City of Everett
Hazard Mitigation Plan

August 2011

Approved September 10, 2012

City of Everett

Hazard Mitigation Plan

August 2011

Prepared by the University of Washington
Institute for Hazards Mitigation Planning and Research
with the Everett Office of Emergency Management

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Everett Hazard Mitigation Steering Committee

U.S. Department of Homeland Security
Region X
130 228th Street, SW
Bothell, WA 98021-9796

FEMA

September 10, 2012

Honorable Ray Stephanson
Mayor, City of Everett
2930 Wetmore Ave., Suite 10-A
Everett, Washington 98201

Dear Mayor Stephanson:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has approved the ***City of Everett Hazard Mitigation Plan*** as a local plan as outlined in 44 CFR Part 201. With approval of this plan, the city of Everett is now eligible to apply for the Robert T. Stafford Disaster Relief and Emergency Assistance Act's hazard mitigation project grants through September 10, 2017.

The plan's approval provides eligibility to apply for hazard mitigation projects through your State. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted. For example, a specific mitigation activity or project identified in the plan may not meet the eligibility requirements for FEMA funding, and even eligible mitigation activities are not automatically approved for FEMA funding under any of the aforementioned programs. Approved mitigation plans may be eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Additional information regarding the CRS can be found at www.fema.gov/business/nfip/crs.shtm or through your local floodplain manager.

Over the next five years, we encourage your community to follow the plan's schedule for its monitoring and updating, and to develop further mitigation actions. The plan must be reviewed, revised as appropriate, and resubmitted for approval within five years in order to continue project grant eligibility.

If you have questions regarding your plan's approval or FEMA's mitigation grant programs, please contact our State counterpart, Washington Emergency Management Division, which coordinates and administers these efforts for local entities.

Sincerely,

Mark Carey, Director
Mitigation Division

cc: Peter Tassoni, Washington Emergency Management Division

Enclosure

BH:bb

www.fema.gov

RESOLUTION NO. 6531

A RESOLUTION adopting the Everett Hazard Mitigation Plan.

Whereas, the City of Everett has experienced damage from natural and human caused hazards such as flooding, severe weather, earthquakes and hazardous materials incidents in the past, and;

Whereas, the federal Disaster Mitigation Act of 2000 requires all jurisdictions to adopt and keep current a local hazard mitigation plan in order to receive disaster mitigation funding from the Federal Emergency Management Agency (FEMA), and;

Whereas, the City of Everett received and accepted a Pre-Disaster Mitigation Program planning grant award of federal funds to update the existing Hazard Mitigation Plan which had reached the end of its planning cycle, and;

Whereas, the mitigation planning process, after more than one year of research and providing the public opportunities to participate in its update, has resulted in a completed Hazard Mitigation Plan, and;

Whereas, the Everett Hazard Mitigation Plan identifies and prioritizes a number of proposed projects and programs targeted at reducing risks from natural hazards and mitigating disaster impacts, and;

Whereas, Washington Emergency Management Division and Federal Emergency Management Agency, Region X, officials have reviewed and approved the City of Everett Hazard Mitigation Plan contingent upon the official adoption of this Resolution, and;

Whereas, the Everett Hazard Mitigation Plan represents the City's commitment to reduce risks from natural hazards, and will serve as a reference in committing future resources for hazard impact reduction.

NOW, THEREFORE, BE IT RESOLVED, the City of Everett hereby adopts the updated 2011 Everett Hazard Mitigation Plan.

Council Member Introducing Resolution

Passed and approved this 15th **day of** August **, 2012.**

Council President

Everett Hazard Mitigation Steering Committee Members

Name	Agency
Carl Baird	Utilities
George Baxter	Transit Services
Dave Behar	Public Utilities District #1
Greg Benson	SNOPAC
Jason Biermann	Snohomish County DEM
Bo Bodrak	Providence Hospitals
Joe Boland	Information Technology
Kirk Brooks	Building Department
Wendy Buffett	University of Washington
Mike Campbell	Police
Karl Christian	SNOPAC
Renee Darnell	Everett Emergency Management
Dave Davis	Public Works
Dave DeHaan	Everett Emergency Management
Jerry Diedrichs	Everett Information Technology
Jeff Dodd	Human Resources
Gerry Ervine	Planning
Bob Freitag	University of Washington
Debra Fulton	Mukilteo School District
Allan Giffen	Planning
Carlton Gipson	Facilities
Stu Gordon	BNSF
Shelley Griffith	Everett Emergency Management
Mike Gunn	Everett Public Schools
Meg Haley	Public Works
Derrick Hiebert-Flamm	University of Washington
Chasya Hoagland	University of Washington
Jim Jacobson	USACE
Rochelle James	Tulalip Tribes Emergency Management
Tony Lee	Building Engineer
Brent Linder	GIS
Mike Lingrey	Fire
Robert Lord	Everett Community College
Jim Lowell	WSDOT
Ed Madura	Port of Everett
Jordan Marsh	Everett Emergency Management
Barry Martin	Parks
Pat McClain	Administration
John McClellan	Utilities
Wendy McClure	Neighborhoods
Lanie McMullin	Administration
Kurt Mills	SNOPAC
Meg Olson	University of Washington
Helen O'Neil	University of Washington
Lan Nguyen	USACE
Steven Paschal	Naval Station Everett
Scott Pattison	Facilities
John Petersen	Parks
Jeanette Postma	Telecommunications
Kate Reardon	Administration
Mary Roderick	University of Washington
Mark Sadler	Utilities
Dara Salmon	Everett Emergency Management
Ryan Sass	Engineering
Mary Schoenfeldt	Everett Emergency Management
Don Shagam	Transit Services
Louise Stanton-Masten	Everett Chamber of Commerce
Tammy Stillwell	Boeing
Sue Strickland	Everett Downtown Business Association
Jeana Wiser	University of Washington
Deborah Wright	Neighborhoods
The Kimberly Clark Company	

Cover Photos

Top, Upper Left - *Port of Everett*, courtesy US Naval Station Everett
Top Right - *Entrance to Everett*, courtesy Dara Salmon
Top, Lower Left - *Colby Ave Looking South Near Hewitt*, 1920s, courtesy Everett Public Library
Bottom Left - *Safe and Sound Summit*, courtesy Dara Salmon
Bottom Right - *Everett Police Department in the old City Hall building*, courtesy Dara Salmon
Bottom Center - *Hewitt Ave Looking West*, ~1900 Postcard, courtesy Everett Public Library
Background Map - *Everett Bridges & Neighborhoods*, courtesy UW Institute for Hazard Mitigation Planning and Research

Executive Summary

2011 Update

The 2011 update of the Everett Hazard Inventory and Vulnerability Analysis (HIVA) and Hazard Mitigation Plan (HMP) reflects the most recent data available and the priorities of Everett and its citizens. While most of the information in the 2006 version of the HIVA and HMP remains current, the 2011 update has made changes in several areas:

- Updates to data related to property values and land uses, with the exposure and vulnerability analysis updated accordingly.
- Maps updated and incorporated into the text of the HIVA.
- The organization of sections changed to reduce redundancy and improve readability.
- Non-substantive changes to text and wording to improve readability and clarify concepts.
- The area of analysis changed from the Planning Area established by the Growth Management Act to the actual city limits of Everett. This was done in order to focus the emphasis of the plan on areas where the city has actual governing authority.
- Public outreach efforts conducted by the City of Everett to facilitate citizen involvement in the creation, maintenance, and implementation of the Hazard Mitigation Plan.

The hazards for the 2011 HMP are ranked as follows:

1. Earthquakes
2. Severe Storms
3. Pandemics
4. Climate Change
5. Fire
6. Flooding
7. Hazardous Materials
8. Landslides
9. Tsunami & Seiche
10. Volcanic Eruptions

Hazard ranking in the 2006 Plan

1. Earthquake
2. Fire
3. Flooding
4. Hazardous Materials
5. Landslides
6. Severe Weather
7. Tsunami
8. Volcano

Risks to Build Upon

Vulnerable Structures (Unreinforced Masonry and other Pre-Code Structures)

The city of Everett has a large number of structures built before 1972, when earthquake building codes were first adopted. Unreinforced masonry structures and pre-code houses, especially those that are not secured to their foundations, represent the potential of building loss.

Industry Dependence

Since Everett is dependent on the manufacturing sector for many of its jobs and a large proportion of its tax base, there is an elevated risk of long-term economic harm if a major disaster adversely affects this sector. Manufacturing depends on strong transportation routes, including highway, railway, airport, and seaport facilities. Damage to these facilities would create long-term fiscal and economic challenges for the city as it attempts to recover from a disaster event.

Port Exposure

The areas bordering the Everett shore are at risk from multiple hazards, including earthquake-related ground shaking, liquefaction, and tsunamis. These areas have historically suffered little damage, however, and with additional development planned, caution must given to reducing associated risks. Coastal facilities could be isolated if bridges and roads are damaged in a disaster.

Isolation

Virtually every hazard has the potential of isolating Everett neighborhoods. Western neighborhoods are built on steep slopes with poor soils, and have few roads or are serviced by bridges that are susceptible to failure. Fires or material spills can cause isolation by limiting road access. The effects of isolation are compounded because, even if a disaster causes minimal damage to structures, people could be trapped in their neighborhoods without access to services. Businesses face similar risks from isolation. Limiting isolation is essential to ensuring the social and economic resiliency of Everett's communities. Similarly, the Burlington Northern and Santa Fe railroad is at risk of losing connectivity, should a landslide or bridge failure affect part of the line.

Opportunities to Build Upon

Strong and Trusted Government

Everett has a strong and trustworthy government. The Mayor's Office, City Council, Public Works, Police, Fire, Office of Emergency Management, Office of Neighborhoods and other city departments consistently maintain a strong public presence through outreach and community events.

Strong Economy and Fiscal Stability

Everett has a strong economic base that enables it to prepare for and recover from hazardous events. The city's fiscal situation has remained strong throughout the 2007-2009 economic downturn and recovery, ensuring that basic resources necessary for public safety and hazard mitigation, while not limitless, are not eliminated.

Community Emergency Response Support

The Community Emergency Response Training (CERT) program has successfully trained 388 graduates throughout the city, and CERT volunteers remain among the most active community members, representing CERT and conducting public outreach and education throughout the city.

Well-Developed Neighborhood-Based Public Outreach Network

Everett has been innovative in quickly and efficiently disseminating information across large segments of the city's population. Through hiring public outreach staff for the Office of Emergency Management, the commitment of the Office of the Mayor, and through the development of a "network of networks" through the Office of Emergency Management, Everett has improved its capacity to share information and educate the population. The city neighborhood organization and their efforts with "Map your Neighborhood" have also increased the cities outreach capabilities.

Stable Topography

Everett forms a peninsula of elevated stable ground surrounded on three sides by Puget Sound to the West and the Snohomish River to the North and East. The high ground is, for the most part, comprised of hardened soil compressed under a series of glaciers. The more vulnerable areas are the coastal floodplains, including a mix of landslide deposits and river outwash, and where short drainages have cut through what residents call "hard pan." These hard soils are evidence of earthquake resilient soils high above the surrounding floodplain.

Inter-'Island' Connections

Earthquakes and winter storms can isolate neighborhoods, creating "islands" within the city. Although Everett, as well as each of its neighborhoods, is susceptible to isolation caused by hazard events, the availability of many alternative forms of transportation strengthens the community's resilience and provides connections among these islands. Port facilities, major roads, rails, and nearby airports provide redundancy in both facilities and modes of transportation.

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Index Of Acronyms

ALS	Advanced Life Support
BLS	Basic Life Support
BNSF	Burlington Northern/Santa Fe
CCD	Census County Division
CERT	Community Emergency Response Team
DMA	Disaster Mitigation Act
DRAC	Disaster Reconstruction Assistance Center
EERT	Employee Emergency Response Team
EFD	Everett Fire Department
EHS	Extremely Hazardous Substances
EPCRA	Emergency Planning and Community Right-to-Know Act
EPD	Everett Police Department
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
GMA	Growth Management Act
HIVA	Hazard Inventory and Vulnerability Analysis
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
I-5	Interstate 5
IBC	International Building Codes
IPT	Industrial Pretreatment
LEPC	Local Emergency Planning Committee
LPG	Liquefied Petroleum Gas
MLLW	Mean Low Water
MM	Modified Mercalli
MPH	Miles Per Hour
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
PGA	Peak Ground Acceleration
PSE	Puget Sound Energy
PTWC	Pacific Tsunami Warning Center
PUD	Public Utility District
R	Richter
RCW	Revised Code of Washington
SARA	Superfund Amendments and Reauthorization Act

SCT	Snohomish County Tomorrow's
SEPA	State Environmental Policy Act
SERC	State Emergency Response Commission
SERS	Snohomish County Emergency Radio System
SMA	Everett Management Act
SNODEM	Snohomish County Department of Emergency Management
SNOPAC	Snohomish County Police Staff & Auxiliary Service Center
SR-99	State Route 99
TPQ	Threshold Planning Quantity
TWS	Tsunami Warning System
UBC	Uniform Building Code
UGA	Urban Growth Area
USGS	United States Geological Survey
WAC	Washington Administrative Code
WSDNR	Washington State Department of Natural Resources
WSDOE	Washington State Department of Ecology
WSDOH	Washington State Department of Health
WRIA	Water Resource Inventory Area
WSDOH	Washington State Department of Health
WSDOT	Washington State Department of Transportation

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Section I
Introduction

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Introduction

Purpose

This document is an update to the 2006 Hazard Mitigation Plan (HMP). The 2011 Everett Hazard Identification and Vulnerability Analysis (HIVA) was used as the foundation for the development of mitigation strategies. The HIVA presents an overview of hazards that can cause disasters and potential vulnerabilities to these hazards.

2011 Update

This section has been edited to include additional hazards identified in the Everett Hazard Mitigation Plan, as well as to reflect a new order of importance for the hazards as decided in a December 2010 meeting with Everett's Hazard Mitigation Steering Committee (HMSC).

