsap Housing Authority

Department Directors:
Patti Kirkpatrick
Administrative Services
City Clerk

Allen Martin
City Treasurer

Debbie Hunt
Court Administrator

James Weaver
Development Director

Al Townsend
Police Chief

Mark Dorsey, P.E.
Public Works Director
City Engineer

Contact us:
216 Prospect Street
Port Orchard, WA 98366
(360) 876-4407

**City Council Meeting Agenda
February 9, 2010**

7:00 p.m.

EFFECTIVE January 1, 2010, Meetings will ONLY be available for viewing on the City's Website

1. CALL TO ORDER

A. Pledge of Allegiance

2. CITIZENS COMMENTS

Please limit your comments to 3 minutes for items not up for Public Hearing. When recognized by the Mayor, please state your name and address for the official record (please complete the sign-in sheet located in the hallway).

3. APPROVAL OF AGENDA

4. CONSENT AGENDA

(Approval of Consent Agenda passes all routine items listed below, which have been distributed to each Councilmember for reading and study. Consent Agenda items are not considered separately unless a Councilmember so requests. In the event of such a request, the item is returned to Business Items.)

- A. Approval of Claim Warrants, Payroll & Treasurer's check book**
- B. Approval of the January 19, 2010, Work Study Session Minutes**

5. PRESENTATION

A. Public Records Request Seminar Review-Brandy Rinearson

6. PUBLIC HEARING

- A. Revised City of Port Orchard Jurisdiction-Specific Vulnerability Assessment and Mitigation Strategies (Dorsey)**
- B. School Impact Fees (Weaver)**
- C. Waste Management of Washington, dba Brem-Air Disposal; Garbage Service Contract Renewal (Dorsey)**
- D. Development Agreement between South Kitsap Fire and Rescue and the City of Port Orchard (Dorsey)**

7. BUSINESS ITEMS

- A. Approval of January 26, 2010, Council Meeting Minutes**
- B. Adoption of Ordinance No. 001-10, Authorizing a School Impact Fee and Amending Port Orchard Municipal Code Chapter 16.70 "Impact Fees - General Provision" (Weaver)**
- C. Adoption of Ordinance No. 002-10, Repealing POMC 5.76 entitled "Garbage Collection Franchise" (Kirkpatrick)**

Please turn off cell phones during meeting and hold your questions for staff until the meeting has been adjourned
The Council may consider other ordinances and matters not listed on the Agenda, unless specific notification period is required
Meeting materials are available on the City's website at: www.cityofportorchard.us or by contacting the City Clerk's office, 360.876.4407
You may now view City Council Meetings from the City's website: www.cityofportorchard.us

- D. Adoption of Resolution No. 009-10, Excluding the Sidney Gallery and Museum Parcel from Consideration as a Preferred Site for a Downtown Parking Garage (Weaver)
- E. Adoption of Resolution No. 010-10, Authorizing the Mayor to Execute a Development Agreement with the South Kitsap Fire and Rescue (Doresey)

8. REPORTS OF COUNCIL COMMITTEES

9. REPORT OF MAYOR

10. REPORT OF DEPARTMENT HEADS

11. CITIZEN COMMENTS

(Please limit your comments to 3 minutes for items not up for Public Hearing. When recognized by the Mayor, please state your name and address for the official record. It is asked that you do not speak on the same matter twice.)

12. EXECUTIVE SESSION: Pursuant to RCW 42.30.110, the City Council may hold an executive session. The topic(s) and the session duration will be announced prior to the executive session.

13. ADJOURNMENT

COMMITTEE MEETINGS	Date & Time	Location
Finance Committee	February 26, 2010 7:30 a.m.	Myhre's
Tourism Committee	March 10, 2010 5:30 p.m.	City Hall
Utilities Committee	February 12, 2010 7:30 a.m.	City Hall
Sewer Advisory Committee (SAC)	February 17, 2010 6:30 p.m.	City Hall
Public Property Committee	February 9, 2010 7:30 a.m.	Myhre's
Work Study Session	February 16, 2010 7:00 p.m.	City Hall
Council Retreat	February 19, 2010 2:00 p.m.	City Hall

Please turn off cell phones during meeting and hold your questions for staff until the meeting has been adjourned
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 You may now view City Council Meetings from the City's website: www.cityofportorehard.us



City of Port Orchard
216 Prospect Street, Port Orchard, WA 98366
(360) 876-4407 • FAX (360) 895-9029

Agenda Staff Report

Agenda Item No.	<u>Public Hearing 6A</u>	Meeting Date:	<u>February 9, 2010</u>
Subject:	<u>Revised City of Port Orchard</u>	Prepared by:	<u>Mark R. Dorsey, P.E.</u>
	<u>Jurisdiction-Specific Vulnerability</u>		<u>Public Works Director</u>
	<u>Assessment and Mitigation Strategies</u>	Atty Routing No:	<u>NA</u>
		Atty Review Date:	<u>NA</u>

Summary: Pursuant to the Federal Disaster Act of 2000, which requires all local organizations (governmental, tribal and not-for-profit) to have an approved local mitigation plan in accordance with 44 CFR 201.6 prior to receiving Hazard Mitigation Grant Program funding, Staff has been working with the Kitsap County Department of Emergency Management (KCDEM) in preparation of the 2010 Kitsap County Multi-Hazard Mitigation Plan ("Plan"). The revised Plan, once approved by FEMA, will replace and update the previously adopted Plan.

The public comment and approved meeting minutes from this evening's Public Hearing on the City of Port Orchard's Jurisdiction-Specific Vulnerability Assessment & Mitigation Strategies will be provided to KCDEM for inclusion into the draft 2010 Kitsap County Multi-Hazard Mitigation Plan. Once submitted and approved by FEMA, the City of Port Orchard will then adopt the 2010 Kitsap County Multi-Hazard Mitigation Plan by first repealing Resolution No. 002-05 and then adopting a new Resolution (at a future City Council Meeting.)

Recommendation: Open the Public Hearing

Alternatives: Do not open the Public Hearing

Attachments: Jurisdiction-Specific Vulnerability Assessment & Mitigation Strategies



**City of Port Orchard
Council Meeting Minutes
Regular Meeting of February 9, 2010**

1. CALL TO ORDER AND ROLL CALL

Mayor Lary Coppola called the meeting to order at 7:00 p.m. Councilmembers Mayor Pro-Tem Rob Putaansuu, Fred Chang, Jerry Childs, John Clauson, Jim Colebank, Fred Olin, and Carolyn Powers were present and constituted a quorum. City Clerk Kirkpatrick, Public Works Director Mark Dorsey, Treasurer Martin, Development Director Weaver, Deputy Clerk Brandy Rinearson, and City Attorney Jacoby were also present.

A. Pledge of Allegiance

Boy Scouts of America: Bryan Adams, Joel Adams, Noah Adams, Christian Doll, Joseph Doll, Chris Hildebrand, Alex Hildebrand, Bradley Hildebrand, Alex Landry, Joshua Hemphill, Joel Hemphill, and Evyn Bartlett led the audience and Council in the Pledge of Allegiance.

2. CITIZENS COMMENT

Jerry Arnett inquired as to the status of how the funding from BKAT would be utilized and whether or not citizens would receive a refund in their cable bill, noting that was what the increase in services was for.

Chris Baker urged the Council to support efforts to return Kitsap Transit Bus Route No. 9, noting that many senior citizens relied heavily on that route to bring them to the Town Square mall to purchase groceries, haircuts, etc. The lack of the bus route has created a hardship for both the businesses at the Mall as well as the senior citizens who live in the Retsil area.

Diane Hubert voiced her appreciation of the time Public Works Director Dorsey took to explain the safety of citizens crossing in the proposed Tremont Roundabout.

Nicole Vaught thanked the Mayor for hiring competent employees; voiced her concerns regarding roundabouts; and explained that while in Olympia this past week, she noted there is a bill that would help property owners protect their rights to not have their residential neighborhoods be transformed into commercial, which she fully supported.

3. APPROVAL OF AGENDA

Councilmember Colebank MOVED and Councilmember Putaansuu seconded the motion approving the Agenda. Upon vote, the motion passed unanimously.

4. APPROVAL OF CONSENT AGENDA

- A. Approval of Claim Warrants Nos. 53073 through 53151 in the amount of \$235,615.16; January's Payroll Warrant Nos. 142868 through 142926 in the amount of \$469,863.07; and Treasurer's check book in the amount of \$2,018,159.49.
- B. Approval of the January 19, 2010, Work Study Session Minutes

Councilmember Putaansuu MOVED and Councilmember Colebank seconded the motion approving the Consent Agenda. Upon vote, the motion passed unanimously.

5. PRESENTATION

- A. **Public Records Seminar Update.** Deputy Clerk Rinearson provided a brief overview on the training she recently received through the Washington Public Records Organization (WAPRO) of which she is serving as the Treasurer.

6. PUBLIC HEARING

- A. **Revised City of Port Orchard Jurisdiction-Specific Vulnerability Assessment and Mitigation Strategies**

Public Works Director Dorsey presented the staff report, noting that the Federal Disaster Act of 2000, requires all local organizations (governmental, tribal, and not-for-profit) to have an approved local mitigation plan in accordance with 44 CFR 201.6 prior to receiving Hazard Mitigation Grant Program Funding. Staff has worked with Kitsap County Department of Emergency Management (KCDEM) in preparation of the 2010 Kitsap County Multi-Hazard Mitigation Plan. The revised Plan, once approved by Federal Emergency Management Act (FEMA), will replace and update the previously adopted Plan.

Mayor Coppola opened the Public Hearing, and there being no testimony, closed the Public Hearing at 7:19 p.m.

B. School Impact Fees

Development Director Weaver presented the staff report, noting that prior to the McCormick Woods annexation the area was providing the South Kitsap School District with school impact fees for each new residential building permit. The collection of school impact fees are currently in effect throughout Kitsap County. By instituting school impact fees for each new residential building permit in the City of Port Orchard will help mitigate the financial impact to the South Kitsap School district and provide a consistent process for school Capital Facilities financial planning throughout South Kitsap jurisdictions.

Mayor Coppola opened the Public Hearing and there being no testimony closed the Public Hearing at 7:21 p.m.

Tom O'Brien, Director of Facilities and Operations for South Kitsap Public Schools thanked the Council for implementing the impact fees, noting that the fees are paid directly from the developer to the school and are applied to new construction only.

There being no further testimony, Mayor Coppola closed the Public Hearing at 7:27 p.m.

C. Waste Management of Washington, dba Brem-Air Disposal: Garbage Service Contract Renewal

Public Works Director Dorsey presented the staff report, noting that staff has been working on the contract renewal with Waste Management. Staff was directed at the January 19, 2010, Work Study Session to bring this item forward for public hearing and at this juncture, the City has two options. The first option is to extend the current garbage service contract under the original terms and conditions. The second alternative is to renegotiate the garbage service contract with Waste Management.

Mayor Coppola opened the Public Hearing at 7:28 p.m.

Terry Bickel District Manager for Brem-Air/Waste Management thanked the Council for the opportunity to provide an update on the contract, noting the following:

- He was proud of the service being provided to the City residents;
- His operation area had the lowest rates in Washington;
- As part of working within the community, Waste Management would continue with the Spring/Fall cleanup days;
- The recycling program is being used by more residents;
- His operation area has a high level of customer service with very few complaints;
- Has a good safety record;
- Community involved, noting the employees of his district opted to donate money to SK Helpline rather than have a Holiday party;

Gerry Harmon voiced concerns that consumers are purchasing more goods in plastic containers (clam shells), which are not recyclable, and inquired if Waste Management was looking at how to better serve its senior citizens who can no longer move lawn waste to the street corner for pickup.

There being no further testimony, Mayor Coppola closed the Public Hearing at 7:56 p.m.