In order of importance as set forth by the Everett Hazard Mitigation Steering Committee, these hazards include:

1. Earthquakes
2. Severe Storms
3. Pandemics
4. Climate Change
5. Fire
6. Flooding
7. Hazardous Materials
8. Landslides
9. Tsunami & Seiche
10. Volcanic Eruptions

Terrorism and technological (human caused) disaster mitigation, with the exception of hazardous materials included here, will be addressed in the City of Everett's Terrorism Annex of the Comprehensive Emergency Management Plan (CEMP), which is maintained as confidential information in accordance with the Revised Code of Washington (RCW) 42.56.420 (1) (a).

Hazard Mitigation

The Federal Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390), commonly known as the 2000 Stafford Act Amendments, was approved by Congress on October 10, 2000. This Act requires state and local governments to develop hazard mitigation plans as a condition of federal grant assistance. Prior to 2000, federal legislation provided funding for disaster relief, recovery, and some hazard mitigation planning. The DMA improves upon the planning process to emphasize the importance of mitigation, encouraging communities to plan for disasters before they occur.

Hazard mitigation can be considered as any action taken to permanently eliminate or reduce the long-term risk to human life and property from natural hazards. This is an essential element of emergency management, along with preparedness, response, and recovery.

The Everett Hazard Mitigation Plan (HMP) helps protect the health, safety, economic, and environmental interests of the residents of Everett. Careful, long-term pre-disaster planning can help to reduce the impacts of natural hazards and increase a community's resilience through planning, awareness, and implementation of mitigation actions. Fewer lives, homes and businesses will be lost

and the disruption of a disaster event to the community will be lessened. Ultimately, a community that is hazard resilient is more likely to remain intact economically, structurally, socially, and environmentally when disaster does occur.

The basis of the HMP is the Hazard Inventory and Vulnerability Analysis (HIVA), which was updated immediately prior to this plan, using the same project team and Hazard Mitigation Steering Committee. The HIVA provides information associated with all possible disaster events in Everett. The processes of hazard identification and vulnerability analysis serve as a foundation for the development of strategies to deal with particular emergencies, for allocating resources, and for helping set priorities and standards in ensuring the safety of the public.

Purpose and Mission

The purpose of the City of Everett Hazard Mitigation Plan is to provide concrete strategies that Everett can use to increase its hazard resilience. It will expand upon information concerning significant natural and technological hazards that have the potential to affect large areas or populations in Everett. The HMP will address all hazards identified in the HIVA. Based on the risk each natural hazard poses, the HMP will define hazard mitigation goals, objectives, and action items to limit loss when a hazard event occurs.

Scope

This document identifies the mitigation actions selected by the Steering Committee. Within this scope the plan will:

- Detail the public process involved in updating the HMP
- Rank the identified hazards to which the city may be exposed
- Present potential mitigation measures and associated preparedness, response and recovery measures
- Rank the selected mitigation actions
- Identify implementation measures and maintenance schedules

Plan Criteria, Authority and Adoption

This document provides information associated with the primary hazards affecting Everett. This plan is designed to meet requirements of the DMA 2000 and the Washington Administrative Code (WAC 118-30-060 (1)). This plan is formally adopted by Everett City Council action and promulgated by the Mayor.

This plan is applicable for all agencies, organizations, entities, and individuals within the boundaries of the city limits, including city departments and divisions.

Definitions

Hazard: Any large-scale event, either natural or human-caused, that has the potential to cause damage to property or endanger human life.

Mitigation: Defined by the Federal Emergency Management Agency (FEMA) defines mitigation as "actions that reduce or eliminate the long-term risk to people and property from the effects of hazards."[1] Examples can be structural or non-structural, including municipal or county code that requires earthquake retrofitting or requires higher regulatory standards for new development in floodplains. Mitigation can also include coalition building among organizations to improve their ability to educate the public about risk.

2011 Update

This section has been changed to include definitions of disaster, benefit, and opportunity, and to broaden the definition of risk.

Emergency Preparedness: The steps taken to continuously prepare for human needs during or after an event. Examples of preparedness measures include having enough water and food on hand, or having a plan to reconnect with family members should a disaster occur.

Vulnerability: Any structures and systems in the path of a hazard.

Risk: A function of population or property exposure, its vulnerability to a hazard, and the frequency with which that hazard occurs.

Disaster: A realized risk.

Opportunity: A positive outcome from the combined interactions of a change event (such as a natural hazard), vulnerability (such as a residential unit), and capabilities (such as mitigation grants).

Benefit: A realized opportunity.

Critical Infrastructure: Any roads and bridges; emergency response facilities; utilities such as water, electricity and sewer; and other facilities critical to the health and welfare of the population, which are especially important following a hazard event.

Geographic Information System (GIS): A computer software application that relates physical features on the earth to a database. It is mainly used for mapping and analysis. This plan used GIS analysis extensively.

Project Planning Team: The researchers and coordinators from the Institute for Hazard Mitigation Planning and Research at the University of Washington who completed this plan.

1 Federal Emergency Management Agency. (2000). FEMA Document 364: Planning for a Sustainable Future: the Link Between Hazard Mitigation and Livability. Author, 1.

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Section II
Planning Process

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Planning Process

Public Process Methodology

Public participation in hazard mitigation is both required by Federal Emergency Management Agency regulations and state guidelines. It is also critical to the success of a hazard mitigation plan since citizens are often the most effective advocates for mitigation planning and many mitigation items require citizen commitment to implement. The hazard mitigation plan serves several purposes for citizens; it outlines the risks, provides mitigation actions, educates the public about possible mitigation actions, and creates strategies and action items to make the community more secure.

FEMA Local Hazard Mitigation Plan Review Crosswalk (2008) Public Participation Guidelines

Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

The level of public participation required, however, is basic, and therefore the City of Everett, with support from the University of Washington Institute for Hazards Mitigation Planning and Research (referred to as the Project Team), implemented a more rigorous process designed to more actively encourage and empower citizens to be part of the hazard planning process. The methods have included:

- A World Café event that brought together over eighty citizens from the community to discuss the risks posed by hazards and the strategies and opportunities that could be implemented to reduce the risk from those hazards.
- Outreach via the 'network of networks', a viral marketing strategy that is a collection of email lists connecting thousands of people throughout the city, reached through friends, family, and colleagues as well as through organizations of which they are a part. Other outreach methods include newspapers, public access television, city websites, neighborhood flyers, and public transportation advertisements.
- Traditional public meetings and steering committee meetings (representatives from neighborhoods, city departments, and major business groups). The City of Everett convened the Everett Hazards Mitigation Steering Committee in order to begin the process of choosing and ranking hazards for inclusion in the HIVA and to ensure that key stakeholders from city government, local organizations, and businesses were involved.
- A questionnaire distributed via the 'network of networks' as well as other means designed to facilitate input into the planning process by those citizens not reached by (or unable to attend) meetings or other events.
- An interactive Open House event to display the final drafts of the strategies and action items in order to provide residents an additional opportunity to provide input, make edits, or suggest additions to the plan.

The goal of the public outreach process was to reach as many people as possible to both educate and facilitate the sharing of any ideas that could contribute to the effort of reducing the risks to Everett posed by natural hazards.

Steering Committee

The Steering Committee was the primary body in charge of working with the Project Team to identify risks and design strategies and action items. It included stakeholders representing a variety of interests in local businesses, organizations, and government. Many Steering Committee members were also present at the Safe and Sound Summit. Steering Committee meetings were always advertised on the City of Everett website and open to the public. They were not conceived of as the primary means of public involvement, however, which, instead, would come through the Safe and Sound Summit, the Open House, and the survey. Rosters of committee members' names and agencies and agendas for each meeting are available in Appendix 1.

First Meeting

The first Steering Committee met December 1, 2010 at the Floral Hall building in Everett, to acquaint the participants with the identified hazards and to rank them. The hazard ranking then guided the focus of the Project Team. Thirty-two people attended, out of the fifty-one invited. The Project Team conducted a presentation on the hazards facing Everett and answered questions from committee members about hazards and the mitigation planning process. The Steering Committee also confirmed, through discussion and comment forms, that the 2006 Mitigation Goals were still relevant and did not require any changes. The meeting followed a roundtable format, with the Project Team presentation leading into a discussion between participants and Team members. A comment form offered participants another means of feedback, which the Project Team collected and recorded following the meeting.

Second Meeting

The second meeting occurred on January 24, 2011 at the South Precinct Public Meeting Room in Everett. The Project Team presented the risks facing Everett from natural hazards, and participants commented on how they perceived the severity of different risks. The Project Team provided comment forms and collected responses from participants. Twenty-six people attended.

Webinar

The third meeting was a webinar and conference call on February 28, 2011 in order to fit participants' schedules. During the presentation, Project Team members introduced possible strategies and action items for the Steering Committee members' consideration. Invited participants each received a schedule ahead of time and had the ability to call in when topics of interest to them were under discussion. Participants were encouraged to ask questions or comment at the close of each topic presentation. Over the course of the meeting, twenty-eight people participated.

Final Meeting

The final meeting was on May 5, 2011 at Legion Hall, to create final drafts of the action items and strategies with input from the Steering Committee. Project Team members presented the risks facing Everett, the action items, and the progress on an economic mitigation plan. Project Team members then worked with several groups of Steering Committee members to take comments and make modifications to action items and strategies. The meeting was lively, with productive input from the twenty-one people in attendance. The notes from the meeting contributed to the finalizing of the action items before their final presentation to the public at the Open House the following week.

Review and Comment

The Steering Committee reviewed a draft of the plan from June 20, 2011 through July 8, 2011. Several members submitted lengthy edits and comments to ensure accuracy of the information. The final draft incorporated these edits and the Steering Committee reviewed this document prior to its submission to the State and FEMA for approval.

Survey

The survey functioned as an opportunity for citizens who were not able to attend meetings to provide input into the hazard mitigation planning process. The survey was sent out through the 'network of networks' and was posted online on the City of Everett website. The survey also had questions related to willingness to mitigate, risk perception, and preparedness measures, and was modeled after a similar survey used in the Snohomish County Hazard Mitigation Plan update. The results were used to guide mitigation action items and strategies, in addition to future public outreach approaches.

Survey respondents' ranking of hazards matched closely with the Steering Committee rankings, including identifying Earthquakes, Severe Weather and Pandemics as hazards of high concern. The survey also revealed some of the demographics of the participants in the planning process, such as the length of residence in Everett and rates of homeownership. There were 166 responses to the survey. Please see Appendix 2 for a complete copy of the survey questions and results.

Safe and Sound Summit[2]

The World Café, titled the Safe and Sound Summit: Help Everett Master Disaster, was the result of a discussion between City of Everett staff and the University of Washington Institute for Hazards Mitigation Planning and Research. It was determined that a meeting format designed to solicit ideas from citizens on how to reduce the risk of natural hazards in Everett would be a good tool both to educate the public and to ensure that any good ideas that might contribute to the plan were found. The event was a success, with over eighty community members in attendance, and with pages of notes and ideas that have helped the planning team identify risks, strengths, weaknesses, and opportunities in Everett.

The Safe and Sound Summit was the primary public event designed to empower citizens to contribute to the design of the hazard mitigation plan's action items and strategies. The meeting format was adapted from The World Café, a conversational process designed to bring groups of people together to discuss "questions that matter." [3] For the Safe and Sound Summit, the City of Everett launched a comprehensive outreach and advertisement campaign utilizing city networks, community organizations, and local media.

The Safe and Sound Summit on February 5, 2011 gathered input from residents on risk reduction strategies to include in the updated Hazards Mitigation Plan. Everett's Office of Emergency Management (OEM) organized the event to bring together residents of the city. Students and faculty from the University of Washington (UW) facilitated two group discussions centered on earthquakes and severe storms. These were two of the hazards identified as high concerns at previous meetings of the HMP Steering Committee and public meetings. The PowerPoint slides used at the Summit and photos of the event are available in Appendix 3.

2 Event photos courtesy Dara Salmon, Everett Emergency Management
3 The World Café. "What is the World Café?" Accessed online on March 8, 2011 from http://www.theworldcafe.com/.

The discussions used the World Café structure, with small discussion groups rotating between tables that focused on different populations' potential response to earthquakes and storms. The first group discussed how individuals and families could deal with risk. The second group discussed what the people would like businesses and organizations to do to in case of a severe storm or earthquake, and the third answered the same question about government. The UW students and several members of Everett's OEM took notes at each discussion table. Before the discussions of each risk began, each table group chose a reporter from among the Everett residents to stay at the table and summarize the discussion for the next group. Each discussion round could then build on the discussion of the last round.

Following the event, the project team compiled and summarized the notes from the event and began to create strategies and action items. The project team discussed these strategies and action items with city staff and the departments or organizations responsible for their implementation. During an open house to present the second draft, members of the public reviewed the updated action items, then commented on, edited, added, and modified the items in tandem with project staff. Once finalized, the Steering Committee reviewed the strategies and action items for final approval and inclusion in the completed plan.

Summary of Themes

Personal Responsibility

Personal responsibility emerged as a theme in every discussion. Groups at the Business and Organization tables discussed how sales on emergency preparation items, or checklists or signs advertising available emergency items, could encourage people to stock their own emergency supplies. Businesses could create incentives or programs to encourage their employees to be prepared. Government groups discussed how government could educate people to prepare themselves. Most of the discussions at tables on individual and family risk reduction emphasized personal responsibility for preparedness as the most important factor. Along with providing information on how to properly prepare emergency plans, home retrofits, and supplies, participants tasked government groups with preventing people from getting complacent and encouraging residents to become CERT trained.

Neighborhood Connections

The participants repeatedly stressed the importance of relying on local support networks during isolating emergencies. Getting to know neighbors on a friendly level, and learning about their expertise and capabilities, such as medical training or construction abilities, and weaknesses, such as medical problems, before an emergency event, will help people work together. People wanted to be able to trust their neighbors to check up on people that might need help. There were many suggestions

for events that would bring neighbors closer together, while also encouraging them to coordinate personal emergency plans. Most conversations mentioned Map Your Neighborhood events.

Government Responsibilities

The most frequently mentioned government role was in citizen education on the risk of hazards and how to prepare for them. Clear communication during an event, including information about open roads, local hazards, safe areas, and places with supplies, was also a priority for residents. Several groups mentioned that the government should communicate a realistic sense of their priorities and limitations in an emergency, so citizens realize that they need to take care of themselves until the government has seen to the most pressing concerns. Participants also recommended public-private partnerships that encourage businesses to make contingency plans, make supplies available for the public, and have contracts for debris-removal, and other post-disaster operations already in place.

Transportation

People felt that government should try to keep roads clear as much as possible in emergency events, but realized that their ability to travel by car would be severely limited during severe storms and earthquakes. Some residents were concerned, given how much they relied on cars to get supplies and get to work. They wanted to have more amenities within walking distance.

Open House

The City of Everett engaged the community to create ideas to reduce Everett's risk to hazards through the Safe and Sound Summit. They then organized those ideas in order to reach consensus on the best methods to reduce risk. The City and Project Team conducted an open-house-style public meeting to review those updated strategies and action items on May 12, 2011 at Everett Fire Station #4.

The meeting was in an open house format in order to allow an informal event for people who had limited time availability. Citizens could attend for a short period, at any time during the event, in order to review action items, comment, and make edits and suggestions through both comment forms and discussions with event facilitators. The event avoided known barriers to participation such as a large time commitment, a formal event setting, and specific language requirements. The open house format used wall maps and posters that could be examined independently by attendees at a pace they desired, permitting them to focus on areas in which they had the greatest interest and to make comments for incorporation into the final plan. It was also important that citizens who had participated in the previous Safe and Sound Summit had the opportunity to assess the draft action items that were created with the information they had provided, and to comment on and make edits to those items.

The Project Team greeted attendees as they entered the hall and provided each person with a clipboard, a pen, post-it notes, and a comment form. Participants could then go at their own pace to examine the maps and action items, and make comments, edits, and additions. Specific edits could be written on post-it notes next to a particular strategy, and other more detailed comments could be submitted on comment forms. Tables were organized by strategy for participants to discuss ideas and

action items/strategies with both other participants and informed Project Team members, who could then answer questions and take note of edits, thereby helping participants to clearly define any ideas or issues they might have. The project team collected comment forms, notes, and other information, and made edits to action items accordingly.

Though the event worked as planned, it had low attendance, with five participants—possibly because it fell on one of the first beautiful days of spring. But the larger participant group had already been able to electronically review and comment on all the information before the event. Those who did attend had been heavily involved in the process from the beginning and offered valuable and lengthy contributions to the Project Team.

Section III
Risk Rating

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Risk Rating

Hazard Ranking

The Hazards Mitigation Steering Committee ranked hazards in order of most to least concern, as follows:

1. Earthquakes
2. Severe Storms
3. Pandemics
4. Climate Change
5. Fire
6. Flooding
7. Hazardous Materials
8. Landslides
9. Tsunami & Seiche
10. Volcanic Eruptions

The above ranking was based on the Steering Committee Member's impression of the threat of each hazard. The planning team then combined this ranking with the probability of occurrence of each hazard, as well as how significantly Everett may be impacted in four different areas:

- People
- The built environment (which includes public and private property and infrastructure)
- The economy
- The natural environment

Probability of Occurrence

The probability of occurrence of a hazard event is an estimation of how often the event could occur within a given time period. This is based on recorded past hazard events that have occurred in the area, and the forecast of the event occurring in the future.

To rate the probability of occurrence, the planning team determined a probability factor for each hazard, which was based on yearly values. The numerical value assigned to each category would then be used to determine risk rating of each hazard. These were allotted as follows:

- High: Hazard event is likely to occur within five years (Numerical value 3)
- Medium: Hazard event is likely to occur within fifty years (Numerical value 2)
- Low: Hazard event in not likely to occur within fifty years (Numerical value 1)

Table 1: Probability of Hazards

Hazard Event	Probability	Numerical Value
Earthquakes	Medium	2
Severe Storms	High	3
Pandemics	Low	1
Climate Change	Medium	2
Fire	Medium	2
Flooding	High	3
Hazardous Materials	Medium	2
Landslides	High	3
Tsunami & Seiche	Low	1
Volcanic Eruptions	Low	1

Impact

The impact of each hazard was divided into four categories: impact to people, impacts to the built environment (which includes public and private property and infrastructure), impact to the economy, and impact to the natural environment (Tables 29-32). These categories were also assigned weighted values. Impact to people was given a weighted factor of 3 and impacts to the built environment, natural environment, and economy were given a weighted factor of 2.

Impact to People

- High: Hazard event seriously affects more than 100 people (Numerical value 3)
- Medium: Hazard event seriously affects 26-100 people (Numerical value 2)
- Low: Hazard event seriously affects 0-25 people (Numerical value 1)

Table 2: Impact to People from Hazards

Hazard Event	Probability	Numerical Value	Multiplier
Earthquakes	High	3	3
Severe Storms	High	3	3
Pandemics	High	3	3
Climate Change	High	3	3
Fire	Low	1	3
Flooding	Medium	2	3
Hazardous Materials	Medium	2	3
Landslides	Medium	2	3
Tsunami & Seiche	Medium	2	3
Volcanic Eruptions	Low	1	3

Impact to the Built Environment

- High: Hazard event is likely to cause significant damage to public and private property and critical infrastructure of Everett and the region (Numerical value 3)
- Medium: Hazard event is likely to cause significant damage to public and private property and critical infrastructure of Everett only (Numerical value 2)
- Low: Hazard event is likely to cause some damage to public and private property and critical infrastructure in small areas of Everett (Numerical value 1)

Table 3: Impact to the Built Environment from Hazards

Hazard Event	Probability	Numerical Value	Multiplier
Earthquakes	High	3	2
Severe Storms	Low	1	2
Pandemics	Low	1	2
Climate Change	High	3	2
Fire	Low	1	2
Flooding	Medium	2	2
Hazardous Materials	Low	1	2
Landslides	Medium	2	2
Tsunami & Seiche	Medium	2	2
Volcanic Eruptions	Low	1	2

Impact to the Economy

Estimates are of potential dollar loss from a major event of each hazard.

- High: Hazard event causing damages over $10 million (Numerical value 3)
- Medium: Hazard event causing damages between $1 and $10 million (Numerical value 2)
- Low: Hazard event causing damages less than $1 million (Numerical value 1)

Table 4: Impact to the Economy from Hazards

Hazard Event	Probability	Numerical Value	Multiplier
Earthquakes	Medium	2	2
Severe Storms	Medium	2	2
Pandemics	Low	1	2
Climate Change	Low	1	2
Fire	Medium	2	2
Flooding	Low	1	2
Hazardous Materials	Medium	2	2
Landslides	Medium	2	2
Tsunami & Seiche	Low	1	2
Volcanic Eruptions	Low	1	2

Impact to the Natural Environment

- High: Hazard event is likely to cause significant damage to the natural environment in Everett, if not the entire region (Numerical value 3)
- Medium: Hazard event is likely to cause significant damage to the natural environment in Everett only (Numerical value 2)
- Low: Hazard event is likely to cause some damage to the natural environment in Everett (Numerical value 1)

Table 5: Impact to the Natural Environment

Hazard Event	Probability	Numerical Value	Multiplier
Earthquakes	Medium	2	2
Severe Storms	Low	1	2
Pandemics	Low	1	2
Climate Change	High	3	2
Fire	Low	1	2
Flooding	Low	1	2
Hazardous Materials	Low	1	2
Landslides	Medium	2	2
Tsunami & Seiche	High	3	2
Volcanic Eruptions	High	3	2

Risk Rating

The risk rating for each hazard was determined by multiplying the assigned numerical value for probability of occurrence to the weighted numerical value of the impact. The following equation expresses the risk rating calculation:

> Risk Rating = Probability of Occurrence * Impact (people + built environment (BE) + economy + natural environment (NE))

Table 6: Risk Rating

Hazard	Probability	Impact				Total Impact	Risk
		People	BE	Economy	NE		
Earthquakes	2	9	6	4	4	23	46
Severe Storms	3	9	2	4	2	17	51
Pandemics	1	9	2	2	2	15	15
Climate Change	2	9	6	2	6	23	46
Fire	2	3	2	4	2	11	22
Flooding	3	6	4	2	2	14	42
Hazardous Materials	2	6	2	4	2	14	28
Landslides	3	6	4	4	4	18	54
Tsunami & Seiche	1	6	4	2	6	18	18
Volcanic Eruptions	1	3	2	2	6	13	13

The risk ratings were developed to help focus the mitigation strategies to areas that warrant greatest attention and allow for comparison of hazards to each other.

The highest risk ratings, such as earthquakes, landslides, flooding, and severe weather, warrant major mitigation programs. Attention to preparedness, response, and recovery is also necessary until the mitigation program has been implemented.

The medium risk ratings, such as fire and hazardous materials, warrant modest program effort.

The low risk ratings, such as volcano and tsunami/seiche, warrant no special mitigation effort, although inexpensive or all-hazards preparedness, response, and recovery measures may be warranted.

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Section IV
Mitigation Actions

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Mitigation Actions

2006 Mitigation Action Items Status

Of the sixteen action items identified in the 2006 HMP, eleven have been completed. Incomplete action items 2a, 2b, 6, 7, and 13 have been continued in new action items. Action Item 15 encouraged the creation of a traffic control system to coordinate response and evacuation efforts. It is not complete right now, but an interview with the Public Works department indicated that this system is being put into place throughout the summer of 2011. It has therefore not been re-addressed in this plan update.

Action Item #	Action Item Description	Timeline	Associated Hazards	Status
1	Assess vulnerability of City of Everett-owned bridges and street segments and establish retrofit priorities.	Short-Term	Earthquake, Landslide, Tsunami, Hazardous Materials, Flood	Done
2a	Assess the vulnerability of City of Everett-owned buildings and establish retrofit priorities.	Ongoing	Earthquake	Continued in E3
2b	Assess and reduce non-structural vulnerabilities within City of Everett-operated facilities.	Ongoing	Earthquake	Continued in E3 & BE5
3	Warehouse appropriate pipe sections at strategic locations for repair of the aboveground portions of the water transmission lines	Ongoing	Earthquake, Landslide, Tsunami, Severe Weather, Flood	Done
4a	Provide for reliable and redundant electrical service capability to selected water pump stations.	Short-Term	Earthquake, Landslide, Tsunami, Severe Weather	Done
4b	Provide for reliable and redundant electrical service capability to selected sewer lift stations	Long-term	Earthquake, Landslide, Tsunami, Severe Weather	Done
5	Replace existing non-ductile infrastructure with ductile infrastructure that would reduce their exposure to hazardous events	Ongoing, Long-term	Earthquake, Landslide, Tsunami, Severe Weather, Hazardous Materials	Done/ Ongoing
6	Identify, prioritize, and seismically retrofit vulnerable residential structures.	Ongoing	Earthquake	Continued in E3
7	Reevaluate response and evacuation/ relocation routes	Ongoing	All	Continued in IT3
8	Encourage residents to equip themselves with 72-hour kits	Ongoing	Landslide, Earthquake, Tsunami, Hazardous Materials	Done / Ongoing
9	Encourage and facilitate residential water heater anchoring	Ongoing	Earthquake, Conflagration (secondary)	Done / Ongoing
10	Develop a steep slope mitigation program	Ongoing	Landslide, Hazardous Materials	Done
11	Develop and implement an integrated outreach program informing residents on hazard mitigation measures	Ongoing	All	Done

Action Item #	Action Item Description	Timeline	Associated Hazards	Status
12	Develop and implement a citywide, standardized city-employee identification system	Ongoing	All	Done
13	Provide for the continuous and increased monitoring of critical city infrastructure and facilities	Ongoing	All	Continued in BE5
14	Develop a Reverse 911 system for Everett residents	Ongoing	All	Done
15	Develop a system of traffic control and monitoring to coordinate response and evacuation efforts	Ongoing	All	In Process
16	Increase the City of Everett's capacity for delivering water to isolated areas of the city and targeted vulnerable populations	Long-term	Earthquake, Landslide	Done

Mitigation Goals

During the 2006 mitigation planning process, the planning team identified five Mitigation Goals for the City of Everett. At the meeting on December 1, 2010, Steering Committee members agreed to adopt those previous goals without changes. Those Mitigation Goals are:

I. Protect public health, welfare, and public safety

II. Ensure continuity of critical facilities and infrastructure, corresponding operations of local government, and a vital economy

III. Foster coordination and communication amongst public and private organizations

IV. Protect the quality of the natural environment

V. Minimize losses to existing and future properties

Prioritization Process

The Planning Team and Steering Committee then identified seven Strategies to achieve these Mitigation Goals (these Strategies are the equivalent of the Objectives required by FEMA). Each of the seven Strategies includes a number of implementable Action Items (the equivalent of FEMA's Strategies), each of which has an associated responsible agency, benefit/cost analysis and timeline, as follows:

Responsible Agency

City of Everett departments and other groups who work with the city that are necessary for the completion of a particular Action Item are listed as the responsible agency. The first listed department is primarily responsible for the Action Item but participation from the remaining listed agencies is still crucial for its success.

Benefit/Cost Analysis

After each action item was generated through the public process, research, and feedback from meetings with city departments and the Steering Committee, it was then subjected to a basic benefit/cost comparison. Each action item was assigned a cost or benefit of high, medium, or low, based on the following criteria:

Benefit

1. Low = Less than one million dollars of damage prevented

2. Medium = Between one and ten million dollars of damage prevented

3. High = More than ten million dollars of damage prevented

Cost

1. Low = Within Everett's existing budget

2. Medium = Less than one million dollars of additional funds required

3. High = More than one million dollars of additional funds required

Benefit estimates were made based on the frequency of the hazardous event, longevity of the benefit, and the discounted present value of the future damages prevented. Per FEMA requirements, the estimation of benefits did not include the value of human lives or consideration of lost cultural value.