D. Development Agreement between South Kitsap Fire and Rescue and City of Port Orchard

Public Works Director Dorsey presented the staff report, noting that during the McCormick Woods annexation it came to the attention of staff that there is a parcel that is owned by South Kitsap Fire and Rescue, which adjoins property the City acquired for the purposes of a park. RCW 36.70b.170 authorized the execution of a development agreement between local government and an entity having ownership or control of real property within its jurisdiction and must set forth the development standards and other provisions that shall apply to, govern, and vest the development, use and mitigation of the development of the real property for the duration specified in the agreement. SKFR is the owner of a 3 acre parcel of real property on Old Clifton Road where at some future date it intends to construct a public safety building. The City and SKFR desire to memorialize their agreement regarding the development standards and construction standards that will apply to SKFR's future project.

Mayor Coppola opened the Public Hearing at 7:58 p.m.

Greg Rogers of South Kitsap Fire Rescue voiced appreciation to the Council for its leadership and support in an innovate approach to addressing future public safety needs before they become critical.

There being no further testimony, Mayor Coppola closed the Public Hearing at 8:02 p.m.

7. BUSINESS ITEMS

A. Approval of the January 26, 2010, Council Meeting Minutes

Councilmember Colebank MOVED and Councilmember Clauson seconded the motion to approve the January 26, 2010, Council Meeting Minutes. Upon vote, the motion passed with six affirmative votes. Councilmember Childs abstained.

B. Adoption of Ordinance No. 001-10, Authorizing a School Impact Fee and Amending Port Orchard Municipal Code Chapter 16.70 "Impact Fees -- General Provision"

Development Director Weaver presented the staff report, noting that prior to the McCormick Woods annexation the area was providing the South Kitsap School District with school impact fees for each new residential building permit. The collection of school impact fees are currently in effect throughout Kitsap County. By instituting school impact fees for each new residential building permit in the City of Port Orchard will help mitigate the financial impact to the South Kitsap School district and provide a consistent process for school Capital Facilities financial planning throughout South Kitsap jurisdictions.

Councilmember Powers MOVED and Councilmember Childs seconded the motion to adopt amended Ordinance No. 001-10, authorizing a school impact fee and amending Port Orchard Municipal Code 16.70 "Impact Fees – General Provisions." Upon vote, the motion passed unanimously.

C. Adoption of Ordinance No. 002-10, Repealing Port Orchard Municipal Code 5.76 Entitled "Garbage Collection Franchise"

City Clerk Kirkpatrick presented the staff report, noting that Ordinance No. 839, codified as Port Orchard Municipal Code 5.76 in 1969 granted Port Orchard Garbage Service a temporary franchise for certain annexed areas. During the renewal process it came to staff's attention that Ordinance No. 839 is out of date and needs to be repealed. The current terms of the garbage collection franchise are fully described in the existing contract with Waste Management of Washington, dba Brem-Air Disposal.

Councilmember Colebank MOVED and Councilmember Olin seconded the motion to adopt Ordinance No. 002-10, Repealing Port Orchard Municipal Code 5.76 in its entirety. Upon vote, the motion passed unanimously.

D. Adoption of Resolution No. 009-10, Excluding the Sidney Gallery and Museum Parcel from Consideration as a Preferred Site for a Downtown Parking Garage

Development Director Weaver presented the staff report, noting that the City Council considered a feasibility study to evaluate traffic and parking issues within the Downtown Overlay District, public comment, and its own deliberations designating a preferred site for a downtown parking garage, also referred to as the "Port Orchard Town Center Revitalization Project." The City selected its preferred site and conducted a geotechnical testing and conducted conceptual planning study and feasibility analysis for any potential future project on the selected site. The Sidney Museum and Art Association formally requested that their parcel be removed from consideration and all documents relating to the Port Orchard Town Center Revitalization Project.

Councilmember Clauson MOVED and Councilmember Powers seconded the motion to adopt Resolution No. 009-10. Upon vote, the motion passed unanimously.

E. Adoption of Resolution No. 010-10, Authorizing the Mayor to Execute a Development Agreement with South Kitsap Fire and Rescue

Public Works Director Dorsey presented the staff report, noting that during the McCormick Woods annexation it came to the attention of staff that there is a parcel owned by South Kitsap Fire and Rescue (SKFR), which adjoins property the City acquired for the purposes

of a park. RCW 36.70b.170 authorizes the execution of a development agreement between a local government and an entity having ownership or control of real property within its jurisdiction and must set forth the development standards and other provisions that shall apply to, govern, and vest the development, use and mitigation of the development of the real property for the duration specified in the agreement. SKFR is the owner of a 1.5 acre parcel of real property on Old Clifton Road where at some future date it intends to construct a public safety building. The City and SKFR desire to memorialize their agreement regarding the development standards and construction standards that will apply to SKFR's future project.

Councilmember Childs MOVED and Councilmember Putaansuu seconded the motion to adopt Resolution No. 010-10, authorizing the Mayor to execute Development Agreement No. C027-10, with South Kitsap Fire and Rescue commencing February 9, 2010 and expiring February 8, 2017. Upon vote, the motion passed unanimously.

8. CITIZENS COMMENTS

Brain Petro voiced his appreciation to the Council for removing the Sidney Museum from the downtown parking garage discussions.

9. COMMITTEE REPORTS

Councilmember Putaansuu announced the Utilities Committee would meet on Friday, February 12, 2010, at City Hall, to discuss sewer rates.

Councilmember Olin reported on the Public Property Committee, noting members of the Committee and the Mayor would meet with representatives from the Morning Rotary at the Dwight Street/Central Park to discuss implementation of a Pea Patch program on Monday, February 15, 2010, at 10:00 a.m.

10. MAYOR'S REPORT

Mayor Coppola reported on the following:

- Spoke at the morning Rotary;
- Met with the President of the morning Rotary and Master Gardeners about location of Pea Patch at Dwight Street/Central Park;
- Met with Boys and Girls Club;
- Attended conference call on KRCC matters;
- Met with Poulsbo Mayor Erickson and provided a tour of City to bring her up to date on City matters as it pertains to KRCC; and

- Met with Commissioner Bauer regarding revenue sharing agreement and the City's negotiating team will consist of Councilmembers Powers and Clauson and the Mayor.

11. REPORT OF DEPARTMENT HEADS

In response to City Clerk Kirkpatrick, Councilmembers Putaansuu, Colebank, Clauson, and Carolyn Powers and Mayor Coppola volunteered to serve pancakes at the May 1, 2010, Shop SK Pancake Feed being held at McClendon's Hardware. Further, Councilmembers referred an insert into Utility Billing to the Work Study Session for further discussion.

Development Director Dorsey provided a brief update on SB 6510 relating to extending SR 166 to Southworth, noting that the bill was amended by Senator Kilmer in order to move it out of Committee to its next step. Staff will continue to monitor its progress.

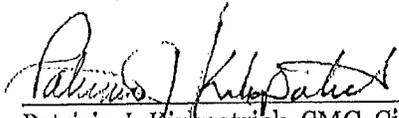
City Attorney Jacoby voiced appreciation that the Boy Scouts were still in attendance at the meeting; noted Public Records training for city staff was an excellent risk management tool and would reduce the risk of lawsuits; inquired if the Council would like him to facilitate the upcoming Retreat and offered his services at no charge to the City; and facilitate; and asked for direction to be given in regards to the Waste Management contract renewal.

After a brief discussion, the Council directed the Attorney to attend the Council Retreat on February 19, 2010, and directed staff to bring forward contract renewal with Waste Management at the February 23, 2010, meeting.

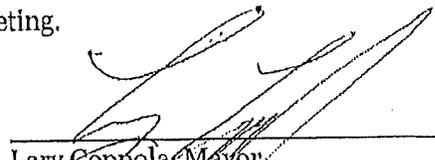
12. EXECUTIVE SESSION - NONE

13. ADJOURNMENT

At 8:35 p.m. Mayor Coppola adjourned the meeting.



Patricia J. Kirkpatrick, CMC, City Clerk



Lary Coppola, Mayor





**City of Poulsbo, Wa.
Mitigation Plan Revision 2012**

**Jurisdiction-Specific Vulnerability Assessment and Mitigation
Strategies**

Contact Information:

Barry Berezowsky, Director
Planning Department
19050 Jensen Way, PO Box 98,
Poulsbo, Washington 98370. (360) 779-3006

Attachments:

Appendix P.1: City of Poulsbo Asset Profile
Appendix P.2: City of Poulsbo Record of Hearings

City of Poulsbo, Wa. Profile

Overview

Poulsbo is located in north-central Kitsap County. Scandinavian settlers arrived on the shores of Liberty Bay more than 100 years ago. Poulsbo became a city in the early 1900's with fishing and farming as primary industries. Downtown Poulsbo is located adjacent to Liberty Bay, an extension of Puget Sound. Many community and regional events, some which celebrate the Scandinavian heritage, are hosted in Poulsbo parks and historic downtown area. Living among the saltwater shoreline and low hills provide exceptional views of the Cascade and Olympic mountain ranges as well as Liberty Bay. Total land is 2,905 Acres.

Community leaders, residents, and business interests strive to maintain a small town character, while continuing to thrive and grow. Both residential and commercial development continues through challenging economic times. College Marketplace, which includes the Poulsbo Branch of Olympic College, continues to develop commercial and residential uses. Poulsbo Place, winner of numerous local and national awards, is one of a number of residential areas which continue to develop. A new city hall is one of the current public projects.

Population

The population of Poulsbo is 9,200 (2010 census). A large group of professionals transit daily to downtown Seattle for employment. The City is characterized by professional scientific employment, construction and education. Citizens of Poulsbo like other cities in Kitsap are employed at the military installations in Kitsap County. Exhibit P-1 shows the City's population density and urbanization.

Age and Vulnerable Population Distribution

Table P-1 shows the distribution of age in Poulsbo. Overall the City's population is consistent with other Cities in the County with a number of senior/assist facilities in the City mostly located in the city's urban center. The senior population has grown consistent with those nationwide. The senior population is noted in Table P-1 and accounts for 23% of the total city population.

City of Poulsbo			
Population Age (2010 Census)	Total	9,200	100%
	Age 0-18	2,186	23.8
	18-62	4,915	53.4
	62-Older	2,099	22.8

Table P-1 Population by Age: Poulsbo

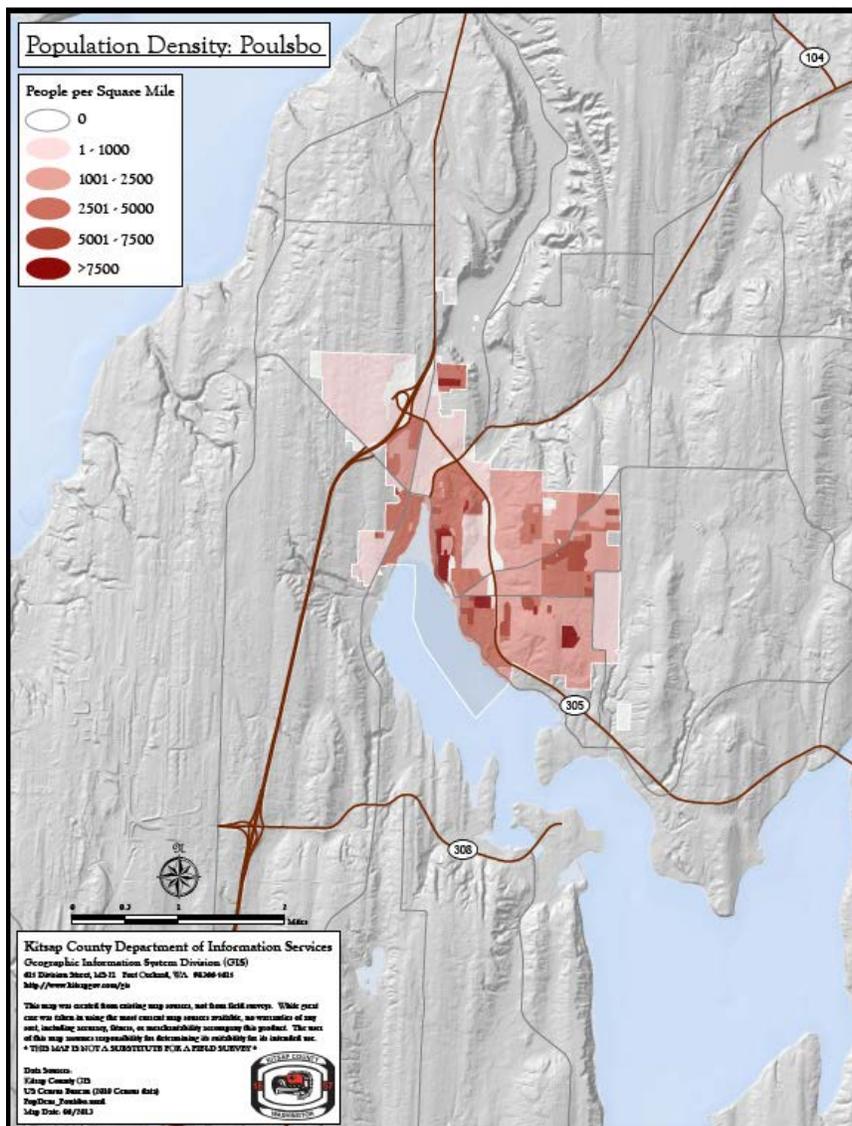


Exhibit P-1: Population Density: City of Poulsbo
 Source: Kitsap County Department of Information Services 2013