Timeline

The determination of a timeline for each action item included consideration of the funding necessary and probable availability of that funding, the necessary time to make a specific plan for the project and to obtain the necessary approvals, and the implementation time for each action item. These were developed in consultation with the Everett Office of Emergency Management. The timelines listed indicate the following:

1. Short: Less than six months
2. Medium: Six months to two years
3. Long: More than two years

Prioritization

Action items are listed under each strategy by their relative priority. Action items were assigned priorities based on the result of the Benefit/Cost Analysis, with those with the highest Benefit/Cost ratio receiving a higher priority, and action items that could be completed quickly were given a priority after that. Action items that address risks of higher importance were also assigned a higher priority. The risk importance was determined based on input from the Steering Committee, meetings with city departments and other stakeholders, and public meetings, as described previously in this plan.

Potential Funding Sources

Action items that cannot be funded entirely by the City's budget (those with a cost rating of medium or high) may be eligible for external funding programs. Appendix 4 lists federal and state programs that could provide grant funding or reduce costs. Some Action items have also identified private/public partnerships to offset funding costs, will use volunteers or student interns to reduce costs, or will utilize existing studies or programs.

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Strategies and Action Items

Strategy 1: Education and Outreach

Strengthen existing innovative public disaster preparedness and mitigation education programs delivered to citizens, especially through programs such as CERT.

The Office of Emergency Management has developed a strong 'network of networks' to disseminate information and encourage emergency preparedness trainings. By increasing the types of information available, increasing access to training programs, and targeting new groups for outreach and education, the OEM can strengthen its preparedness programs.

#	Action Item	Responsible Agencies	Benefits	Costs	Benefit/ Cost	Timeline	Priority
E1	Create educational materials targeted to age-specific groups of residents.	OEM	High	Low	High	Short	High
E2	Prepare informational items for residents focusing on: 1) the importance of and responsibility to clear sidewalks, 2) heat waves, 3) activities that exacerbate landslides, and 4) water use reduction.	OEM, Office of Neighborhoods, Public Works	Medium	Low	Medium	Short	High
E3	Establish programs to encourage residents to perform structural and non-structural retrofits to brace their property against seismic hazards.	Building Department, Engineering Department, Office of Neighborhoods, OEM, Department of Planning and Community Development	Medium	Low	Medium	Short	Medium

E1: Create educational materials targeted to age-specific groups of residents.

Responsible Agency: Office of Emergency Management

Create age-appropriate educational programs on natural hazards and preparedness targeted at students in elementary, middle, and high school. These programs may be delivered both at school and through other youth groups such as scouting organizations or faith-based programs.

Organize a "Mitigation Mocha" program similar to the "Green Drinks" group, designed to gather young professionals together to discuss mitigation and preparedness issues.

Create material about hazards that disproportionately affect senior citizens, especially the dangers of heat waves.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

E2: Prepare informational items for residents focusing on a) the importance of and responsibility to clear sidewalks, b) heat waves, c) activities that exacerbate landslides, and d) water use reduction.

Responsible Agency: Office of Emergency Management, Office of Neighborhoods, Public Works

A) Sidewalks: Develop incentives, including negative incentives, such as fine imposed by the city, for residents who do not clear their sidewalks (unless they have registered with the city that they are unable to do so), and positive incentives, such as a commendation, for people who properly maintain their sidewalks.

B) Heat Waves: Prepare educational materials about the signs and consequences of heat sickness and preventive measures that can be taken, along with a list of places in each neighborhood that may be used as cooling shelters. A sign should also identify these shelters during periods of high heat. The Neighborhood Networks Action Item 2 focuses on identifying those areas.

C) Landslides: Increase education on the consequences of cutting even a few trees, and disseminate in television and radio formats, as well as through flyers or presentations in neighborhoods in which landslides are a higher-risk event. Landslides can undermine homes and block transportation routes around the ridge on the edge of Everett, and cutting trees may cause or exacerbate sliding in unstable soils.

D) Water Conservation: Encourage a decrease in water use to help residents develop conservation habits, and to ease strain on the water system in case of supply interruptions during a crisis. This program will also mitigate a projected decrease in drinking water supply caused by the long-term impacts of climate change in the Pacific Northwest. The city is installing new water meters, and information on conservation could be combined with this deployment.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x		x				x		

E3: Establish programs to encourage residents to perform structural and non-structural retrofits to brace their property against seismic hazards.

Responsible Agency: Building Department, Engineering Department, Office of Neighborhoods, Office of Emergency Management, Department of Planning and Community Development

Notes: The 2006 HMP Action Plans identifying seismically vulnerable city buildings and non-structural systems have not yet been completed. No progress has been made on the Action Plan to identify, prioritize, and retrofit vulnerable residential structures (Action Item 6) and the Action Items addressing structural and non-structural retrofits of city-run facilities are not complete (Action Items 2a and 2b). This Action Item will continue that effort.

Establish incentives for seismic retrofits such as chimney bracing and tying homes to foundations, including fee waivers, expediting permit applications, grants, or zoning exemptions. Establish a prescribed retrofit standard and create a plan to facilitate easy home seismic retrofits. This will include a 'packaging' retrofit program that promotes seismic retrofitting at the same time as other activities, such as energy updates, rehabilitation, adaptive reuse, etc. Loans may be found through the Community Housing Improvement Program (CHIP), and grants from the Seismic Retrofit Bond, and pre-disaster mitigation grant program (Washington EMD). Outreach programs may include free Home Retrofit classes, a Historic Preservation webpage dedicated to seismic retrofits for property owners, disclosures for new property owners that tell them if their house is secured or not, and that gives information about securing those that are not. A DAHP Certified Local Government Grant may be available for these outreach efforts. The State of Washington website has informational videos and educational materials for non-structural mitigation techniques for individual homeowners that can be linked to the COE EM website. In these programs, special attention should be paid to retrofits for the varied types of housing found in Everett, and structural and non-structural solutions for seismic risk reduction should be proposed for single family homes, multi-family housing, mobile home parks, retirement homes, and group or assisted living facilities.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x									

Strategy 2: Built Environment/Vulnerable Structures

Strengthen the physical resiliency of Everett's older buildings and protect critical infrastructure.

Part of Everett's architectural heritage is in the unreinforced masonry buildings that characterize the historic downtown neighborhoods. These structures are especially vulnerable to seismic events, as are older wood frame homes. Everett's critical infrastructure is vulnerable to each of the hazards, and while many vulnerabilities have been addressed through the 2006 Hazard Mitigation Plan, more work must be done to prevent permanent damage to Everett's built environment.

#	Action Item	Responsible Agency	Benefit	Cost	Benefit/Cost	Timeline	Priority
BE1	Create a database including locations of the critical facilities in Everett.	OEM, Public Works	Medium	Low	Medium	Short	Medium
BE2	Increase the resiliency and redundancy of the water system serving Everett and Snohomish County.	Public Works	High	High	Medium	Long	Medium
BE3	Study the impact of earthquake and landslide hazards on the reservoirs in Everett.	Public Works, OEM	Medium	Low	Medium	Medium	Medium
BE4	Create a database of Everett's unreinforced masonry buildings and pre-seismic building code structures.	Department of Planning and Community Development, Building Department, Public Works	Medium	Low	Medium	Medium	Medium
BE5	Implement non-structural mitigation measures in facilities controlled by the City of Everett.	Facilities Department, Public Works	High	Medium	Medium	Long	Medium

BE1: Create a database of the critical facilities in Everett.

Responsible Agency: Office of Emergency Management, Public Works

Notes: This action item will aid in completion of the 2006 HMP Action Item 13, providing for monitoring of critical city infrastructure.

Identify federal, state, city, county, and private critical facilities using the eighteen critical infrastructure sectors identified by the Department of Homeland Security, and the housing and schools critical infrastructure sectors identified by the City of Everett. The compiled list of critical facilities will be geo-referenced and made available as a database and series of maps to aid in identifying vulnerable areas of the city.

The list that was already started by Washington State Emergency Management may be used as a basis for this work, as well as the list of critical facilities started by Public Works.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

BE2: Increase the resiliency and redundancy of the water system serving Everett and Snohomish County.

Responsible Agency: Public Works

Give Public Works the authority to protect and maintain water lines running though the floodplain by explicit mention in river management regulations.

In order to increase the redundancy and thus resiliency of the water system, establish a crosstie pipe between potable water pipes #2 and #3 and potable water pipe #5, and build a water pipeline redundancy along southern pipeline #5 between Clearview and Reservoir #3.

In order to increase the regional water system resiliency, develop a water linkage between Everett and Seattle's distribution systems through the cooperation of Everett's Public Works and the City of Seattle.

Potential funding sources: EPA grants, FEMA PDM grant, FWS grants.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x		x	x	x	x	x		x

BE3: Study the impact of earthquake and landslide hazards on the reservoirs in Everett.

Responsible Agency: Public Works, Office of Emergency Management

Determine if any or the reservoirs in residential areas of Everett are susceptible to damage from an earthquake or landslide. Develop a plan to mitigate any identified risk to these structures.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x							x		

BE4: Create a database of Everett's unreinforced masonry buildings and pre-seismic building code structures.

Responsible Agency: Department of Planning and Community Development, Building Department, Public Works

This database, including spatially referenced data for each building, will be used to produce maps showing areas at greatest risk of building damage during certain hazard events. These maps may be compared to critical transportation route maps, and used to reinforce neighborhood hazard planning activities by better informing residents of the structures at risk in their communities.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x									

BE5: Implement non-structural mitigation measures in facilities controlled by the City of Everett.

Responsible Agency: Facilities Department, Public Works

Notes: This action item carries forward the incomplete action item 2b from the 2006 Hazard Mitigation Plan.

Implement plans developed after the 2006 HMP Action Item, including strategies for non-structural mitigation such as bolting shelves to walls, securing water heaters, and fastening heavier items on shelves against shaking.

Potential funding sources: FEMA Risk MAP Program, NEHRP.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x									

Strategy 3: Neighborhood Networks

Strengthen neighborhood support networks.

This strategy is a crucial reinforcement to the Isolation, Communication, and Education strategies. By enhancing the OEM 'network of networks' through the Office of Neighborhoods, community connections will increase throughout Everett. In neighborhood clusters, these connections will be most useful to prevent isolation caused by hazard events, and to allow citizens to rely on one another until transportation and commercial networks are restored.

#	Action Item	Responsible Office	Benefit	Cost	Benefit/ Cost	Timeline	Priority
N1	Develop an incentive-based program to encourage implementation of Map Your Neighborhood programs in all Everett neighborhoods.	Office of Neighborhoods, OEM	Medium	Low	Medium	Short	High
N2	Identify neighborhood emergency gathering places and heating and cooling center locations during neighborhood association meetings.	Office of Neighborhoods, OEM, Neighborhood Associations	High	Low	High	Short	High
N3	Establish neighborhood-level hazard and emergency planning.	OEM, Office of Neighborhoods	High	Low	High	Long	High
N4	Coordinate CERT training through neighborhood associations.	Office of Neighborhoods, Neighborhood Associations, OEM	Medium	Low	Medium	Medium	Medium
N5	Establish neighborhood websites to serve as an information dissemination outlet for each neighborhood.	Office of Neighborhoods, Neighborhood Associations	Medium	Low	Medium	Long	Medium

N1: Develop an incentive-based program to encourage implementation of Map Your Neighborhood programs in all Everett neighborhoods.

Responsible Agency: Office of Neighborhoods, Office of Emergency Management

Incentives for participation by neighborhood could include signs or plaques in neighborhoods, on window decals, or bumper stickers. The Office of Emergency Management and Office of Neighborhoods will collaborate to train more MYN facilitators, which will greatly speed up this process of hosting the program in various neighborhoods. Consult with business and office parks to determine if a MYN program in business parks would assist the workers in case of a crisis event during working hours.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

N2: Identify neighborhood emergency gathering places and heating and cooling center locations during neighborhood association meetings.

Responsible Agency: Office of Neighborhoods, Office of Emergency Management, Neighborhood Associations

Local places that may be used for emergency gathering spaces, including placement of disaster tents and emergency communication hubs should be identified by the residents of each community based on their knowledge of local conditions.

Create a list of city buildings with air conditioning and water that can be used as cooling stations for the elderly and those without air conditioning. Label these buildings and create a map of cooling centers in each neighborhood. Buildings with heat should be used for a map of warming centers.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

N3: Establish neighborhood-level hazard and emergency planning.

Responsible Agency: Office of Emergency Management, Office of Neighborhoods

Create local plans for emergency situations that include individual responsibilities, local resources, and local gathering places. The SNAP program—Seattle Neighborhoods Actively Prepare—may be used as a model.

Everett currently has no established, neighborhood-specific planning that this effort may be coordinated with. Eventually, these grassroots planning efforts may be used to coordinate general neighborhood planning activities.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

N4: Coordinate CERT training through neighborhood associations.

Responsible Agency: Office of Neighborhoods, Neighborhood Associations, and Office of Emergency Management

Keep track through a map and database of the CERT-trained residents in each neighborhood, and encourage those residents to attend neighborhood functions to spread awareness of the program. Provide incentives for participation by neighborhoods, including signs or plaques, window decals, or bumper stickers. Schedule more frequent CERT trainings. Update the map of CERT-trained residents by neighborhood annually. Target bilingual residents, students, and athletes for participation in CERT programs.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

N5: Establish neighborhood websites to serve as an information dissemination outlet for each neighborhood.

Responsible Agency: Office of Neighborhoods, Neighborhood Associations

Make templates and technical advice available to neighborhood associations to create and update their websites. If necessary, sponsor development of websites with mini-grants. Interns from high school or local colleges may be hired to help write, maintain, or design these sites.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

Strategy 4: Environment and Sustainability

Implement measures that reduce Everett's adverse impact on the environment and reduce exposure to natural hazards.

Everett's history of industrial development along the edges of the city and near the Snohomish River has shaped the local environment. As Everett plans more commercial and residential development to meet GMA goals, it must regulate its impact on the local environment, which has wider repercussions on Snohomish County and the Puget Sound.