Geographical/Topographical Description

The topography in the area is low rolling hills, generally trending north to south. Areas of wetlands, aquifer recharge, and geological concern, and streams and shoreline are located in Poulsbo. The highest point in Poulsbo is less than 500 feet. Liberty Bay along the shoreline of Poulsbo responds to high and low tides, but is 80% enclosed and isolated from Puget Sound. Natural creeks like Dogfish Creek are spawning streams for salmon and drain into Liberty Bay. Exhibit P-2 shows topographic information on the Poulsbo area.

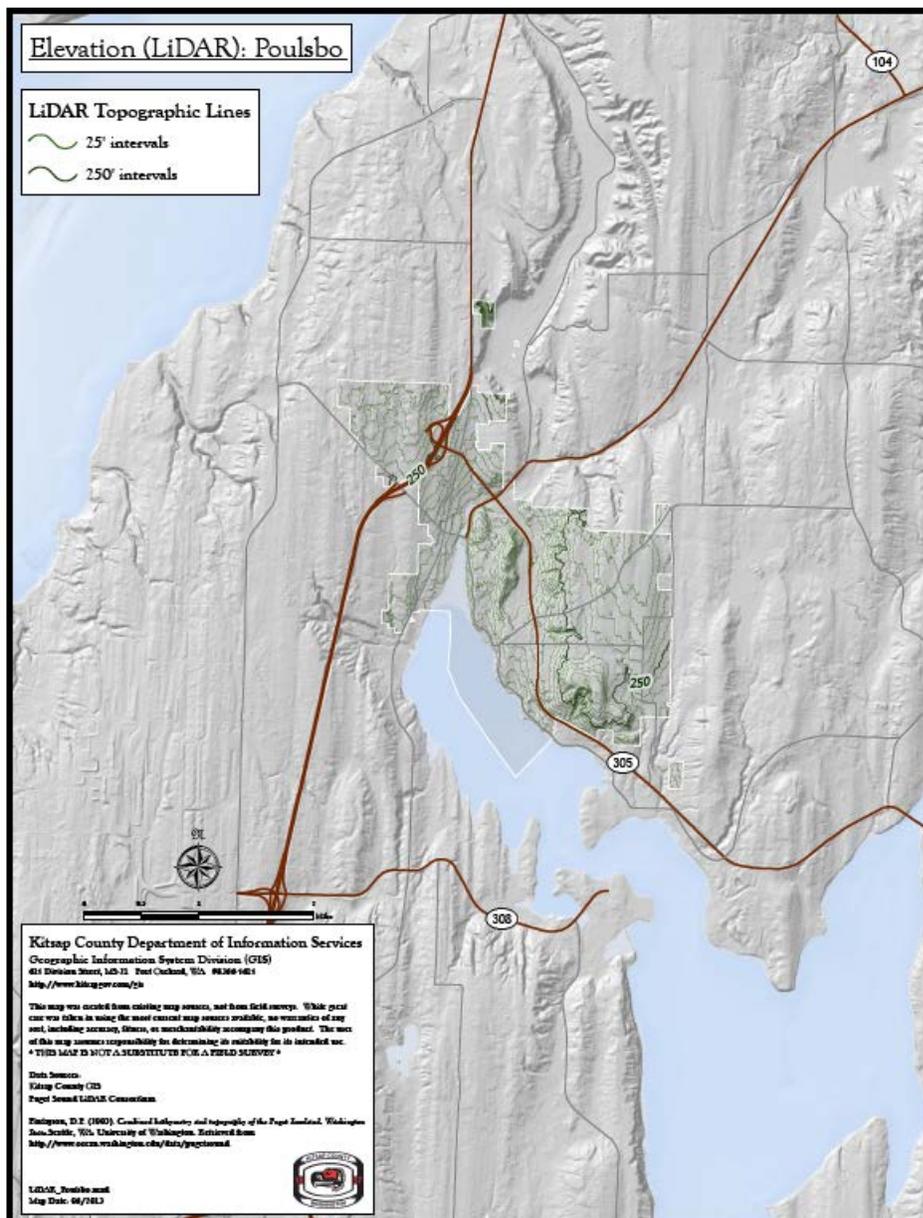


Exhibit P-2: Poulsbo Elevation using LiDAR

Source: Kitsap County Department of Information Services 2013

Land Use

Land uses in Poulsbo include residential, commercial, light industrial and open space. North Kitsap School District is also centered in Poulsbo. Commercial enterprises have increased significantly to the west with the development of the Olhava property which includes Wal-Mart and Home Depot as their primary businesses. The property and adjoining areas were annexed by the city as part of the County’s Comprehensive land Growth and Management Program. Median income is \$58,654. Table P-2 and P-3 provide information on housing units in Poulsbo. Most building stock is residential homes of wood frame construction. Poulsbo is part of the County’s Damage Assessment Program for disasters and have identified critical facilities as part of the program. The City of Poulsbo has identified 66 critical facilities as part of the plan.

City of Poulsbo			
Housing Units (2010 Census)	Total	4,016	100%
	Detached	2,483	61.8
	Attached	1,236	30.7
	Mobile Homes	297	7.3
	Boat/RV	00	0.0

Table P-2: City of Poulsbo Housing Units

City of Poulsbo			
Housing Age (2010 Census)	Total Built	4,016	100%
	1990-Later	1,784	44.4
	1950-1989	1,871	46.6
	1949-Earlier	361	9.0

Table P-3: Housing Age, City of Poulsbo

Business and Industry

The city is primarily residential with commercial businesses in the city core and College Market Place made up of big box stores. The principle economic base is retail outlets/offices, North Kitsap School District and light industry. Some citizens, like those on Bainbridge Island, commute to Seattle daily for work others are part of the military or work at military installations noted below.

Primary Economic Base

Federal Defense Agencies; Naval Base Kitsap (NBK) Bangor, (NBK) Keyport, (NBK) Bremerton, Puget Sound Naval Shipyard and support facilities. Commercial, Home Depot, Wal-Mart, and Central Market.

Transportation, Communications, and Utilities

Poulsbo is served by State Route 305, the main corridor to Bainbridge Island and the Washington State Ferry System. This route provides cross county traffic to and from Seattle to the East and State Route 3 to the West providing service to the Olympic Peninsula and south to Bremerton. The City has an extensive system of local public streets with commuter service by Kitsap Transit.

The City is serviced by Puget Sound Energy and maintains its own sewer and water system. Kitsap Public Utilities District One provides this service. Communications are provided through a variety of cell phone servers, Comcast, and Centurylink.

City Infrastructure

Appendix P.1 identifies the Asset profile for the City of Poulsbo.

Critical Facilities:

- City of Poulsbo City Hall
- City of Poulsbo *Former* Police Station
- City of Poulsbo Public Works Office and Shop
- North Kitsap School District: Administration Building, North Kitsap Senior High School, Poulsbo Junior High School, Poulsbo and Vinland Elementary Schools
- Olympic College Poulsbo Branch Campus
- Fire District #18 Headquarters / Fire Station #71
- Health Facilities: Poulsbo Village Medical Center with Regional Hospitals as backup, North Kitsap Medical Center
- Wastewater Treatment Plant: Brownsville via pressurized pipe under Liberty Bay
- Wells: 6 operational and one not on line at this time
- 9 Water Tanks Wastewater Lift Stations: 9

History of Disasters

Poulsbo has shared the same history of disaster with its other incorporated cities. Most events involved severe wind and rain except for the Nisqually Earthquake of 2001. Damage was incurred in the city, but not significant.

Event Date	Type of Event	Declaration?	Declared Disaster?
Dec 2008	Severe wind and rain	Local	No assistance
Dec 2007	Severe wind and rain	Local, State, and Federal	Yes
Jan 2006	Severe wind and rain	Local	Did not meet PA threshold
Dec 2006	Severe wind and rain	Local	Did not meet PA Threshold
Oct 2003	Severe wind and rain	Local, state, and Federal	Local PA Threshold not met. IA paid out
Jan 2002	Severe wind and rain	Local and State	State Only; presidential denied
Feb 2001	Nisqually Earthquake	Local, state, and Federal	YES
Dec 1996	Severe rain and snow runoff storm	Local, State, and Federal	Yes
Nov 1995	Severe wind and rain	Local, State, and Federal	Local PA threshold not met
Jan 1993	Severe wind and rain	Local, State and Federal	No record on file
Jan 1992	Severe wind and rain	Local	No assistance
Dec 1990	Severe wind and rain	Local, State and Federal	Yes

Dec 1982	Severe wind and rain	Local	No assistance
May 1965	Earthquake	Local, state, and Federal	No record on file
Oct 1962	Severe wind and rain	Local, state and Federal	No record on file

Table P-4: Emergency/Disaster History: City of Poulsbo

Mitigation Planning

Risk Assessment

Section III of this plan provides a thorough assessment of hazards associated with Kitsap County and its incorporated cities. Although, each city is affected differently, risks significant to Poulsbo are floods, earthquakes, land shifts, and winter storms. Section III is a synopsis of the County and cities. This profile provides additional information specific to the City of Poulsbo.

Rating System

The rating system for Poulsbo is consistent with the general plan. A rating for each hazard is defined by high, medium and low based on the information provided in Section II to this plan. Additional ratings are applied for priority mitigation strategies and Cost analysis.

Overview

As noted earlier, the City of Poulsbo has a history of severe winter storms, land shifts, and earthquakes. Although other alternatives are possible, mitigation strategies can provide improvement to the city infrastructure and minimize the loss of life and damage to properties from such events. Major east/west fault lines in the Puget Sound Region make Poulsbo vulnerable to earthquakes. The City of Poulsbo contributes and uses the County Hazard Identification and Vulnerability Assessment (HIVA) to set priorities on natural hazardous events. Although annually the City is hit by severe winter storms, the greatest threat to Poulsbo is an earthquake and associated liquefaction in downtown Poulsbo. This type of event could be catastrophic to not only life-safety, but the economic recovery of its downtown area.

Planning Process

As noted in the basic HMP Plan Update, the City of Poulsbo assigned personnel to the mitigation plan update and through the planning update process, were assigned to the Kitsap HMP planning committee. Additionally the City solicited for inputs from City Departments, City Council, and the citizens of Poulsbo. The city conducted a notice of public hearing and review of the HMP for the City as noted in the attachments.

Plans and Ordinances

The plans noted below represent documents that help to manage mitigation efforts in the City of Poulsbo. Each plan or ordinances dictate measures to insure the safe well-being of its citizens. Departments responsible for the plan, will insure the mitigation plan is incorporated into each of the plans listed below.

1. Comprehensive Land Use Plan

This 6 year plan identifies and prioritizes Parks, Opens Spaces and Shoreline Improvements and mitigation between 2009 and 2014. It is part of the Comprehensive Land Use Plan required

by the Growth Management Act. Effective use of lands to mitigate developments in flood zones and areas associated with natural or man made hazards.

2. Surface Water Management Plan and Code

This Stormwater Management Program (SWMP) is intended, along with the City's Comprehensive Stormwater Management Plan, to assist the City in planning, funding, and implementing a comprehensive program for addressing current and future regulatory and policy requirements for managing and mitigating stormwater runoff, water quality, flooding problems, and the City's natural resources.

3. International Building and Fire Code

The City of Poulsbo adopted the 2009 International Fire Codes with state amendments under Chapter 15.04 of the Building Code. These codes define building, fire and mitigation practices.

4. Municipal Code

These plans and policies regulate the infrastructure, environment and building codes for the City Poulsbo. The city follows these codes to mitigate potential damage during catastrophic events. Mitigate seismic events and other hazards through building structures to withstand or minimize the effects of these hazards.

5. Zoning Ordinance

Changes and updates to Zoning Ordinances is the responsibility of Planning and Community Development. It's mission to coordinate and manage land use activity. Changes and updates to Zoning Ordinances is the responsibility of Planning and Community Development. It's mission to coordinate and manage land use activity. The plan mitigates buildings and the environment in hazardous locations.

6. Comprehensive Transportation Plan

This transportation plan provides the framework to guide short and long term development and maintenance of the multi-model transportation system within the city of Poulsbo. It addresses the mandates of the Growth Management Act under the Revises Code of Washington, Title 36.70A.070.

7. Subdivision Ordinance

The purpose of this chapter is to regulate the subdivision of land within the city limits of Poulsbo and to require accurate legal descriptions. The controls, standards and procedures set forth in this chapter shall serve to minimize any expected negative impact of the proposed property use and mitigates potential damage during catastrophic events.

8. Critical Areas Ordinance

This ordinance defines critical areas (wet lands, areas of critical recharging effect on aquifers used for water, fish and wildlife habit, frequently flood areas and geologically hazardous areas) as required by the Growth Management Act. This ordinance regulates, protects and defines these Areas under Poulsbo Municipal Code Chapter 16.20.

Mitigation Goals and Strategies

2012 Mitigation Goals

The following goals have been defined by the City of Bainbridge Island and are consistent with those in the basic HMP update.

Goal 1: Eliminate or reduce the long-term risk to human life and property from identified hazards.

Goal 2: Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.

These goals are applied to each of the hazard categories noted below with associated strategies for 2012.

The information below provides updates to strategies outlined in the HMP 2004. Strategies may have been dropped due to lack of funding or resolved.

Category	Strategy	Probability of Occurrence	Implement action time	Remarks/Status
IV	Seismic upgrades to equipment, infrastructure, critical facilities	High	Ongoing	Small projects accomplished in house. Ongoing and remains part of our plan
II	Inspect and Identify trees and objects that pose a hazard during a storm	High	Ongoing	Ongoing projects are funded as funds become available. Remains part of the city's strategy

The following categories include unresolved strategies from 2004 or new 2012 strategies. For priority purposes, the strategies listed in each category are done so in order of importance.

Hazard Assessment by Category

Category I: Flooding

Probability of Occurrence: Medium

City of Poulsbo is prone to some flooding, mostly due to significant rainfall. Built above the shores of Liberty Bay, runoff from above fills natural streams which may overflow during significant rainfall. Significant rainfall events will also cause city sewer systems to be overwhelmed and cause local urban flooding. Comprehensive land management has helped in years to reduce urban flooding. Changes to the National Flood Insurance Program and coastal studies noted in Section III are defining changes to shoreline management aiding building codes and regulations. Exhibit P-5 shows areas susceptible to urban flooding. Some areas are coastal, but all inland areas are remote with no critical facilities affected and minimal residential housing affected from potential high water areas.

National Flood Insurance Program (NFIP)

The City of Poulsbo entered into the National Flood Insurance Program in 1979. The most recent review of the city's participation in the NFIP was conducted in 2005. During this Community Assistance Visit (CAV) the reviewers identified one deficiency which was related to city code. Code changes were made (adopted, closing the CAV, in late 2005).

In recent years, NFIP Flood Insurance Rates Maps (FIRM) has been revised. Some zones changed mostly reflecting coastlines changes based on better data and evaluation of such issues as wake and tidal issues. Changes are not significant, although, have increased the need for some homeowners to file for flood insurance under NFIP.

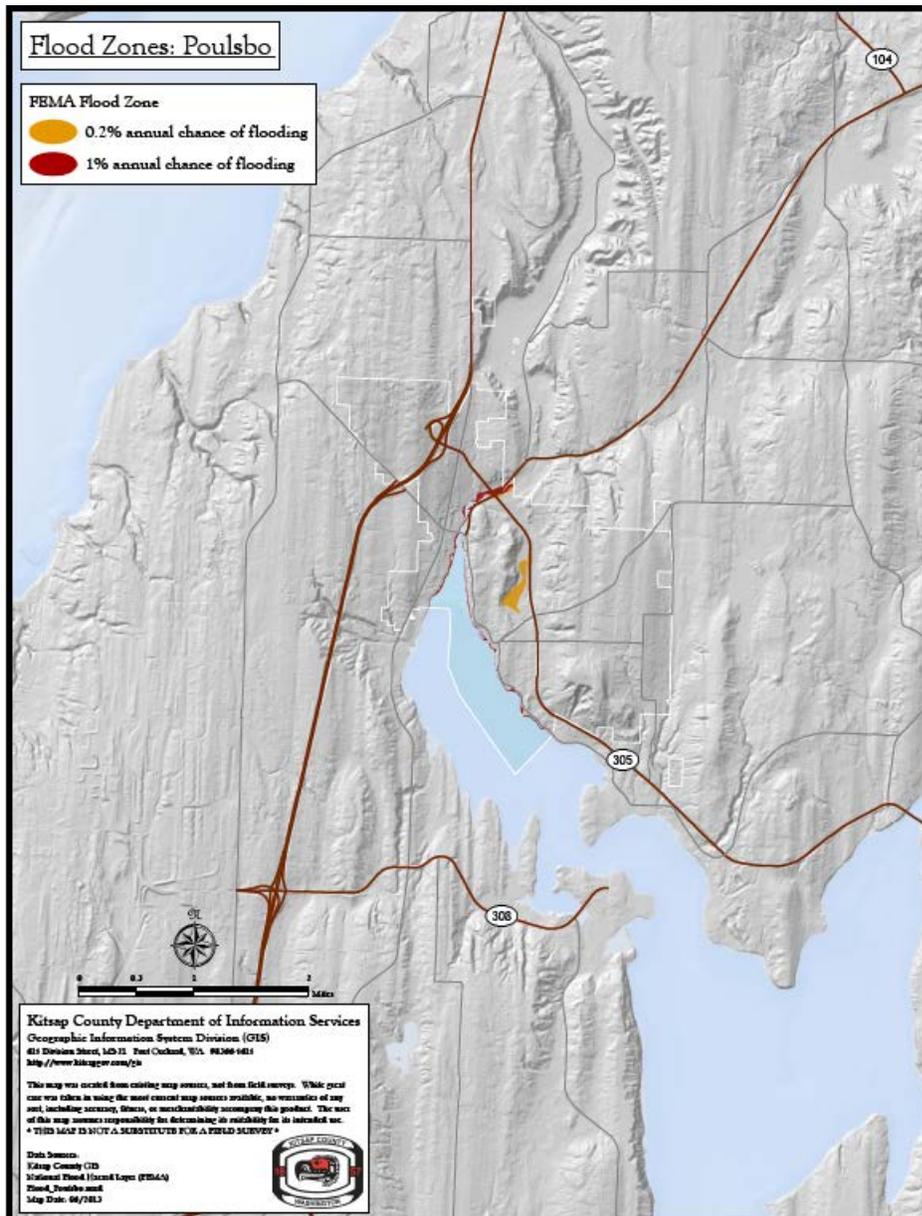


Exhibit P-3: City of Poulsbo Flood Zones

Source: Kitsap County Department of Information Services 2013

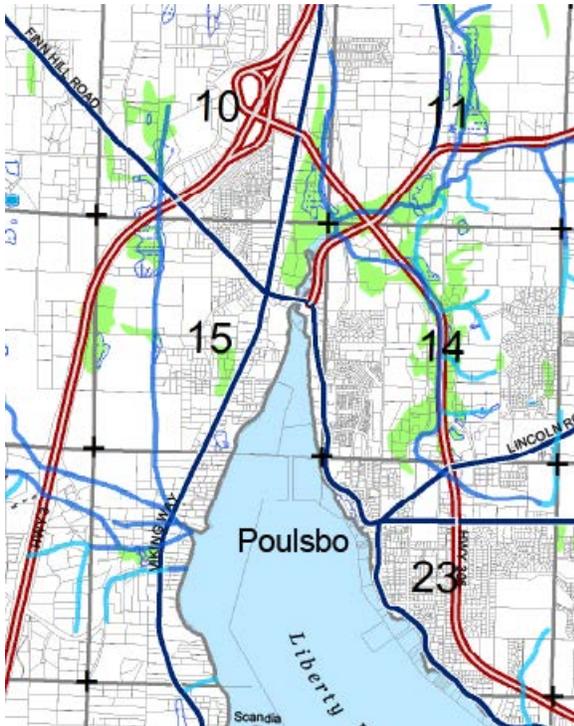


Exhibit P-4: Streams and Surface Water, City of Poulsbo

Source: Kitsap County GIS Department

Category II: Severe Storms

Probability of Occurrence: High

As noted in Table P-4, the City of Poulsbo is vulnerable to severe weather typically in the winter months. Severe weather, high winds, significant rainfall, and snow can cause some urban flooding, damage from falling trees and the potential for landslides due to saturated soils. This can result in loss of life, damage to homes, and significant power outages. Although earthquakes have the potential for significant damage and loss of life, severe storms are annual occurrences, and any mitigation can also minimize the loss of life and damage from other hazards.

Severe storms affect the entire City of Poulsbo. The location of the City is ideal for being in the Puget Sound convergent zones during significant weather events and vulnerable to strong winds as weather fronts move over the Olympic Mountains. This results in falling trees or branches and significant power outages. Exhibit P-4 shows the streams and surface water in the City of Poulsbo. Exhibit P-7 provides hydrology information for the City of Poulsbo. The colors represent

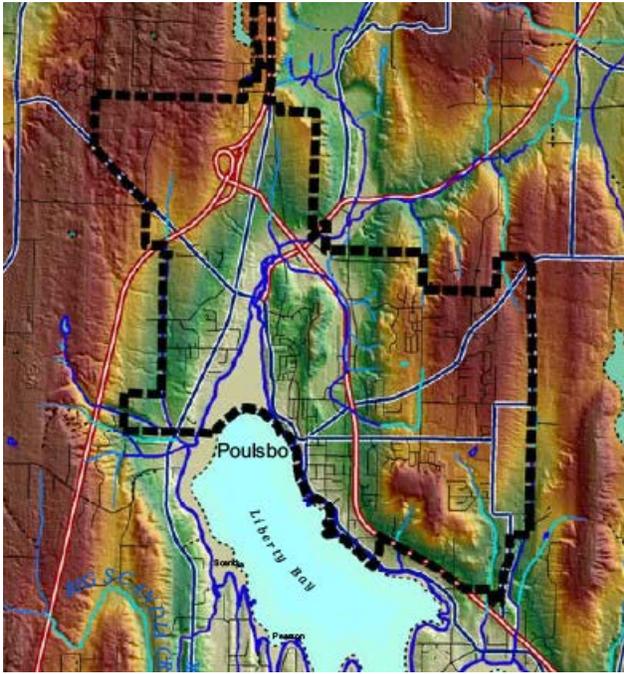


Exhibit P-5: City of Poulsbo Water Hydrology

Table P-5 notes how severe storms affect building stock and the citizens in the City. In all categories, 100% of the city has the potential for damage and loss of life from severe storms.