#	Action Item	Responsible Agency	Benefit	Cost	Benefit/ Cost	Timeline	Priority
EV1	Implement existing and new floodplain regulations that comply with the NMFS Biological Opinion.	Department of Planning and Community Development	High	Medium	Medium	Medium	Medium
EV2	Complete a study to determine Everett's greenhouse gas emissions, and implement reasonable goals for greenhouse emissions reduction.	Facilities Department	Medium	Low	Medium	Long	Medium
EV3	Update the completed habitat assessment as it relates to floodplains in Everett.	Department of Planning and Community Development	Medium	Low	Medium	Medium	Medium
EV4	Work with Snohomish County to develop a plan for Low Impact Development and increased storage in the Snohomish River watershed, and to coordinate development of regulations on the river.	Public Works, Department of Planning and Community Development, Snohomish County	High	Medium	Medium	Long	Medium
EV5	Identify brownfield sites and plan their clean up and reuse.	Public Works, Department of Planning and Community Development	High	Medium	Medium	Long	Medium
EV6	Monitor Everett's capacity to address expected increases in magnitude and frequency of severe weather events.	OEM	Low	Low	Medium	Long	Low
EV7	Provide a vegetated river walk along the coastal floodplain.	Department of Planning and Community Development, Parks	Medium	Medium	Medium	Long	Low

EV1: Implement existing and new floodplain regulations that comply with the National Marine Fisheries Service 2008 Biological Opinion.

Responsible Agency: Department of Planning and Community Development

The National Marine Fisheries Service issued new guidelines for floodplain regulations implemented in local jurisdictions as part of the National Flood Insurance program. This was in response to a lawsuit against FEMA on their compliance with the Endangered Species Act. The new guidelines emphasize the preservation of salmon habitat areas in floodplain development restrictions. The City of Everett has already been negotiating with FEMA and the NMFS to determine how they will meet these new requirements by the September 2011 deadline. A combination of administrative procedures and current regulations may be used to fulfill the NMFS and FEMA requirements.

Potential funding sources: USACE Restoration & Renovation programs, EPA grants, NRCS Wetlands Program, FEMA FMA, NOAA Salmon Recovery Fund, FWS grants.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
					x				

EV2: Complete a study to determine Everett's greenhouse gas emissions, and implement reasonable goals for greenhouse emissions reduction.

Responsible Agency: Facilities Department

Elaborate on the study of municipal emissions existing to include private industry and individual activities in Everett. Emissions reductions targets set out by the US Conference of Mayors, to which Everett is signatory city, should be adopted as regulations. Consideration should be given to ways to improve the efficiency of power usage as a method of emissions reduction. Partner with businesses in Everett to examine incentives to reduce GHG emissions.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
			x						

EV3: Update the completed habitat assessment as it relates to floodplains in Everett.

Responsible Agency: Department of Planning and Community Development

In light of the NMFS Biological Opinion, re-examine the habitat area found in floodplains around Everett to determine if the species mentioned in the opinion are threatened by floodplain management practices. This re-assessment will build on the existing Habitat Study that was completed by the Department of Planning and Community Development.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
					x				

EV4: Work with Snohomish County to develop a plan for Low Impact Development and increased storage in the Snohomish River watershed, and to coordinate development of regulations on the river.

Responsible Agency: Public Works, Department of Planning and Community Development, Snohomish County

Increase cooperation along the Snohomish River to store excess floodwater away from populated areas, and create opportunities to mitigate development in the floodplain near Everett. Increase and formalize current areas of cooperation in mapping and habitat restoration projects in the Comprehensive and Shoreline Management Plans.

Potential funding sources: EPA grants, FEMA FMA and grants, NOAA training, FWS grants.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
					x				

EV5: Identify brownfield sites and plan their clean up and reuse.

Responsible Agency: Public Works, Department of Planning and Community Development

Implement plans for isolating, capping, or cleaning up each brownfield site it is redeveloped to prevent floodwaters from becoming contaminated.

Potential funding sources: Private development will fund these cleanup efforts.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
					x				

EV6: Monitor Everett's capacity to address expected increases in magnitude and frequency of severe weather events.

Responsible Agency: Office of Emergency Management

Climate change is increasing the magnitude and frequency of severe weather events. Complete a study on the capabilities of the city to deal with severe weather events that occur with a 30% greater frequency. This would include street cleaning equipment, salt, sandbags, and whatever other supplies are used up in a severe storm. The OEM will continue to monitor the city's preparedness for increasing severe weather events after the initial determination of readiness.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
	x		x		x		x		

EV7: Provide a vegetated river walk along the coastal floodplain.

Responsible Agency: Department of Planning and Community Development, Parks

The coastal floodplain provides an opportunity for residents and visitors to enjoy the shore. This corridor could also enhance natural riparian corridor values and be designed to meet the intent of the NMFS 2008 Biological Opinion.

Potential funding sources: USACE restoration programs, EPA grants, NCRS Wetlands Reserve program, NOAA Coastal Salmon Recovery Fund, FWS grants.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
					x				

Strategy 5: Communication

Build on existing communication networks in order to create a well-connected community capable of responding quickly to hazard events.

Increase the amount of information and number of information outlets available on preparedness topics as a cost-effective way to increase awareness of hazards topics among residents. The Office of Emergency Management will target new and underserved populations, including youth, the elderly, and people who speak languages other than English.

#	Action Item	Responsible Agency	Benefits	Cost	Benefit/ Cost	Timeline	Priority
C1	Enable city officials to text during an emergency.	City Administration, IT, Office of Emergency Management	Medium	Medium	Medium	Short	High
C2	Create targeted information and services for non-English language groups.	OEM, Office of Neighborhoods, Neighborhood Associations	Medium	Medium	Medium	Medium	High
C3	Increase the modes and amount of communication to residents on preparedness topics and emergency alert systems.	OEM	Medium	Medium	Medium	Short	High
C4	Create a system for businesses on which they can update their operating status and available supplies after a disaster.	OEM, IT, Office of Neighborhoods, Neighborhood Councils, Administration	Medium	Medium	Medium	Long	Medium
C5	Work with local businesses to disseminate emergency information and supplies to residents.	OEM, Fire Department	Medium	Low	Medium	Medium	Medium

C1: Enable city officials to text during an emergency.

Responsible Agency: City Administration, IT, Office of Emergency Management

Train city officials to use text messages for communication in a crisis situation. This will require a change to City of Everett policy, which currently does not allow city officials to text from their city-issued phones, as well as the Comprehensive Emergency Management Plan, which currently does not allow texting as an approved form of communication during a crisis.

Potential funding sources: FEMA PDM grant.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

C2: Create targeted information and services for non-English language groups.

Responsible Agency: Office of Emergency Management, Office of Neighborhoods, Neighborhood Associations

Engage translation services for the City of Everett website, patterned after the City of Seattle website or whodependsonyou.com. The Office of Neighborhoods already has a list of the top five non-English languages used in Everett. Provide translation and interpretation services for educational information and at public and neighborhood meetings. Also, consider ways to provide culturally sensitive communication techniques and culturally aware emergency preparedness advice to diverse residents of Everett.

Potential funding sources: FEMA PDM grant.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

C3: Increase the modes and amount of communication to residents on preparedness topics and emergency alert systems.

Responsible Agency: Office of Emergency Management

Distribute information on communication methods through utility bills and websites. Provide incentives through raffles and giveaways for citizens to opt in to a texting alert system and obtain emergency radios.

Increase publicity of the MyState opt-in emergency alert system and the emergency alert station. Examine any wireless network the city controls and determine if it may be solidified to better-withstand a crisis. Establish a social network presence to communicate during crisis situations and for ordinary updates. Create an updateable transportation map to communicate to the public what routes are open in an emergency. Disseminate information through a smart phone application. Produce regular television, radio, webisodes and internet videos, and podcasts. To build on Action Item E1, increase the amount of material sent home with school-age children about personal and family preparedness, and include two-way communication between the schoolchild and family in order to ensure that information is discussed in households. The Office of Emergency Management will consult with the local US Post Offices on how they could partner in delivering emergency information throughout the city before and during a crisis.

Potential funding sources: FEMA PDM grant.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

C4: Create a system for businesses on which they can update their operating status and available supplies after a disaster.

Responsible Agency: Office of Emergency Management, IT, Office of Neighborhoods, Neighborhood Councils, Administration

Create an electronic bulletin board for businesses to advertise their operating status to a local area. This may be radio-based, text-based, or web-based. A Rapid Assessment Program is being created for the city, and this action item may be tied in with the expansion of that program to businesses.

Potential funding sources: FEMA PDM grant.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

C5: Work with local businesses to disseminate emergency information and supplies to residents.

Responsible Agency: Office of Emergency Management, Fire Department

Distribute hazard information though businesses. For instance, provide information on the danger of burning charcoal indoors along with sales of charcoal. Encourage businesses to provide customers with incentives for personal readiness by offering discounts for specific preparedness items. Encourage businesses to provide employees with incentives for personal readiness with rewards for personal readiness preparation or training events. Create and distribute a list of stores where individuals can purchase hazard items that is made available with preparedness information. Create partnerships with businesses and organizations such as Goodwill, Value Village and food banks that will reach low income groups that are more vulnerable to hazard events.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

Strategy 6: Isolation/Transportation

Enhance Everett's social and economic resiliency by reducing isolation of citizens and businesses through such measures as hardening—fortifying—transportation routes, improving debris removal, and providing alternative means of access to neighborhoods at risk for isolation.

Everett has a few north/south transportation connections, and few significant east/west street corridors. The location of much of the city is on a peninsula and the prevalence of bridge-connected ridges near steep slope areas in the southwest leaves much of the population vulnerable to isolation, should traffic routes be interrupted in a hazard event.

#	Action Item	Responsible Agency	Benefit	Cost	Benefit/ Cost	Timeline	Priority
IT1	Identify and rank Everett bridges in terms of their importance for: connectivity, population served, role in temporary relocation of residents, and availability of alternative routes.	Public Works	Medium	Low	Medium	Short	High
IT2	Encourage businesses and city departments to create a work from home plan as well as a staggered transportation plan to decrease congestion and encourage continuity of business operations during a crisis.	Public Works, All City Departments	Medium	Low	Medium	Long	Medium
IT3	Identify crucial pathways that may become impassible in the case of a hazard, and determine ways to harden them.	Public Works	Medium	Medium	Medium	Long	Medium
IT4	Identify areas that are vulnerable to isolation during various specific hazards.	OEM, Office of Neighborhoods, Utilities (GIS)	Medium	Low	Medium	Short	Medium
IT5	Increase access to adequate healthcare, especially to particularly vulnerable areas.	Office of Emergency Management, Public Works	Low	Low	Medium	Long	Low

IT1: Identify and rank Everett bridges in terms of their importance for: connectivity, population served, role in temporary relocation of residents, and availability of alternative routes.

Responsible Agency: Public Works

Notes: An interview with Public Works indicated that the priority list of which bridges needed the most seismic-retrofit work created in Action Item 1 of the 2006 HMP has not been used to change the bridge repair list. This action item expands the priorities for consideration in ranking bridge repair, and is intended to further implement the previous action item.

Identify those routes in Everett that are most critical for insuring connectivity and for preventing isolation. Include a refined accessibility measure that accounts for post-disaster detouring and congestion. No program that specifically addresses seismic enhancement exists. It is important to incorporate the importance of city owned bridges to transportation during a hazard into the Transportation Improvement Plan. Consider access to the port and other economic centers as a part of this ranking. In the 2006 HMP, routes and bridges on those routes were ranked according to their importance, and retrofit schedules can now be modified accordingly.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x		x	x	x	x		

IT2: Encourage businesses and city departments to create a work from home plan as well as a staggered transportation plan to decrease congestion and encourage continuity of city and business operations during a crisis.

Responsible Agency: Public Works, All City Departments

Work with the Commute Trip Reduction (CTR) program to create a voluntary staggered release program in the event of a hazard. This would minimize any congestion that occurs when people try to leave simultaneously during a hazard. Web conferencing techniques may aid work-at-home programs. Each city department should determine who is able to work from home in case of a crisis or epidemic, to prevent spread of disease in the workplace.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x		x	x	x	x		

IT3: Identify crucial pathways that may become impassible in the case of a hazard, and determine ways to harden them.

Responsible Agency: Public Works

Notes: This was begun in Action Item 7 of the 2006 HMP, but has not yet been completed.

Identify those routes in Everett that are most critical for insuring connectivity and for preventing isolation. These pathways may include roadways, highway ramps, train tracks, bicycle paths, and pedestrian paths.

Incorporate the crucial routes into the Transportation Improvement Plan, and include them in transportation maps. Access to the Port and other economic centers should be considered as a part of this project. The information generated from this study will also be used to prioritize a debris removal plan to clear those paths.

Potential funding sources: HUD loan, NEHRP.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x		x	x	x	x	x	

IT4: Identify areas that are vulnerable to isolation during various specific hazards.

Responsible Agency: Office of Emergency Management, Office of Neighborhoods, Utilities

Identify and profile neighborhoods and other areas that are likely to become isolated. Determine any special vulnerability in each of these areas.

Create maps of identified gathering places and community resources with walking circles to determine which areas remain isolated from communications or supplies during a crisis.

These maps and profiles will be used to inform decisions about the location of emergency supply caches and gathering spaces, and to identify areas that need special preparation for hazard events.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

IT5: Increase access to adequate healthcare, especially to particularly vulnerable areas.

Responsible Agency: Office of Emergency Management, Public Works

Areas with vulnerable populations, including elderly or low-income populations, may lack adequate access to healthcare. Map the areas with large concentrations of vulnerable populations, and map access to healthcare in those areas, as well as transit connections to public healthcare facilities. Increase access where necessary.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
		x							

Strategy 7: Port Preparedness

Strengthen the Port of Everett's safety and economic vitality.

The Port of Everett is a crucial economic hub for the region, and interruptions to port activities may be caused by the damage to other shipping lines, such as a blizzard blocking Snoqualmie Pass. The port's location and design leave it especially susceptible to earthquake hazards and secondary hazards of liquefaction and tsunami/seiche events. There are few connections between Everett and the port.

#	Action Item	Responsible Agency	Benefit	Cost	Benefit/ Cost	Timeline	Priority
P1	Create a Port-specific Hazard Mitigation Plan.	Port of Everett Safety Office	High	Medium	Medium	Long	High
P2	Create a pedestrian evacuation plan for the Port.	Port of Everett, Parks Department, Public works.	Medium	Low	Medium	Short	High
P3	Include structural hardening in the Port Master Plan update.	Port of Everett	Medium	Low	Medium	Short	High
P4	Map possible sea level rise and monitor it near the Port of Everett.	Port of Everett	Low	Low	Medium	Long	Low

P1: Create a Port-specific Hazard Mitigation Plan.