City of Poulsbo

Total Population	Population in Hazard Area	% Population Affected By Hazard
9,200	9,200	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
3,516	3,516	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
66	66	100

Table P-5: Hazard Data for Severe Storms and Flooding, city of Poulsbo

Source: Kitsap County GIS and Census 2010

Category III: Land Shifts

Probability of Occurrence: High

The City of Poulsbo is not vulnerable to land shifts based on recent LiDAR studies. Some areas outside the city are vulnerable as noted in Exhibit P-6.

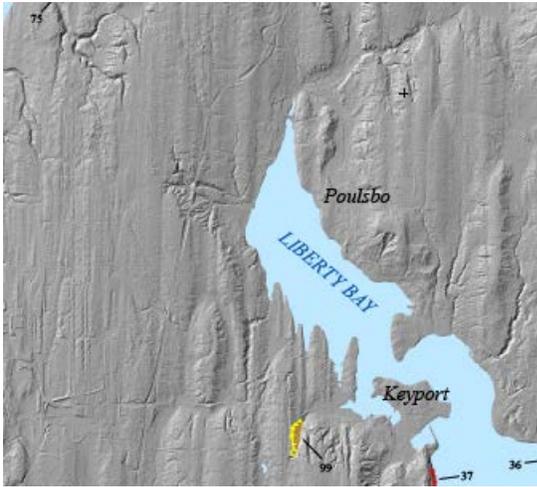


Exhibit P-6: LIDAR Data on Land Shift, City of Poulsbo
 Source: USGS

City of Poulsbo

Total Population	Population in Hazard Area	% Population Affected By Hazard
9,200	00	0.0
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
3,516	00	0.0
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
66	00	0.0

Table P-6: Hazard Data for Land Shifts, City of Poulsbo
 Source: Kitsap County GIS and Census 2010

Category IV: Earthquakes
Probability of Occurrence: High

Like all of Kitsap County, the City of Poulsbo is vulnerable to earthquakes. Some model show damage from the Seattle Fault associated earthquake as well as faults in South Puget Sound. Poulsbo experience little damage during the Nisqually earthquake of 2001, mostly due to a significant number of older homes in the City limits. Although a significant earthquake with extensive shaking could cause serious damage. Liquefaction in the downtown area could damage major roads into downtown from the west, and damage residential and commercial buildings. Along this corridor are apartment complexes and senior assist facilities. Roads damage would disrupt life-safety response and alternative routes into downtown. Exhibit P-9 shows liquefaction susceptible areas in Poulsbo. The Moderate to high areas are those noted in the previous discussion. High areas are along the waterfront in the downtown area.

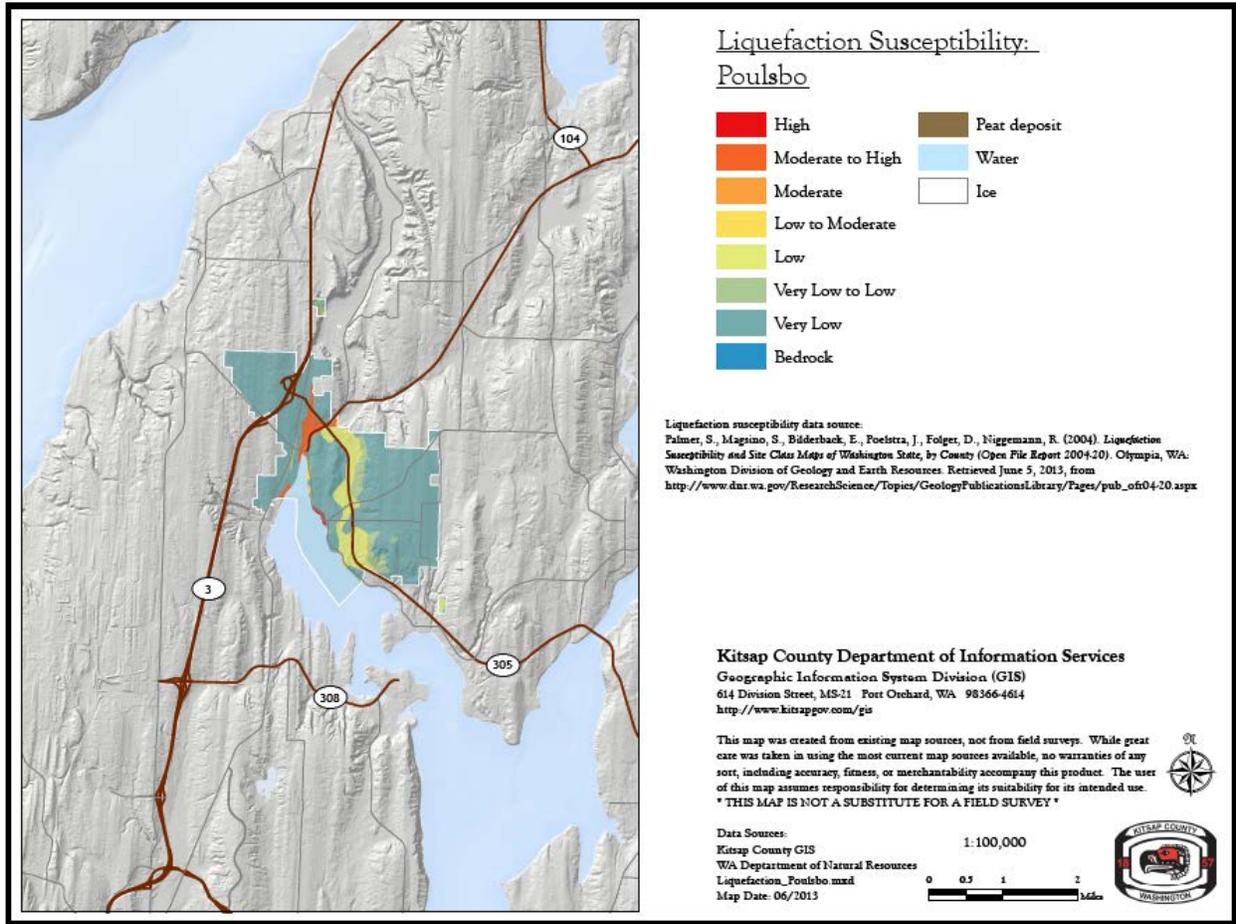


Exhibit P-7: Liquefaction in Poulsbo
Source: Kitsap County Department of Information Services

City of Poulsbo

Total Population	Population in Hazard Area	% Population Affected By Hazard
9,200	9,200	100
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
3,516	3,516	100
Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
66	66	100

Table P-7: Hazard Data for Earthquakes: Poulsbo
Source: Kitsap County GIS and Census 2010

Category VI: Tsunamis
Probability of Occurrence: Medium

There is some potential for a tsunami affecting the City of Poulsbo. Subduction Earthquakes along the Washington coast would cause a surge of seawater along the costal areas of the Straits of Juan De Fuca's. Such a tsunami may cause a surge of water along the shores of Liberty Bay and the city of Poulsbo. As noted below in the map, some areas along the shore of Liberty Bay may see damage from the surge, but the downtown area would experience little affect except for the marinas. Damage from such an event may force boats and docks up along the shoreline damaging facilities and boats. Very little of the population would be affected except for live-a-boards and those living in residence along the banks of Liberty Bay. There is no history of tsunami's along the Banks of Liberty Bay. Liberty Bay is closed to the Puget Sound waters and masked by Bainbridge Island from surges. Some damage may be to businesses at the end of Liberty Bay to the North, but damage from the earthquake mostly more severe.



Exhibit P-8: Tsunami Models, City of Poulsbo
 Source: Kitsap County GIS

City of Poulsbo

Total Population	Population in Hazard Area	% Population Affected By Hazard
9,200	345	3.7
Total Building Stock	Building Stock in Hazard Area	% Building Stock in Hazard Area Jurisdiction
3,516	115	3.3

Total Critical Facilities	Total Critical Facilities in Hazard Area	% Critical Facilities in Hazard Area Jurisdiction
66	3	4.5

Table P-8: Hazard Data for Tsunamis, city of Poulsbo

Source: Kitsap County GIS and Census 2010

Mitigation Strategy

P-1

Action: Develop and implement projects to improve control of runoff and flooding.

Lead Department: City Engineering

Support Agency: Community Development

Category and Priority: Cat I/Medium

Probability of Occurrence: High

Implementation timeline: Based on size of project and availability of funds

Implementation Costs: \$250,000 per year

Benefit to Cost: Reduces erosion and road/infrastructure maintenance

Options and Discussion: When funds are available.

P-2

Action: Improve citizen preparedness programs to include mitigating residential structures.

Lead Department: Kitsap County Emergency Management

Support Agency: City of Poulsbo

Category and Priority: All Categories/High

Probably of Occurrence: High

Implementation Timeline: Ongoing

Implementation Costs: \$10,000 per year

Benefit to Cost: Increase disaster preparedness and improve ability for structures to weather a disaster

Options and Discussion: This project is ongoing and involves a continued effort to get neighborhoods involved in preparedness. The County DEM KPREP program for neighborhood and school preparedness has been widely used, but funds are needed to provide ongoing training and equipment for preparedness. In addition, a Community Emergency Response Team (CERT) will be formed for the City of Poulsbo in 2014.

P-3

Action: Pursue seismic upgrades to equipment, infrastructure, and critical facilities

Lead Department: City of Poulsbo Engineering

Support Agency: Kitsap County Department of Emergency Management

Category and Priority: Cat IV/High

Probability of Occurrence: High

Implementation timeline: Ongoing

Implementation Costs: To be determined as projects are authorized. Agency may pursue HMG funding and low interest loans to complete projects.

Benefit to Cost: Beneficial to earthquake survivability

Options and Discussion: None

P-4

Action: Inspect and identify trees and other objects within falling distance of critical facilities to determine if they pose a hazard during a storm.

Lead Department: City of Poulsbo

Support Agency: Kitsap PUD #1

Category and Priority: Cat II/High

Probably of Occurrence: High

Implementation Timeline: Ongoing

Implementation Costs: \$25,000 per year

Benefit to Cost: reduces problem areas associated with significant wind and rain events.

Options and Discussion: Areas of improvement are identified and evaluated for future funding with the budget or as HMG funds are available.

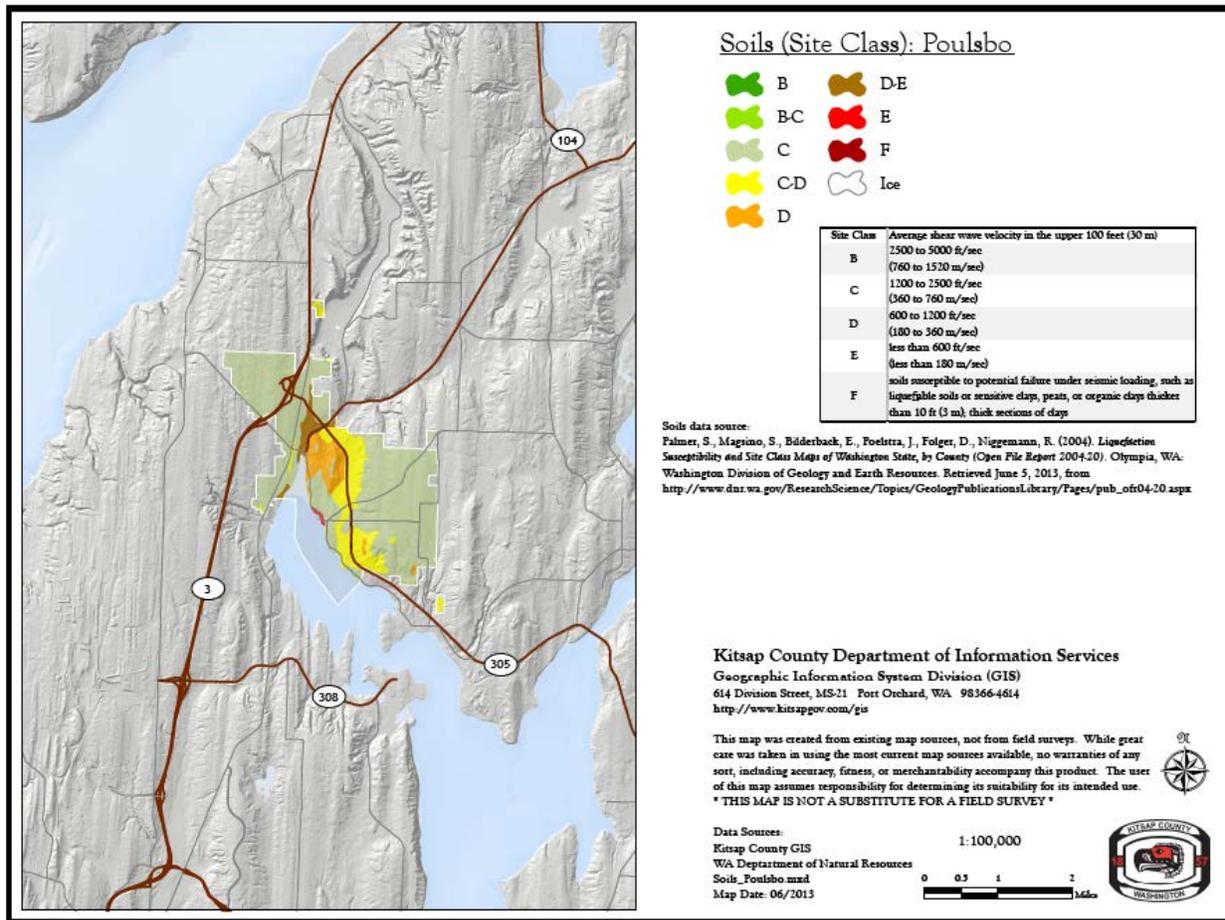


Exhibit P-9: Soil (Site Class): Poulsbo

Source: Kitsap County Department of Information Services 2013

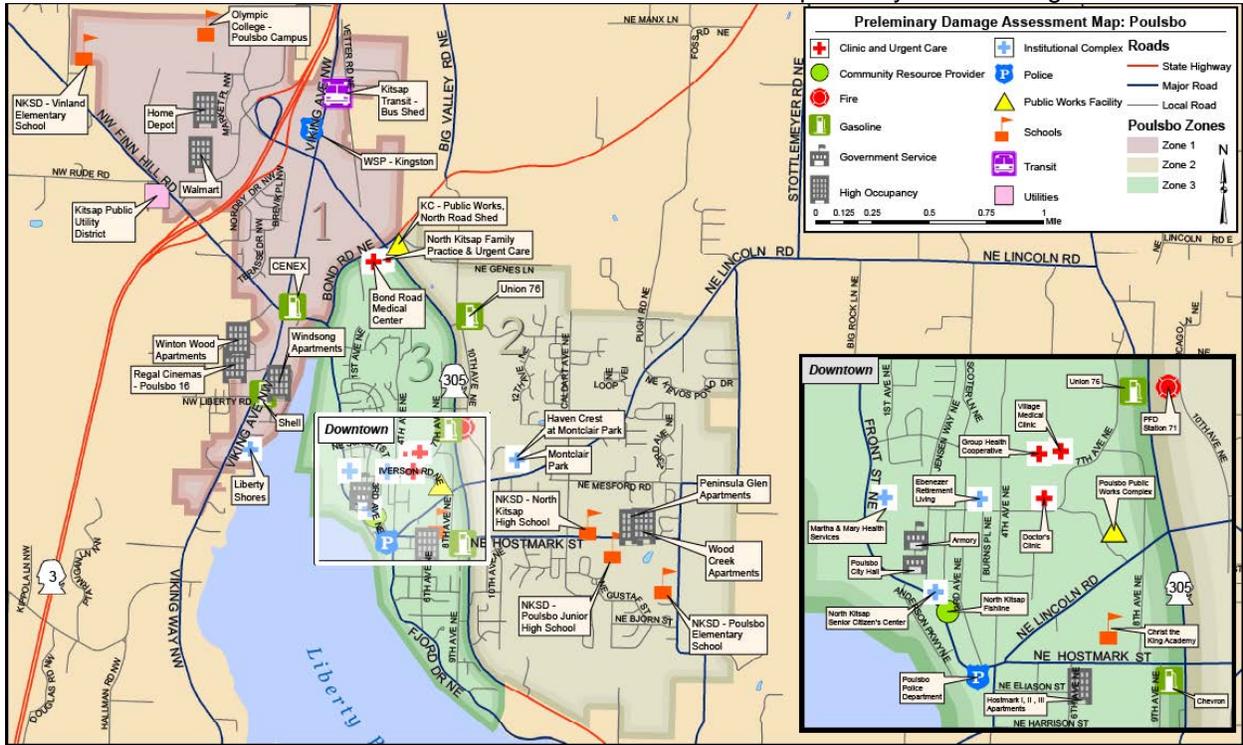


Exhibit P-10: Kitsap County Damage Assessment Map: Poulsbo
 Source: *Kitsap County Emergency Management 2010*

**City of Poulsbo Asset Profile
Appendix P.1**

Location - Poulsbo Wa	Zip Code	Property Value (insured or replacement)	Contents Value (insured or replacement)	Year Built	Type of Construction	Number of Stories	Sq Feet	Type of Protection	Critical Facility
10th Ave Property	98370	\$0	\$0						No
American Legion Park Front Street NE	98370	\$225,000	\$70,000	2004	Playground, Tables Restrooms	1			No
Austurbruin Park Curt Rudolph Rd	98370	\$150,000	\$30,000	1999	Playground, Tables				No
Barn-Mitchsson Park 20286 2ne Ave	98370	\$44,126	\$4,054	1940	All Combustible		2000		No
Betty Iverson Kiwanis Park 20255 1st Ave NE	98370	\$150,000	\$5,000	1986	Playground				No
Caretakers Mobile Home - Raab Park 18349 Caldart Ave NE	98370	\$142,969	\$13,293	1970	All Combustible	1	1440	Locked	No
City Hall 19050 Jensen Way NE	98370	\$1,460,018	\$548,861	1950	Masonry	2	13860	Locked	Yes
Moe Street Property (Future City Hall) 278 NE Moe St	98370	\$277,740	\$2,000	1958	All Combustible		1360	Locked	Yes
Forest Rock Hills Park 12th Ave NE	98370	\$200,000	\$55,000	1999	Playground, Tables Benches				No
Gazebo Dance Stg - Raab Park 18349 Caldart Ave NE	98370	\$62,636	\$0	1980	All Combustible	1	2888		No
Gazebo - Liberty Park Liberty Park	98370	\$38,610	\$0	1976	All Combustible	1	1600		No

Appendix B.2: City of Poulsbo
Kitsap County Hazard Mitigation Plan 2012

Hattaland Park 10th Ave NE	98370	\$100,000	\$0	1985					No
Historical Log Cabin - Nelson Park 320 Lindvig Way	98370	\$35,301	\$0		All Combustible	1	200		No
Kiwanis Park Picnic Shelter Kiwanis Park	98370	\$35,301	\$0	2004	All Combustible	1	1280		No
Klingle Prpty - Mitchsson Park 20286 2ne Ave	98370	\$322,784	\$16,466	1940	All Combustible		2660		No
Library 700 NE Lincoln	98370	\$1,097,150	\$219,545	1984	All Combustible	2	7250	Locked	No
Lions Park 585 Matson St	98370	\$129,022	\$150,000	2000	Playground, Tables Tennis Courts				No
Marine Science Center 18743 Front St NE	98370	\$2,741,282	\$0	1994	All Combustible	3	13220	Locked	No
Centennial Property 19247 8th Ave	98370	\$218,425	\$0	1968	All Combustible		1800		No
Nelson Park Barn 320 Lindvig Way	98370	\$12,708	\$0		All Combustible	1	576		No
Nelson Park Picnic Shelter 320 Lindvig Way	98370	\$43,437	\$0		All Combustible	1	1125		No
Nelson Park 2 story House 320 Lindvig Way	98370	\$174,497	\$0	1930	All Combustible	2	1438		No
Net Shed Vista 18500 Fjord Dr	98370	\$100,000	\$500	2000	Tables				No
Parks & Rec Bldg 19540 Front St Ne	98370	\$600,000	\$121,230	1987		2		Locked	Yes
Picnic Shelter - Raab Park 18349 Caldart Ave NE	98370	\$51,297	\$0	1960	All Combustible	1	1860		No

Appendix B.2: City of Poulsbo
Kitsap County Hazard Mitigation Plan 2012

Pier/Ramp/Wall at Oyster Plant 17881 Fjord Dr NE	98370	\$165,473	\$0	2000	All Combustible		3000		No
Police Station 367 Hostmark St	98370	\$640,356	\$132,149	1955	All Combustible	1	4256	Locked	Yes
Poulsbo's Fish Park 288 Lindvig Way	98370	\$1,500,000	\$100,000	2002	Boardwalk, Platforms Trails				No
Pump Station - Water Finn Hill - Bus Barn	98370	\$55,540	\$130,430	1940	Non-Combustible	1	288	Fenced Locked	Yes
Pump Station - Sewer Alasund Meadows	98370	\$119,306	\$0	2003	Reinforced Concrete	1	45	Fenced Locked	Yes
Pump Station - Water N Viking Ave	98370	\$59,653	\$0	2003	Steel		178	Locked	Yes
Booster Pump Station - Water Wilderness Park	98370		\$25,000					Fenced Locked	Yes
Pump Station - Water Poulsbo Place	98370	\$41,757	\$0	2003	Steel		55	Locked	Yes
Pump Station - Water 20230 Pugh Rd NE	98370	\$19,840	\$0	1989	All Combustible	1	598	Fenced Locked	Yes
Pump Station - Water 2600 NE Lincoln Rd	98370	\$5,788	\$0	1968	All Combustible	1	276	Fenced Locked	Yes
PW Admin Bldg 780 NE Iverson	98370	\$350,180	\$128,434	1970	All Combustible	1	2623	Locked	Yes
PW Main Bldg 710 NE Iverson	98370	\$99,338	\$68,510	1960	Metal	2	3034	Locked	Yes
PW Misc Bldg 710 NE Iverson	98370	\$153,824	\$358,584	1980	Metal	1	6000	Locked Fenced	Yes
PW Shop/Storage Equipment 710 NE Iverson	98370	\$104,844	\$0	1980	All Combustible	1	3960	Locked Fenced	Yes