Responsible Agency: Port of Everett Safety Office, Office of Emergency Management

Apply for a grant to develop a hazard mitigation plan focusing on the hazards directly impacting the port, including earthquakes, hazardous materials, flooding, and tsunami. The Port of Everett is a private entity, but it is so closely tied to the city's economic health that the Everett Office of Emergency Management needs to coordinate with the Port's efforts to prepare a separate mitigation plan of its own.

Potential funding sources: FEMA PDM grant.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

P2: Create a pedestrian evacuation plan for the Port.

Responsible Agency: Port of Everett, Parks Department, and Public Works

Create pathways or staircases up the bluffs behind the port or the Pigeon Creek Trail for evacuation if roads are blocked or destroyed by ground shaking. The bluff areas to the east of the Port are almost all susceptible to landslide hazards, and evacuation plans should take into account steep slopes, natural barriers, and poor soils in the area.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x				x	x	x	x	

P3: Include structural hardening in the Port Master Plan update.

Responsible Agency: Port of Everett

The Port Master Plan is currently undergoing an update. When complete, the plan will include a process for shoring up port buildings against liquefaction or ground shaking in case of a seismic event. The Port should consider providing elevated Tsunami Safe Havens or vertical evacuation structures within Seattle Fault Tsunami inundation zones.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
x	x	x	x	x	x	x	x	x	x

P4: Map possible sea level rise and monitor it near the Port of Everett.

Responsible Agency: Port of Everett

Set up a monitoring station to track sea level changes. Create maps based on projected sea level rise to see which areas are likely to be threatened.

Earthquake	Severe Weather	Pandemic	Climate Change	Fire	Flooding	Hazardous Materials	Landslide	Tsunami	Volcano
			x						

Action Items to be Addressed in Other Plans

The following proposed action items from the building department may a) already be completed or in process, or b) would be more effectively implemented in the CEMP, since they deal with issues of emergency relocation, and training/equipment gathering for emergency deployment.

#	Action Item	Details	Responsible Agency	Status
BE7	Develop written policies and procedures to prepare for maximum credible seismic event	Utilize WABO and City of Seattle advisory postings policy by trained professionals to assist in rapid reporting process for city and private critical buildings.	Public Works	New item
BE8	Train building staff at city critical facilities, architects, and engineers on ATC-20 for preparedness for rapid assessment	Everett supplies water to 500,000 people, five times the population of the city. It is critical to restore and maintain operations in Public Works as quickly as possible after an earthquake, and there is limited staff to do building assessments. Fifty staff to be trained on ATC-20 procedures and methods.	Public Works	New item
BE9	Create go-kits for rapid inspection of critical building facilities	City staff will need minimum equipment to take in vehicles to rapidly perform inspections of multiple buildings, bought in bulk to reduce costs.	Public Works	New Item
BE10	Create paper records for processing permits	Most of the references currently used are online or digital and would require alternate processes and documentation to provide continuous operations for affected and non-affected buildings after a seismic event.	Public Works	New Item
BE11	Relocate building department to temporary alternate facility (Everett Station 1st floor) in case of building failure.	The building department is located on the second floor of a tilt-up concrete structure that pre-dates seismic design code for this type of construction. There is a high possibility of failure in case of the maximum credible seismic event predicted for this area, based on the Whidbey Island Fault.	Public Works	New Item

Section V
Implementation & Maintenance

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Monitoring, Evaluating and Updating the Plan

Emergency Management

The Everett Director of Emergency Management, a full-time position since September 2002, will be responsible for monitoring, evaluating, and updating the Everett Hazard Mitigation Plan. The Director will work with process stakeholders, including several public agencies in Everett, through the Steering Committee for the Hazard Mitigation Plan update process.

Schedule

To assure that the HMP continues to provide appropriate strategies for risk reduction in Everett, it is necessary to regularly monitor, evaluate, and update it. The Everett Director of Emergency Management will convene the annual electronic update meetings and an in-person meeting at the third year of the update cycle, all devoted to reviewing progress of the HMP. An email will precede each annual meeting with information on the progress of action items, developed in consultation with the responsible parties. The fourth annual meeting will begin the five-year update process.

The Director and Mitigation Committee will be responsible for:

- Regularly reviewing each goal and objective to determine its relevance to the changing situation in Everett.
- Monitoring and evaluating the mitigation strategies in this plan to assure that the document reflects current hazard analyses, development trends, code changes, and risk analyses and perceptions.
- Assuring the appropriate implementation of the Five Year Action Plan, described below. The Mitigation Committee will hear progress reports from the parties responsible for the various implementation actions as a means of monitoring progress.
- Creating future action plans and mitigation strategies.
- Assuring a continuing role for public comment and involvement as the mitigation plan evolves.
- Reassessing the plan in light of any major hazard event occurrence. The Mitigation Committee will convene within fifteen days of any major event to review all applicable data and to consider the risk assessment, plan goals, objectives, and action items given the effects of the hazard event.
- Review the hazard mitigation plan in reference to other plan updates, such as the Capital Improvement Plan, Comprehensive Plan, or Comprehensive Emergency Management Plan.

After each meeting, the Mitigation Committee working group will have three months to update and make any necessary changes to the plan before submitting it to the State Hazard Mitigation Officer for review.

Criteria for Evaluation

The Mitigation Committee is responsible for evaluating the plan. One of the council's first tasks is to determine the criteria that will be used for evaluation of the plan. These criteria should include:

- Do the goals and objectives continue to address expected conditions in Everett?
- Is the risk assessment still appropriate, or has the nature or magnitude of the hazard and/or vulnerability changed over time?
- Are current resources appropriate for implementing this plan?
- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved in the process? Are their comments being heard?

Implementation through Existing Programs

The City of Everett currently utilizes several mechanisms to guide development, including the following:

- Comprehensive land use planning as required by the Washington State GMA
- Capital improvement planning
- Building codes

Each of these mechanisms can also help meet the goals of the Hazard Mitigation Plan. After the city officially adopts the Hazard Mitigation Plan, it will implement mitigation strategies into these existing processes, plans, and codes.

Hazard mitigation for new construction is integrated into the City of Everett planning process, which ensures that all relevant city departments are included. At the planning meetings each department outlines requirements that the applicant must meet to proceed with the proposal. This process ensures that the applicable codes, ordinances, and rules are enforced in all new projects.

After adoption of the Hazard Mitigation Plan update, the city will ensure that they have addressed any newly identified hazard risks in their comprehensive plans and land use regulations. The planning department will continue to conduct periodic reviews of the city comprehensive plan, land use policies and analyze any plan amendments.

The city building department is responsible for administering the building codes in Everett. After the adoption of the Hazard Mitigation Plan, they will work with the state building code office to make sure that Everett adopts and enforces the minimum standards established in the new state building code. This will help ensure that new construction meets life/safety criteria.

Various city departments develop capital improvement programs and review them regularly. The capital improvement program is another avenue that can help fulfill the goals in Everett's Hazard Mitigation Plan. The Emergency Management Council will work with city departments to identify capital improvement projects that are consistent with the Hazard Mitigation Plan goals and integrate them as appropriate.

Existing program and planning mechanisms will incorporate the policies listed above within six months of the formal adoption of the Hazard Mitigation Plan.

Continued Public Involvement

To facilitate the goal of continued public involvement in the planning process, the Everett Director of Emergency Management will oversee the implementation of the following steps:

- All of the public libraries, police and fire stations, and appropriate agencies throughout Everett will catalogue and keep copies of the plan on hand. The plan contains the address and phone number of the City of Everett employee responsible for keeping track of public comments on the plan.
- The plan will be available on the city's website, which will also display an email address and phone number the public can use for submitting comments and concerns about the plan.
- Public meetings will be held as needed to provide the public with a forum for expressing concerns, opinions, and ideas. The Director of Emergency Management will set meeting schedules and dates and use city resources to publicize and host this meeting. Within six months of a major disaster event, Emergency Management will hold a public meeting to ensure that the public can express concerns, opinions, and ideas about the disaster event. The Office of Emergency Management will meet with each neighborhood group every two years.

Capability Assessment

The Capabilities Assessment addresses a community's current capacity to address risks from potential hazard events. Everett has a number of strengths in terms of addressing natural hazards through preparedness, response, and recovery.

Mitigation measures, on the other hand, are lacking. This is fairly common in most cities in Washington, where the Growth Management Act (GMA) has been adopted as the impetus to develop a comprehensive, long-range plan. The focus of these plans tends to be on environmental impacts, rather than the identification of environmental conditions that may pose a threat to Everett. Listed below are some of the capabilities of Everett.

Public Outreach

The city of Everett has a strong sense of community, with nineteen neighborhood associations dedicated to addressing community-scale issues of public safety and development.

In addition to emergency response capabilities, the Everett Fire Department (EFD) provides fire prevention inspections, fire investigation, and technical plan review through its Fire Prevention Division. The Fire Prevention, Special Operations, and Emergency Medical Service divisions deliver public education.

The Everett Police Department (EPD) has a Public Information Office whose mission is to provide timely release of information to the public on matters of public safety. The department provides periodic web and radio updates on issues affecting Everett. This capability will help mitigate all the risks described in this document.

Training

Community Emergency Response Team (CERT) classes are available. This capability will help mitigate all the risks described in this document. The Map Your Neighborhood program also offers a basic workshop that helps neighbors identify assets and risks in their neighborhoods.

Planning

The Everett Comprehensive Plan and Everett Municipal Code do not adequately address hazard mitigation through the lens of public safety. Most references to environmental conditions associated with natural hazards pertain to "environmentally sensitive areas" and steps needed to develop on these or around them. Floodplain management is addressed through the NFIP, FEMA, and the zoning code of Everett. The Code Compliance Department is responsible for enforcing various chapters of the Everett Municipal Code that address public health and safety issues, including regulations related to rubbish, other nuisances, removal of vegetation, zoning, housing, dangerous buildings, environmental violations, and junk vehicles on private property. Enforcement actions are taken both proactively and in response to incoming complaints. Code Compliance works in partnership with the people of Everett and coordinates with the Legal Department, Police Department, Fire Department, Planning Department, Office of Neighborhoods, Public Works, Street Division, and Parks Department. This capability will help mitigate earthquakes, climate change, fire, flooding, landslides, and tsunamis.

Communications

SNOPAC (the e-911 center) and SERS dispatch center are the major capabilities Everett has for communication. The SERS system, a joint venture with other jurisdictions in the county, is fairly well developed with improvements planned for the near future. This capability will help mitigate any risks previously described, especially concerning warnings and alerts.

Support Following a Presidential Disaster Declaration

There is considerable support for risk reduction measures following a federal declaration. Often agencies and individuals do not take advantage of these programs and their implications before they make permanent repairs. Some of the more significant options include:

- The federal Hazard Mitigation Grant Program (HMGP) offers assistance for a wide range of mitigation projects following a presidential declaration. Eligibility is restricted to projects that have gone through a comprehensive hazard mitigation planning process.
- The Small Business Administration will fund eligible mitigation measures to qualified owners of damaged homes.
- Outreach is available through Disaster Recovery Centers through FEMA.
- Benefit/Cost Mitigation support is available from FEMA on infrastructure repair. To break the damage-rebuild-damage cycle, FEMA Region 10 is encouraging communities to:
    - Institute mitigation measures that take advantage of multi-hazard, multi-objective approaches whenever possible
    - Strengthen existing infrastructure and facilities to withstand the next disaster more effectively
    - Ensure that communities address natural hazards through comprehensive planning

Following a Federal Declaration, FEMA can support cost effective mitigation of infrastructure and has published a manual on the subject.

Appendices

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Appendix 1: Steering Committee Meetings

Meeting 1 : Kickoff

Everett Hazard Mitigation Steering Committee - Sign-in Roster

9-11 AM, Floral Hall in Forest Park
802 E. Mukilteo Boulevard, Everett

December 1, 2010

#	INITIALS	LAST	FIRST	AGENCY	PHONE NUMBER
1		Baird	Carl	Utilities	425-257-8858
2		Behar	Dave	Public Utilities District #1	
3	GB	Benson	Greg	SNOPAC	425 407 3911
4		Biermann	Jason	Snohomish County DEM	
5		Bodrak	Bo	Providence Hospitals	425-261-3912
6		Boland	Joe	Information Technology	425 257-8664
7		Brooks	Kirk	Building Department	425 257 8815
8		Campbell	Mike	Police	425 257-8418
9		Christian	Karl	SNOPAC	425-407-3911
10		Darnell	Renee	Everett Emergency Management	
11		Davis	Dave	Public Works	
12		DeHaan	Dave	Everett Emergency Management	425-257-8109
13		Dodd	Jeff	Human Resources	257 8775
14		Ervine	Gerry	Planning	
15		Freitag	Bob	University of Washington	
16		Fulton	Debra	Mukilteo School District	425.356.1330
17		Gipson	Carlton	Facilities	
18		Gordon	Stu	BNSF	
19		Griffith	Shelley	Everett Emergency Management	
20		Gunn	Mike	Everett Public Schools	
21		Haley	Meg	Public Works	
22		Hiebert-Flamm	Derrick	University of Washington	
23		James	Rochelle	Tulalip Tribes Emergency Management	360 716 5945
24		Lee	Tony	Building Engineer	257 8812
25		Linder	Brent	GIS	
26		Lingrey	Mike	Fire	
27		Lowell	Jim	WSDOT	425-258-8300
28		Lust	Bryan	Kimberly Clark Co.	
29		Madura	Ed	Port of Everett	425-754-0382
30		Marsh	Jordan	Everett Emergency Management	
31		McClain	Pat	Administration	x7104
32		McClellan	John	Utilities	

33		McClure	Wendy	Neighborhoods	
34		McMullin	Lanie	Administration	
35		Mills	Kurt	SNOPAC	
36		Nguyen	Lan	USACE	(206) 764-6675
37		Paschal	Steven	Naval Station Everett	
38		Pattison	Scott	Facilities	
39		Petersen	John	Parks	
40		Postma	Jeanette	Telecommunications	425-257-7701
41		Reardon	Kate	Administration	
42		Roderick	Mary	University of Washington	425 442 0385
43		Sadler	Mark	Utilities	
44		Salmon	Dara	Everett Emergency Management	425-257-7957
45		Sass	Ryan	Engineering	425.257-8542
46		Schoenfeldt	Mary	Everett Emergency Management	
47		Shagam	Don	Transit Services	425.257.7794
48		Stanton-Masten	Louise	Everett Chamber of Commerce	
49		Stillwell	Tammy	Boeing	
50		Strickland	Sue	Everett Downtown Business Association	
51		Wright	Deborah	Neighborhoods	
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Public Meeting - (Y) N Internal Meeting - Y N

Everett Office of Emergency Management
Hazard Mitigation Steering Committee (HMSC)

Wednesday, December 1, 2010
9-11 AM
Floral Hall in Forest Park (802 E. Mukilteo Blvd, Everett)

Agenda

1. Welcome: Dave DeHaan
2. Purpose: Dave DeHaan
3. Introductions: All
4. Presentations by Planning Team:
    a. Planning Process Update:
    b. Goals Driving 2006 Plan
    c. Status of 2006 Action Items
    d. Hazards: (what has changed since 2006)
    e. Public process overview: purpose and approaches to public involvement
5. Actions by HMSC:
    a. Suggested Changes in Planning Process
    b. Further efforts needed to assess status of 2006 action items.
    c. Hazards that will drive plan: Prioritized list
    d. Confirmation of Goals

Hazards identified in the 2006 Hazards Inventory and Vulnerability Assessment (HIVA)

1. Earthquakes
2. Hazardous material spills
3. Landslides
4. Flooding
5. Severe storms
6. Volcanic Eruptions
7. Fire
8. Tsunamis

Major changes since 2006 -- hazards or hazards recognition

1. Climate Change and related Secondary Impacts
2. Tsunami Mapping
2. South Whidbey Island Fault
3. New Floodplain Map and requirements.

Goals driving 2006 Hazards Mitigation Plan

I. Protect public health, welfare, and public safety
II. Ensure continuity of critical facilities and infrastructure, corresponding operations of local government, and a vital economy
III. Foster coordination and communication amongst public and private organizations
IV. Protect the quality of the natural environment
V. Minimize losses to existing and future properties

For more information, please contact the Everett Office of Emergency Management at 425-257-8111.

Meeting 2 : Risks & Opportunities

Everett Hazard Mitigation Steering Committee - Sign-in Roster

1:30-3:30 PM, South Police Precinct
1121 SE Everett Mall Way, Everett

January 24, 2011

#	INITIALS	LAST	FIRST	AGENCY	PHONE NUMBER
1	CSB	Baird	Carl	Utilities	425-257-8852
2		Behar	Dave	Public Utilities District #1	
3		Benson	Greg	SNOPAC	
4		Biermann	Jason	Snohomish County DEM	
5		Bodrak	Bo	Providence Hospitals	
6		Boland	Joe	Information Technology	
7		Brooks	Kirk	Building Department	
8	MSC	Campbell	Mike	Police	8418
9	KAR	Christian	Karl	SNOPAC	
10	RD	Darnell	Renee	Everett Emergency Management	8111
11		Davis	Dave	Public Works	
12	DFD	DeHaan	Dave	Everett Emergency Management	
13		Dodd	Jeff	Human Resources	
14		Ervine	Gerry	Planning	(425) 257-7146
15	BF	Freitag	Bob	University of Washington	
16		Fulton	Debra	Mukilteo School District	
17		Gipson	Carlton	Facilities	
18		Gordon	Stu	BNSF	
19	SG	Griffith	Shelley	Everett Emergency Management	X7979
20		Gunn	Mike	Everett Public Schools	
21	MH	Haley	Meg	Public Works	
22	DHF	Hiebert-Flamm	Derrick	University of Washington	
23	RJ	James	Rochelle	Tulalip Tribes Emergency Management	
24	TL	Lee	Tony	Building Engineer	257 8812
25		Linder	Brent	GIS	
26		Lingrey	Mike	Fire	
27	JRL	Lowell	Jim	WSDOT	
28	BL	Lust	Bryan	Kimberly Clark Co.	425-259-5702
29		Madura	Ed	Port of Everett	
30		~~Marsh~~	~~Jordan~~	~~Everett Emergency Management~~	
31		McClain	Pat	Administration	
32		McClellan	John	Utilities	

33	WMcC	McClure	Wendy	Neighborhoods	
34		McMullin	Lanie	Administration	
35		Mills	Kurt	SNOPAC	
36				USACE	
37		Paschal	Steven	Naval Station Everett	
38		Pattison	Scott	Facilities	
39		Petersen	John	Parks	
40		Postma	Jeanette	Telecommunications	
41		Reardon	Kate	Administration	
42		Roderick	Mary	University of Washington	
43		Sadler	Mark	Utilities	
44	DSD	Salmon	Dara	Everett Emergency Management	x7957
45	RLS	Sass	Ryan	Engineering	x8942
46	MS	Schoenfeldt	Mary	Everett Emergency Management	
47		Shagam	Don	Transit Services	x7794
48		Stanton-Masten	Louise	Everett Chamber of Commerce	
49		Stillwell	Tammy	Boeing	
50		Strickland	Sue	Everett Downtown Business Association	
51		Wright	Deborah	Neighborhoods	
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Public Meeting - (Y) N Internal Meeting - Y N

January 24, 2011

City of Everett, Washington
Hazards Mitigation Steering Committee (HMSC) Public Meeting
Risks and Opportunities

1:30-3:30 PM at South Everett Police Precinct (1121 SE Everett Mall Way)

Agenda

1. Welcome: Dave DeHaan
2. Purpose: Identification of Risks and Opportunities -- Dara Salmon and Bob Freitag
3. Introductions: HMSC members and University Student Teams
4. Presentations by Planning Team:
    a. Risk / Opportunities – Methodology
    b. Initial Directions by HMSC
    c. Risks by Hazard – Roundtable discussion
    d. Risks by Impact – Roundtable discussion
    e. HMSC Process – Roundtable discussion
    f. Public process overview: February 5th World Café
5. Actions by HMSC:
    a. Risk / Opportunity Identification / Ranking
    b. Initial identification of Strategies.
    c. Refinement of Public Process

Risks / Opportunities by Hazard

1. Earthquake
    a. URM collapse
    b. Ground failure
    c. Fire
2. Severe Storms
    a. Washouts
3. Pandemics
    a. Reduction in services
4. Climate Change
    a. Heat trauma
    b. Extreme Weather

Risks / Opportunities by impact

1. Risks
    a. Marina / ports
    b. Isolation
    c. Interruption of Economy
2. Opportunities
    a. Contingency Planning
    b. Solid ground on plateau
    c. Neighborhood Organizations

Public Participation

I. World Cafe
II. Survey
III. Neighborhood meetings

Meeting 3 : Webinar

Everett Hazard Mitigation Steering Committee Webinar Roster

February 28, 2011
1:30-3:30 PM

INITIALS	LAST	FIRST	AGENCY	PHONE NUMBER
	Baird	Carl	Utilities	
	Bodrak	Bo	Providence Hospitals	
	Campbell	Mike	Police	
	Christian	Karl	SNOPAC	
	Darnell	Renee	Everett Emergency Management	
	DeHaan	Dave	Everett Emergency Management	
	Dodd	Jeff	Human Resources	
	Ervine	Gerry	Planning	
	Freitag	Bob	University of Washington	
	Griffith	Shelley	Everett Emergency Management	
	Haley	Meg	Public Works	
	Hiebert-Flamm	Derrick	University of Washington	
	Hoagland	Chasya	University of Washington	
	James	Rochelle	Tulalip Tribes Emergency Management	
	Lee	Tony	Building Engineer	
	Lowell	Jim	WSDOT	
	Madura	Ed	Port of Everett	
	McClain	Pat	Administration	
	McClure	Wendy	Neighborhoods	
	McMullin	Lanie	Administration	
	Olson	Meg	University of Washington	
	O'Neil	Helen	University of Washington	
	Postma	Jeanette	Telecommunications	
	Salmon	Dara	Everett Emergency Management	
	Sass	Ryan	Engineering	
	Schoenfeldt	Mary	Everett Emergency Management	
	Shagam	Don	Transit Services	
	Wiser	Jeana	University of Washington	

Public Meeting - Y N Internal Meeting - Y N

To: Everett Hazard Mitigation Steering Committee
From: Everett Office of Emergency Management
Re: Steering Committee Webinar Agenda for the Hazards Mitigation Plan Update

The Everett Office of Emergency Management will be hosting a webinar from 1:30 to 3:30 PM on February 28, 2011 to discuss the progress of the Hazard Mitigation Plan update. This work session will provide an opportunity for you to discuss and give feedback on proposed mitigation strategies and action items. There will also be time for questions about potential strategies and actions items, and propose any additional mitigation strategies.

The webinar has been divided into discussions on major themes of the mitigation plan. Steering Committee members should feel free to join the webinar for the entire time, or to schedule their participation for the topics that most interest them.

AGENDA
February 28, 2011
1:30-3:30 PM

Webinar Schedule
1:30 Introduction and Initial Questions
1:35 Risk Education and Outreach (including school programs and vulnerable populations)
1:50 Neighborhood Networks
2:10 Transportation and Isolation
2:25 Mixed Use Development
2:40 Business and Economy
3:00 Pandemics
3:10 Question and Answer

The HMP team held two meetings with the steering committee on hazards and risks, and conducted the Safe and Sound Summit February 5th to gather public comment on risk reduction in Everett. The project team is currently working on developing mitigation strategies and action items to use in the hazard mitigation plan. Members of the team are in the process of meeting with departments in Everett to get more feedback on these items. Those meetings will continue through the spring. The Hazard Mitigation Plan is scheduled to be completed in June.

If you are interested in contacting the project team, please email Bob Freitag at bfreitag@uw.edu.

Meeting 4 : Action Items

Everett Hazard Mitigation Steering Committee Meeting Roster

May 5, 2011

1:00-3:30 PM

INITIALS	LAST	FIRST	AGENCY
	Baird	Carl	Public Works
	Behar	Dave	Public Utilities District #1
	Biermann	Jason	Snohomish County DEM
	Bodrak	Bo	Providence Hospital
	Brooks	Kirk	Engineering/Public Services
	Buffett	Wendy	UW Contract Team
	Campbell	Mike	Police
	Christian	Karl	SnoPac
	Davis	Dave	Public Works
	DeHaan	Dave	Emergency Management
	Dodd	Jeff	Safety-HR
	Ervine	Gerry	Planning
	Freitag	Bob	University of Washington
	Fulton	Debra	Mukilteo School District
	Giffen	Allan	Planning
	Gipson	Carlton	Facilities
	Gordon	Stu	BNSF
	Griffith	Shelley	Emergency Management
	Gunn	Mike	Everett School District
	Haley	Meg	Engineering/Public Services
	Hiebert-Flamm	Derrick	University of Washington
	Hoagland	Chasya	University of Washington
	James	Rochelle	Tulalip Tribes Emergency Management
	Lee	Tony	Engineering/Public Services
	Linder	Brent	GIS-Utilities
	Lingrey	Mike	Fire
	Lord	Robert	Everett Community College
	Lowell	Jim	WSDOT
	Madura	Ed	Port of Everett
	Martin	Barry	Parks
	McClain	Pat	Administration
	McClellan	John	Public Works
	McClure	Wendy	Neighborhoods
	McMullin	Lanie	Economic Development
	Mills	Kurt	SnoPac
	Olson	Meg	University of Washington
	Paschal	Steven	Naval Station Everett

	Pattison	Scott	Facilities
	Petersen	John	Parks
JTP	Postma	Jeanette	Telecommunications
	Reardon	Kate	Public Information
	Sadler	Mark	Public Works
DMS	Salmon	Dara	Emergency Management
	Sass	Ryan	Engineering/Public Services
	Schoenfeldt	Mary	Emergency Management
	Shagam	Don	Transit
	Stanton-Maston	Louise	Everett Chamber of Commerce
	Stillwell	Tammy	Boeing
	Strickland	Sue	Downtown Everett Association
	Wright	Deborah	Office of Neighborhoods

INITIALS	LAST	FIRST	AGENCY	EMAIL
JJD	DIEDRICHS	JERRY	EVERETT Info Technology	JDIEDRICHS@CI.EVERETT.WA.US

Public Meeting - (Y) N Internal Meeting - Y N

Everett Hazards Mitigation Steering Committee Public Meeting
Risks, Opportunities, Strategies and Action Items
1:00 to 3:30 PM on May 5, 2011
Legion Hall (Legion Park, 145 Alverson Blvd, Everett)

Agenda

1) Welcome: Dave DeHaan (5 minutes)
2) Purpose: Risks, Opportunities, Strategies and Action Items (5 minutes)
3) Introductions: (HMSC members and University Student Team) (5 minutes)

Presentations by Planning Team:

4) Risks and Opportunities – Derrick Hiebert-Flamm and Bob Freitag (20 minutes)

   a) Risks (to reduce)
      i) Vulnerable Structures (Unreinforced Masonry and other Pre-Code Structures)
      ii) Industry Dependence
      iii) Port Exposure
      iv) Isolation

   b) Opportunities (to make the most of)
      i) Strong and Trusted Government
      ii) Strong Economy and Fiscal Stability
      iii) Community Emergency Response Team Support
      iv) Well-Developed Neighborhood-Based Public Outreach Network
      v) Stable Topography
      vi) Inter "Island" Connections

BREAK – Rank Risk (15 minutes)

5) Strategies and Action Items – Meg Olson (20 minutes)
   Small group activity (Two, 25-minute discussions)
   a) Built Environment/Vulnerable Structures
   b) Neighborhood Networks & Education and Outreach
   c) Environment and Sustainability
   d) Communication
   e) Isolation/Transportation & Port Preparedness

6) Risk and the Everett Economy – Chasya Hoagland (20 minutes)

7) Where do we go from here? Questions? – Wendy Buffett and Bob Freitag (10 minutes)

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Appendix 2: Public Survey

Survey Questions

1. Where in Everett do you live? Please select your neighborhood. If you live outside the city, please select that option.