Appendix B.2: City of Poulsbo
Kitsap County Hazard Mitigation Plan 2012

PW Land Viking Ave	98370	\$527,870							
Raab Park 18349 Caldart Ave NE	98370	\$300,000	\$50,000	2005	Playground, Storage Garden Space	1			No
Restroom/Storage Front Street NE	98370	\$109,477	\$0	1970	Reinforced Concrete	1	800		No
Restroom - Liberty Bay Park Anderson Parkway	98370	\$96,100	\$0	1976	Masonry	1	576		No
Restroom - Raab Park 18349 Caldart Ave NE	98370	\$129,022	\$0	1960	Masonry	1	816		No
Restrooms - Lions Park 585 NE Matson	98370	\$52,744	\$0	1947	Masonry	1	285		No
Restrooms - Nelson Park 317 Lindvig Way	98370	\$151,794	\$0	2004	All Combustible	1	860		No
Storage Bldg - Raab Park 18349 Caldart Ave NE	98370	\$2,206	\$0		All Combustible	1	200		No
Storage Garage - Raab Park 18349 Caldart Ave NE	98370	\$40,173	\$110,000	2007	Non-Combustible	1	1536		No
Storage Shed - Police Station 367 Hostmark St	98370	\$13,268	\$11,680	1970	All Combustible	1	576	Locked	Yes
Water Tank - 4th Ave 19898 4Th Ave NE	98370	\$69,305	\$0	1975	Non-Combustible			Fenced Locked	Yes
Water Tank - Caldart Caldart Ave	98370	\$344,954	\$0	1990	Non-Combustible			Fenced Locked	Yes
Water Tank - Finn Hill Finn Hill	98370	\$232,489	\$0	1981	Non-Combustible			Fenced Locked	Yes
Water Tank - Olhava 900 Olympic College Way	98370	\$413,959	\$0	2004	Non-Combustible			Fenced Locked	Yes
Water Tank - Pugh Well		\$1,134,096	\$0	1993	Reinforced Concrete			Fenced	Yes

Appendix B.2: City of Poulsbo
Kitsap County Hazard Mitigation Plan 2012

20230 Pugh Rd NE	98370							Locked	
Water Tank - Raab Park 18349 Caldart Ave NE	98370	\$198,781	\$0	1967	Reinforced Concrete			Fenced Locked	Yes
Well Westside	98370	\$178,960	\$0	2003	Non-Combustible	1		Fenced Locked	Yes
Well 22727 Big Valley Rd	98370	\$26,564	\$0	1975	Masonry/Combustible	1	286	Fenced Locked	Yes
Wilderness Park Water Tank Caldart & Hostmark St	98370	\$250,000	\$0	1980				Fenced Locked	No
Mesford PRV - Water	98370	\$0	\$25,000					Locked	Yes
Pump Station - Sewer Liberty LS	98370	\$0	\$500,000			1		Locked	Yes
Pump Station - Sewer Lindvig LS	98370	\$0	\$750,000			1		Locked	Yes
Pump Station - Sewer Marine Science Center	98370	\$0	\$750,000			1		Locked	Yes
Pump Station - Sewer 6th Ave	98370	\$0	\$500,000					Locked	Yes
Pump Station - Sewer 9th Ave	98370	\$0	\$500,000					Locked	Yes
Pump Station - Sewer Applewood	98370	\$0	\$500,000					Locked	Yes
Pump Station - Sewer Village LS	98370	\$13,370	\$750,000			1		Locked Fenced	Yes
Pump Station - Sewer Bond Road	98370	\$0	\$1,000,000			1		Locked Fenced	Yes
Light Standards Various	98370	\$140,304	\$0		Misc				No
Signal Control Boxes		\$150,326	\$0		Misc				No

Appendix B.2: City of Poulsbo
 Kitsap County Hazard Mitigation Plan 2012

Various	98370								
Signal Lights		\$25,202	\$0		Misc				No
Various	98370								
TOTAL		\$16,329,166	\$7,625,736						



POULSBO CITY COUNCIL MEETING
February 3, 2010 ~ 7:00 PM

A G E N D A

- 1. CALL TO ORDER**
 - a. Pledge of Allegiance
- 2. MAYOR'S REPORTS**
 - a. City Hall update
- 3. COUNCIL DISCUSSION/AGENDA REVIEW/SET TIME RESTRICTIONS** (Reference Rules Section 6.1 & 7.2)
- 4. COUNCIL COMMITTEE REPORTS (FOR ITEMS ON CURRENT AGENDA)**
- 5. COMMENTS FROM CITIZENS***

Please state your name and limit your comments to 3 minutes, unless additional time is granted by Council.
- 6. CONSENT AGENDA (Next Ord. 2010-05, Res. 2010-04)** *All matters listed within the Consent Agenda have been distributed to each member of the City Council for reading and study, are considered to be routine and will be enacted by one motion of the Council with no separate discussion. If separate discussion is desired, that item may be removed from the Consent Agenda and placed on the regular agenda by Councilmember or citizen request.*
 - a. Minutes of October 21, 2009 City Council Meeting (Boltz)
 - b. Minutes of November 18, 2009 City Council Meeting (Boltz)
 - c. Minutes of December 2, 2009 City Council Meeting (Boltz)
 - d. Minutes of December 9, 2009 City Council Meeting (Boltz)
 - e. Minutes of December 16, 2009 City Council Meeting (Boltz)
 - f. Minutes of January 6, 2010 City Council Meeting (Boltz)
- 7. OTHER BUSINESS**
 - a. Presentation: North Kitsap Regional Park – John Rose/Steve Bauer
 - b. Multi-Hazard Mitigation Plan Update – Public Comment (Loveless)
 - c. Noil Road Contract with Parametrix – Amendment No. 4 (Kasiniak)
- 8. DEPARTMENT HEAD/COUNCIL COMMITTEE/BOARD/COMMISSION REPORTS**
- 9. CONTINUED COMMENTS FROM CITIZENS***
- 10. COUNCILMEMBER COMMENTS**

Poulsbo City Council Agenda for February 3, 2010 (Continued)

11. 10:00 PM ADJOURNMENT

*Council may address questions/comments made during Citizen Comments during Councilmember Comments.

THE COUNCIL MAY ADD AND TAKE ACTION ON OTHER ITEMS NOT LISTED ON THE AGENDA. IN ACCORDANCE WITH COUNCIL'S RULES OF PROCEDURE, THIS MEETING IS TAPE RECORDED. IN ACCORDANCE WITH A CONTRACT WITH THE CITY OF BREMERTON, THIS MEETING IS BROADCAST LIVE, VIDEOTAPED AND RE-BROADCAST ON BREMERTON KITSAP ACCESS TELEVISION (BKAT).

The City of Poulsbo strives to provide accessible meetings for people with disabilities. Please contact the Poulsbo City Clerk's office at 779-3901 (TDD 779-1483) at least 48 hours prior to the meeting if accommodations are needed for this meeting.

It is requested that attendees limit the use of scented products (perfume, cologne, hairspray, after shave, lotion, fabric softener, etc). Fragrances can be toxic substances to some people causing respiratory or neurological disabling reactions. This requirement is consistent with the Americans with Disabilities Act for a barrier-free environments.



POULSBO CITY COUNCIL MEETING
February 3, 2010 ~ 7:00 PM

A G E N D A

- 1. CALL TO ORDER**
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 - a. City Hall update
- 3. COUNCIL DISCUSSION/AGENDA REVIEW/SET TIME RESTRICTIONS** (Reference Rules Section 6.1 & 7.2)
- 4. COUNCIL COMMITTEE REPORTS (FOR ITEMS ON CURRENT AGENDA)**
- 5. COMMENTS FROM CITIZENS***

Please state your name and limit your comments to 3 minutes, unless additional time is granted by Council.
- 6. CONSENT AGENDA (Next Ord. 2010-05, Res. 2010-04)** *All matters listed within the Consent Agenda have been distributed to each member of the City Council for reading and study, are considered to be routine and will be enacted by one motion of the Council with no separate discussion. If separate discussion is desired, that item may be removed from the Consent Agenda and placed on the regular agenda by Councilmember or citizen request.*
 - a. Minutes of October 21, 2009 City Council Meeting (Boltz)
 - b. Minutes of November 18, 2009 City Council Meeting (Boltz)
 - c. Minutes of December 2, 2009 City Council Meeting (Boltz)
 - d. Minutes of December 9, 2009 City Council Meeting (Boltz)
 - e. Minutes of December 16, 2009 City Council Meeting (Boltz)
 - f. Minutes of January 6, 2010 City Council Meeting (Boltz)
- 7. OTHER BUSINESS**
 - a. Presentation: North Kitsap Regional Park – John Rose/Steve Bauer
 - b. Multi-Hazard Mitigation Plan Update – Public Comment (Loveless)
 - c. Noll Road Contract with Parametrix – Amendment No. 4 (Kasiniak)
- 8. DEPARTMENT HEAD/COUNCIL COMMITTEE/BOARD/COMMISSION REPORTS**
- 9. CONTINUED COMMENTS FROM CITIZENS***
- 10. COUNCILMEMBER COMMENTS**

Poulsbo City Council Agenda for February 3, 2010 (Continued)

11. 10:00 PM ADJOURNMENT

*Council may address questions/comments made during Citizen Comments during Councilmember Comments.

THE COUNCIL MAY ADD AND TAKE ACTION ON OTHER ITEMS NOT LISTED ON THE AGENDA. IN ACCORDANCE WITH COUNCIL'S RULES OF PROCEDURE, THIS MEETING IS TAPE RECORDED. IN ACCORDANCE WITH A CONTRACT WITH THE CITY OF BREMERTON, THIS MEETING IS BROADCAST LIVE, VIDEOTAPED AND RE-BROADCAST ON BREMERTON KITSAP ACCESS TELEVISION (BKAT).

The City of Poulsbo strives to provide accessible meetings for people with disabilities. Please contact the Poulsbo City Clerk's office at 779-3901 (TDD 779-1483) at least 48 hours prior to the meeting if accommodations are needed for this meeting.

It is requested that attendees limit the use of scented products (perfume, cologne, hairspray, after shave, lotion, fabric softener, etc). Fragrances can be toxic substances to some people causing respiratory or neurological disabling reactions. This requirement is consistent with the Americans with Disabilities Act for a barrier-free environments.

POULSBO CITY COUNCIL AGENDA SUMMARY
MEETING DATE: February 3, 2010

AGENDA ITEM:	Multi-Hazard Mitigation Plan Update - Public Comment
EXHIBITS:	Jurisdiction-Specific Vulnerability Assessment & Mitigation Strategies - City of Poulsbo Overview
STAFFED BY:	Barry Loveless, Public Works Director
CATEGORY:	Other Business
MAYOR OK/Initial:	<input type="text"/>

SUMMARY STATEMENT:

In 2004 the City participated with Kitsap County in the Multi-Hazard Mitigation Plan. To receive federal funding and/or apply for disaster relief, including reimbursement from disasters, we must have an approved Multi-Hazard Mitigation Plan. By participating with the County we can use the County-wide Mitigation plan to meet the requirement for funding. It is now time to update the 2004 plan. At this time we are asking for Public Comments on the City of Poulsbo's section of the updated plan. The attached section is the City of Poulsbo's, City specific section.

The process for this update is as follows.

- Each organization involved with the County-wide plan, updates the information that pertains to their organization. (This is where we are currently.) Each organization must take public comment, at a public meeting, on their updated sections.
- After public comments are received the county will compile all the updates into a single plan. The County-wide document will be sent into FEMA for review beginning in March. FEMA review will take quite a bit of time.
- After receiving an approved plan back from FEMA, the City Council will be asked to adopt the newly updated County-wide Multi-Hazard Mitigation Plan. This will probably occur sometime this summer.

COMMITTEE RECOMMENDATION:				
Public Works		Going to PW Committee on 1/27/10		
McGinty	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input checked="" type="checkbox"/> Recommended
Rudolph	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Not Recommended
Berry-Maraist	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Absent	<input type="checkbox"/> Not Applicable

IMPACTS:	
Expenditure Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Included in Budget? <input type="checkbox"/> Yes <input type="checkbox"/> No Amount: \$

RECOMMENDED ACTION:
Open the Multi-Hazard Mitigation Plan Update for public comments.

SAMPLE MOTION:
No action required at this time.

POULSBO CITY COUNCIL MEETING OF FEBRUARY 3, 2010

MINUTES

PRESENT: Mayor Erickson; Councilmembers: Berry-Maraist, Henry, Lord, McGinty, Rudolph, Stern.
Staff: Boltz, Booher, Kasiniak, Loveless, McCluskey, Stephens, Swiney.

ABSENT: Councilmember Bauman.

MAJOR BUSINESS ITEMS

- * * * Minutes of October 21, 2009 City Council Meeting
- * * * Minutes of November 18, 2009 City Council Meeting
- * * * Minutes of December 2, 2009 City Council Meeting
- * * * Minutes of December 9, 2009 City Council Meeting
- * * * Minutes of December 16, 2009 City Council Meeting
- * * * Minutes of January 6, 2010 City Council Meeting
- * * * Presentation: North Kitsap Regional Park – John Rose/Steve Bauer
- * * * Multi-Hazard Mitigation Plan Update – Public Comment
- * * * Noll Road Contract with Parametrix – Amendment No. 4

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

Mayor Erickson called the meeting to order in the Council Chambers at 7:00 PM and asked lead the Pledge of Allegiance.

2. MAYOR'S REPORT AND CHANGE TO AGENDA

- a. City Hall update: Public Works Director Loveless briefed the Council on the progress of the siding and framing of the building; sand blasting of the concrete; and the near completion of the atrium roof.

The real estate services interviews took place on Monday, February 1st. The candidate has been chosen; once the contract is finalized, the council will be informed. The bid package for furniture will be advertised and available for potential bidders next week.

3. MAYOR AND COUNCIL DISCUSSION

- a. Councilmember Stern reported on his attendance at the Poulsbo Chamber of Commerce Awards banquet and recognized Executive Assistant Carly Michelson for receiving the Pearce Dressler Volunteer of the Year award.
- b. Councilmember Lord informed the Council of the severe weather shelter training on Tuesday, February 9th at First Lutheran Church.

- c. Councilmember Berry-Maraist reminded council of the North Kitsap School District levy on the ballot and to vote on February 9th.

4. COUNCIL COMMITTEE REPORTS (FOR ITEMS ON CURRENT AGENDA)

- a. Councilmember Rudolph commented on discussion and recommendation for approval for business items b and c.

5. CITIZEN COMMENTS

- a. Muriel Williams, Poulsbo, reminded the Council and citizens of the availability of the Spirit of Poulsbo book, at The Book Stop.
- b. Sharon Clark, Poulsbo, commented on signage on the Highway that directs traffic to "waterfront shops"; and the amount of foliage and placement of the trees on Viking Avenue.

6. CONSENT AGENDA

MOTION: Lord/McGInty. Move to approve Consent Agenda Items a through f, with item e, as corrected.

Motion carried unanimously. Absent: Bauman

The Items listed are:

- a. Minutes of October 21, 2009 City Council Meeting
- b. Minutes of November 18, 2009 City Council Meeting
- c. Minutes of December 2, 2009 City Council Meeting
- d. Minutes of December 9, 2009 City Council Meeting
- e. Minutes of December 16, 2009 City Council Meeting
- f. Minutes of January 6, 2010 City Council Meeting

7. MAJOR BUSINESS ITEMS

a. Presentation North Kitsap Regional Park

Kitsap County Commissioner Bauer and Jon Rose, Olympic Property Group (OPG), briefed the Council on the 8,000 acres of open space in North Kitsap, owned by OPG and the development options. Bauer commented on OPG's and the public's perspective, and the Commissioner's point of view, of what should come out of the open space.

Rose gave an overview of the option of transferring 7000 acres to public ownership, the benefits of economic development and conservation benefits, and what it will take to accomplish the plan. Council comments included the need for population allocation; the possibility of trail improvements; and retain public access of Port Gamble waterfront and beaches.

Councilmember Stern suggested the council modify the council's (unwritten) policy to not endorse issues that do not directly affect the city, and adopt a resolution to support continued conversation of joint development of the North Kitsap Legacy Partnership.

MOTION: Lord/Stern. Move to adopt Resolution No. 2010-04, supporting the North Kitsap Legacy Partnership.

Motion carried unanimously. Absent: Bauman

b. Multi-Hazard Mitigation Plan Update- Public Comment

Mayor Erickson asked for public comments; no comments were received.

Public Works Director Loveless reported the 2004 Multi-Hazard Mitigation Plan, which the City participated with Kitsap County, is being updated. A Multi-Hazard Mitigation Plan is required in order to receive federal funding, grants and disaster relief.

c. Noll Road Contract with Parametrix- Amendment No. 4

Public Works Director Loveless reported the amendment would allow an environmental study for the entire Noll Road Corridor at one time; Parametrix would plan and design the cultural and natural resources work.

Councilmember Berry-Maraist stated there is a possibility the city could submit this project for stimulus funding, which is one reason to have the amendment approved and the project shovel ready.

MOTION: Henry/Rudolph. Move to approve Amendment No. 4 to the existing contract for professional services for the Noll Road Corridor project with Parametrix, Inc. in the amount of \$17,925, with amendment to page 2, adding "not including travel and preparation."

Motion carried unanimously. Absent: Bauman

8. DEPARTMENT/COMMITTEE REPORTS

- a. Finance/Administration Committee: Councilmember Lord reported on discussion of the costs involved with the move into the new City Hall, monthly sales tax report through November 2009, year end investment report, and the new public defender contract and bids.
- b. Mayor Erickson briefed the council on the finalization of the Parks and Recreation building purchase, meeting with Legislators at the Association of Washington Cities (AWC) City Legislative Action Conference in Olympia. Mayor Erickson also informed the Council of the following appointments:

- Puget Sound Regional Council (PSRC) Executive Board- Mayor Erickson, alternate
 - PSRC Growth Management Board- Councilmember Rudolph and Hillary Franz (Bainbridge Island), alternate
 - PSRC Transportation Policy Board- CM Kim Bracket (Bainbridge Island) and Councilmember Jim Colebank (Port Orchard), alternate
 - PSRC Economic Development Board- Councilmember Stern
Councilmember Hillary Franz (Bainbridge Island), alternate
 - KRCC Transportation Policy Board- Councilmember Berry-Maraist
 - Peninsula Regional Transportation Planning Organization (PRTPO)-
Councilmember Berry-Maraist
 - Kitsap Economic Development Alliance (KEDA) Executive Board-
Councilmember Stern
- c. Capital Improvements Committee: Mayor Erickson reported on discussion regarding the gateway concept in Poulsbo, including murals, how to fund those types of projects, and the development of the new Public Works yard and funding package.
- d. Councilmember Berry-Maraist commented on her attendance at the AWC City Legislative Action Conference, along with Mayor Erickson, and Councilmembers Stern and Henry. There is a potential senate and house bill for stormwater funding, which would provide matching funds to deal with stormwater issues.

Berry-Maraist also commented on her attendance at the North End Transportation Projects meeting, also attended by Councilmember Rudolph and Lord. Councilmember Rudolph further commented on the significant attendance by several surrounding jurisdictions.

- e. Kitsap Regional Coordinating Council (KRCC): Councilmember Rudolph reported on the response to Transportation 2040 and the Solid Waste Management Plan, and the review of the County wide planning policies over the next several months.

9. CONTINUED COMMENTS FROM CITIZENS

None.

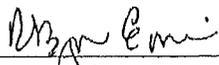
10. COUNCILMEMBER COMMENTS

- a. Councilmember Stern commented on the council policy to not take a formal position on issues outside of city matters; and suggested the council support issues such as School District levies.

Councilmember Lord and McGinty commented some councilmembers may not to want make their position public on certain issues and policies, and recommended the council take up issues on a case by case basis.

11. ADJOURNMENT

MOTION: Rudolph/McGinty. Move to adjourn at 8:58 PM.
Motion carried unanimously.



Rebecca Erickson, Mayor

ATTEST:



Jill A. Bolz, City Clerk

APPENDIX C

Hazard Mitigation Plan Maps

Map 1: Kitsap County Urbanized areas per 2010 Census, *Kitsap County GIS*

Map 2: Kitsap County Watersheds, *Kitsap County GIS*

Map 3: Kitsap County Surface Water, *Kitsap County GIS*

APPENDIX D

References and Resources

FEMA's Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000-Revision 2007

FEMA RiskMap Coastal Study 2010, FEMA

Kitsap County Hazard Identification and Vulnerability Assessment 2008, Kitsap County Department of Emergency Management, Bremerton, Wa.

Kitsap County Comprehensive Emergency Management Plan 2010, Kitsap County Department of Emergency Management, Bremerton, Wa.

Kitsap County GIS and Community Development Websites and Mapping Data, Kitsap County, Wa.

Landslides Triggered by the Winter 1996-97 Storms in the Puget Lowland, Washington (Online) Rex L. Baum, Alan F. Chleboarad, and Robert L Schuster, Department of Interior and USGS, 1998

Landslides Mapped from LIDAR Imagery, Kitsap County, Washington, Jonathan P. McKenna, david J. Lidke, and Jeffrey A. Coe, Department of Interior and USGS, 2008

National Flood Insurance Program Community Rating System; A Local Guide to Saving Lives, Preventing Property Damage, and Reducing the Cost of Flood Insurance, FEMA 573, FEMA.

National Flood Insurance Program Community Rating Systems, FEMA, October 2012

The Robert T. Stafford Disaster Relief Act of 1988

USGS Characterization and Numerical Simulation of the Groundwater Resources on the Kitsap Peninsula, Kitsap, Mason, and Pierce Counties, Washington, USGS 9722-CWQ, 2012

Washington State Earthquake Scenario Catalog (Online) USGS

APPENDIX E

Critical Areas	Environmentally sensitive areas, which include wetlands fish and wildlife habitat conservation areas; geologically hazardous areas; areas with a critical recharging effect on aquifers used for potable water; and frequently flooded areas. Critical areas have measurable characteristics which, when combined, create a value for or potential risk to public health, safety and welfare.
Erosion	The process whereby the land surface is worn away by the action of water, wind, ice or other processes, and by geologic events such as gravitational creep or landslides.
Federal Emergency Management Agency Hazard Mitigation Grant Program	Authorized under Section 404 of the Stafford Act. Provides funding for Hazard Mitigation projects that are cost-effective and comply with existing post-disaster mitigation programs and activities. These projects cannot be funded through other programs to be eligible.
Floodplain	Areas inundated with water that are typically adjacent to streams, rivers, lakes, and coastlines and are susceptible to strong winds.
Floodplain (100 Year)	Floodplains that have the potential to flood once every 100 years, or that have a one percent chance of flooding equal to or in excess of that in any given year.
Flood Way	An area of land immediately adjacent to a stream or river channel that, in times of flooding, becomes an enlarged stream or river channel and carries the floodwater with the highest velocity.
Hazard Mitigation	Any action taken to reduce or permanently eliminate the long-term risk to human life and property and the environment posed by a hazard.
Hazard Mitigation Plan	The plan resulting from a systematic evaluation of the nature and extent of vulnerabilities posed by a hazard present in society that includes the strategies needed to minimize future vulnerability to hazards.
Landslide Hazard Areas	Areas potentially subject to landslides, based on a combination of geologic, topographic, and hydrologic factors. This includes areas with any combination of bedrock, soil, slope, structure, and hydrology.
LIDAR	Light Detection and Ranging Airborne Laser Mapping. LIDAR compliments other remote sensing such as ortho-photography and traditional topographic mapping. LIDAR is able to sense through vegetation (remove the trees) and produce a map of the actual topography.

Liquefaction	Liquefaction occurs in areas that have certain soils, which lack cohesion and where the water table is close to the surface. Such soils can lose shear strength and flow like a liquid even during earthquakes originating beyond Kitsap County.
Riparian Zones	Areas typically consisting of vegetated corridors or areas adjacent to streams, wetlands, lakes or tidewater and may include some uplands depending on site conditions. Native vegetation in these areas is considered to provide a natural barrier, which can prevent or significantly reduce the amount of pollutants from reaching waterbodies.
Seismic Hazard Areas	Areas subject to severe risk of damage because of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting. Settlement can occur in areas with loose, unconsolidated soil, which can either slide or suddenly drop when shaken.
Wildfire Urban Interface	Wildland vegetation and forest areas adjacent to or intermingled with residential developments.