- Bayside
- Boulevard Bluffs
- Cascade View
- Delta
- Everett Mall South
- Evergreen
- Glacier View
- Harborview-Seahurst-Glenhaven
- Holly
- Lowell
- Northwest Everett
- Pinehurst
- Port Gardner
- Riverside
- Silver Lake
- South Forest Park
- Valley View
- View Ridge-Madison
- Westmont
- Outside of Everett

2. Do you work in Everett?

- Yes
- No

3. What hazards has your family experienced in the past 20 years in Everett? Please check all that apply.

- Earthquake
- Landslide
- Flood
- Wildfire
- House Fire
- Epidemic/Pandemic
- Drought
- Tsunami/Seiche
- Volcano-Related Hazards
- Hazardous Materials Release
- Extended Power Outage
- Severe Storm (Snow, Ice, Wind)
- None

Other (please specify)

4. How prepared is your household to deal with a natural hazard event?

- Not at all Prepared

- Somewhat Prepared
- Prepared
- Moderately Prepared
- Very Prepared

5. Which of the following steps has your household taken to prepare for a natural hazard event? Please check all that apply.

- Received first aid/CPR training
- Made a fire escape plan
- Designated a meeting place
- Identified utility shutoffs
- Obtained sandbags
- Prepared a disaster supply kit
- Prepared to be self-sufficient for 3 days or more
- Installed smoke detectors on each building level
- Stored food and water (including baby and pet)
- Stored flashlights and batteries
- Stored a battery-powered or crank radio
- Stored a fire extinguisher
- Stored medical supplies (first aid kit, medications)
- Designated an out-of-area contact
- Anchored shelves to walls
- Anchored water heater
- Retrofitted the house (like anchored house to foundation)

6. If not selected above, please explain any steps you have taken to prepare your household for potential hazards.

7. How concerned are you about the following natural hazards in Everett?

	Not Concerned	Somewhat Concerned	Concerned	Moderately Concerned	Very Concerned

	Not Concerned	Somewhat Concerned	Concerned	Moderately Concerned	Very Concerned
Earthquake					
Severe Weather					
Climate Change					
Drought					
Hazardous Materials Release					
House Fire					
Wildfire					
Landslide					
Tsunami/Seiche					
Volcano-Related Hazards					
Pandemic/Epidemic					
Flood					

8. If not listed above, what other potential natural hazards are you concerned about?

9. Check all the methods below that you use to help you prepare for emergency situations.

- [ ] Emergency preparedness information from a government source
- [ ] Prior experience with one or more disaster situations
- [ ] Locally-provided news or other media information
- [ ] Schools and other academic institutions
- [ ] Attended meetings about disaster preparedness
- [ ] Community Emergency Response Team (CERT) training
- [ ] American Red Cross training
- [ ] Community safety event
- [ ] Fair booth

Other (please specify)

10. Check all the communication methods that you would use in an emergency.

- [ ] Newspaper
- [ ] Telephone book
- [ ] Informational brochure
- [ ] City newsletter
- [ ] Public meeting
- [ ] Workshop
- [ ] School/Academic institution
- [ ] TV news
- [ ] TV ads
- [ ] Radio news
- [ ] Radio ads
- [ ] Internet
- [ ] Social media
- [ ] Outdoor advertisement
- [ ] Fire department/rescue
- [ ] Faith-based organization
- [ ] CERT class
- [ ] Public awareness campaign
- [ ] Book
- [ ] Chamber of commerce
- [ ] Public library
- [ ] American Red Cross information
- [ ] Medical Reserve Corps (MRC) information
- [ ] Word of mouth

Other (please specify)

11. Have natural hazards prohibited you from obtaining specific coverage for your homeowner's or renter's insurance?

- ◯ Yes
- ◯ No

12. If you answered yes, what was the specific coverage?

13. Was your home built in 1972 or earlier? Building codes since 1972 have required homes be secured to their foundations.

- ◯ Yes
- ◯ No
- ◯ Not sure

14. Check all the items that would encourage you to spend money to retrofit your home to protect against natural disasters.

- [ ] Building permit fee waiver
- [ ] Insurance premium discount
- [ ] Mortgage discount
- [ ] Property tax break or incentive
- [ ] Low interest rate loan
- [ ] Grant funding
- [ ] None

Other (please specify)

15. The following household information will not be used to identify respondents to this survey. The following information may be used to group answers into percentages. For example, "55% of respondents own their own home".

Age:

- ( ) 18 or under
- ( ) 19-30
- ( ) 31-40
- ( ) 41-50
- ( ) 51-60
- ( ) 61-70
- ( ) 71-80
- ( ) Over 81

16. Gender:

- ( ) Female
- ( ) Male

17. Primary language spoken in your household:

18. Years lived in Everett? If you indicated you live outside of Everett, how many years have you lived in your present community?

- ( ) Less than 1 year
- ( ) 1-5 years
- ( ) 6-10 years
- ( ) 11-20 years
- ( ) More than 20 years

19. Do you own or rent your place of residence?

- ( ) Own

Rent

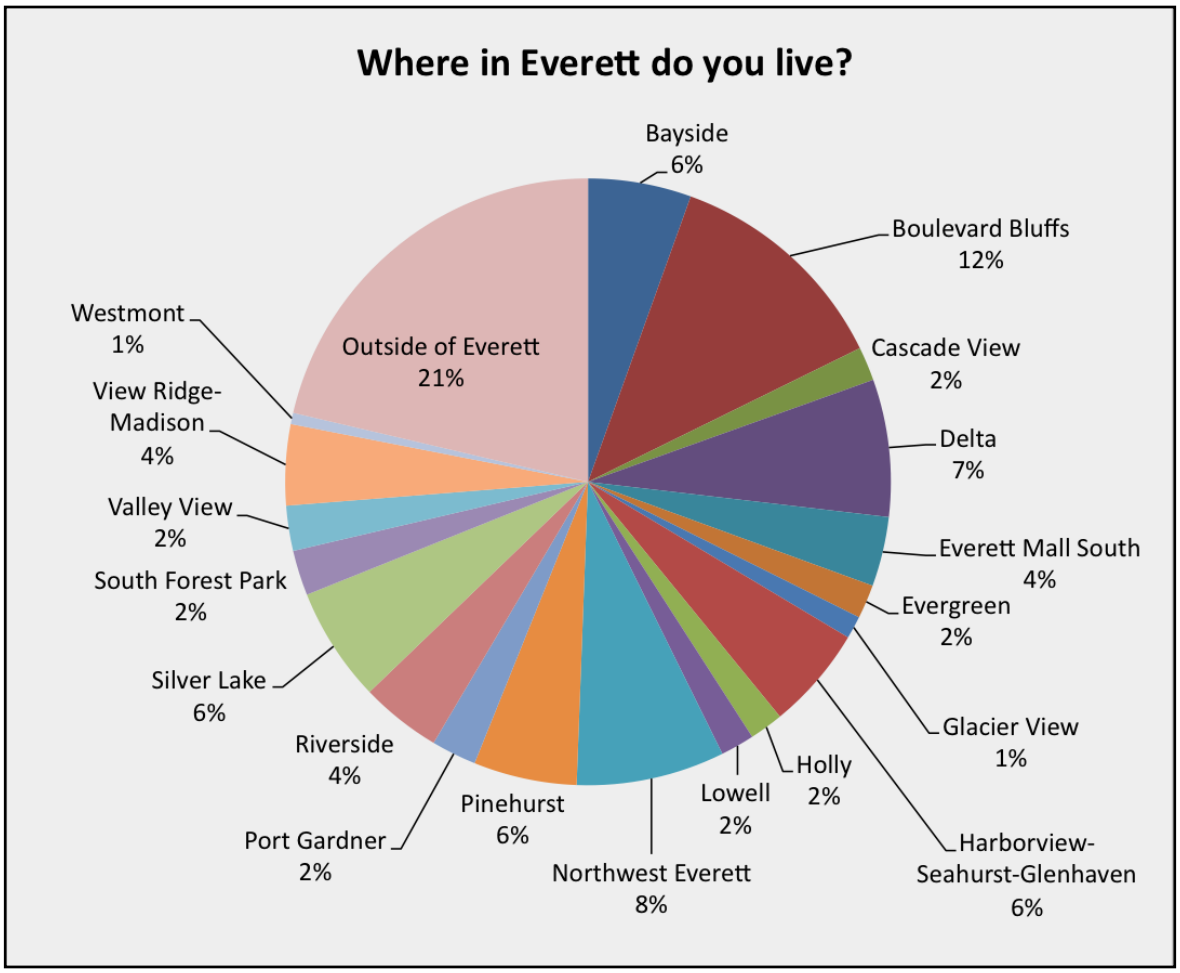
20. Please add any additional comments below. Thank you for completing this survey. For more information about this survey or Everett's Hazard Mitigation Plan, please contact Dara Salmon, Everett Office of Emergency Management, at 425-257-7957 or dsalmon@ci.everett.wa.us

Done

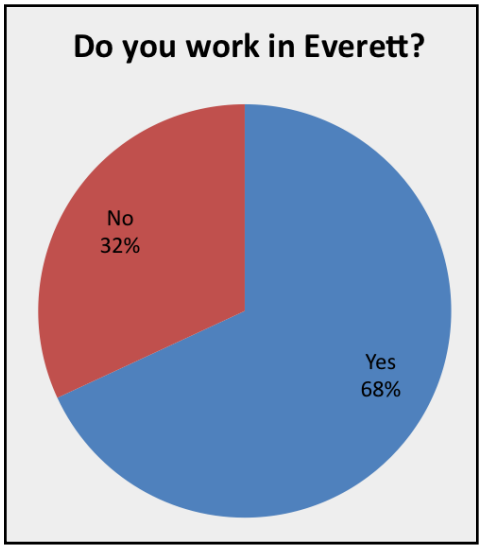
Powered by **SurveyMonkey**
Create your own free online survey now!

Survey Results

Question 1:



Question 2:



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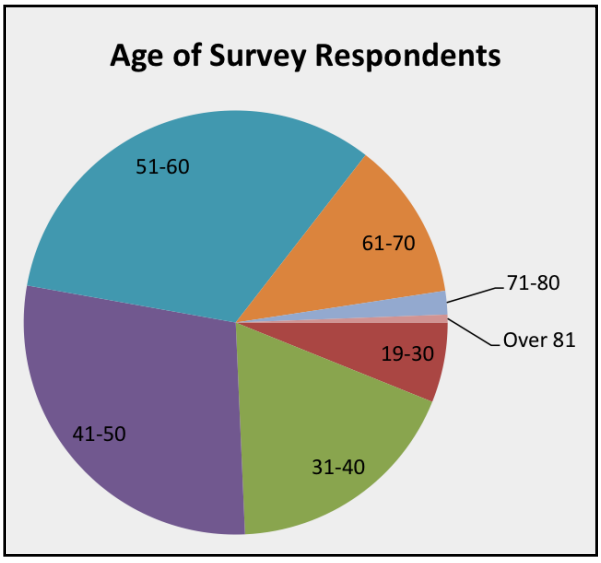

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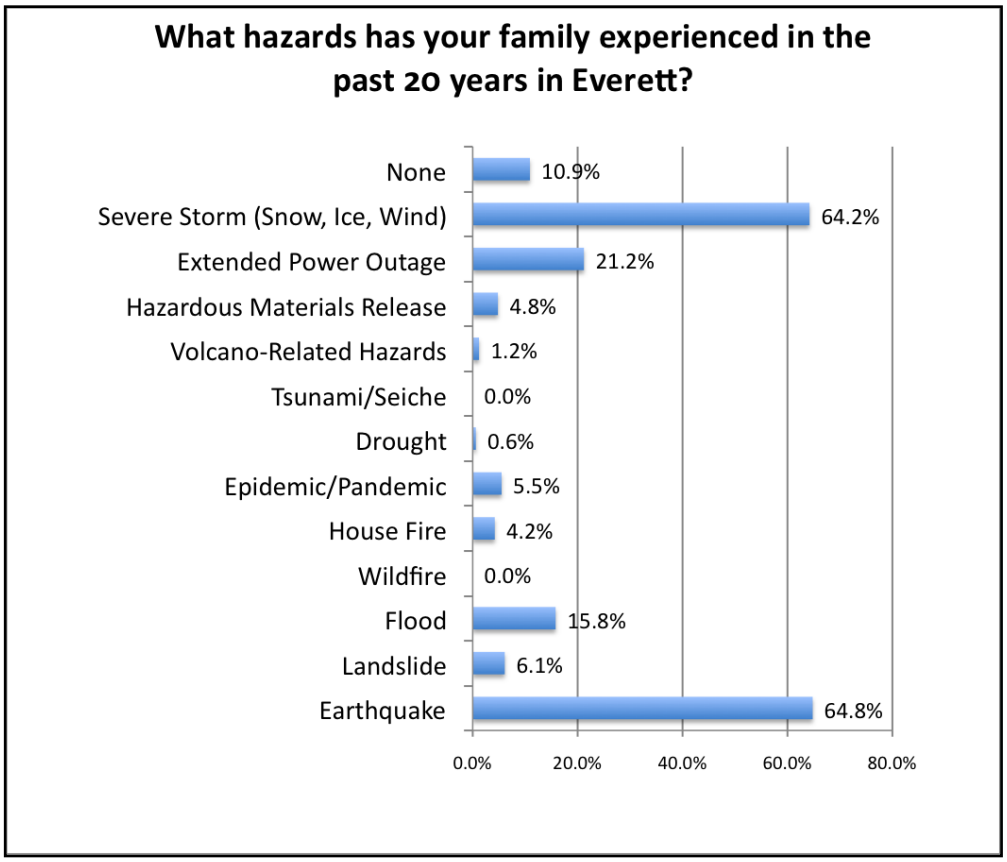
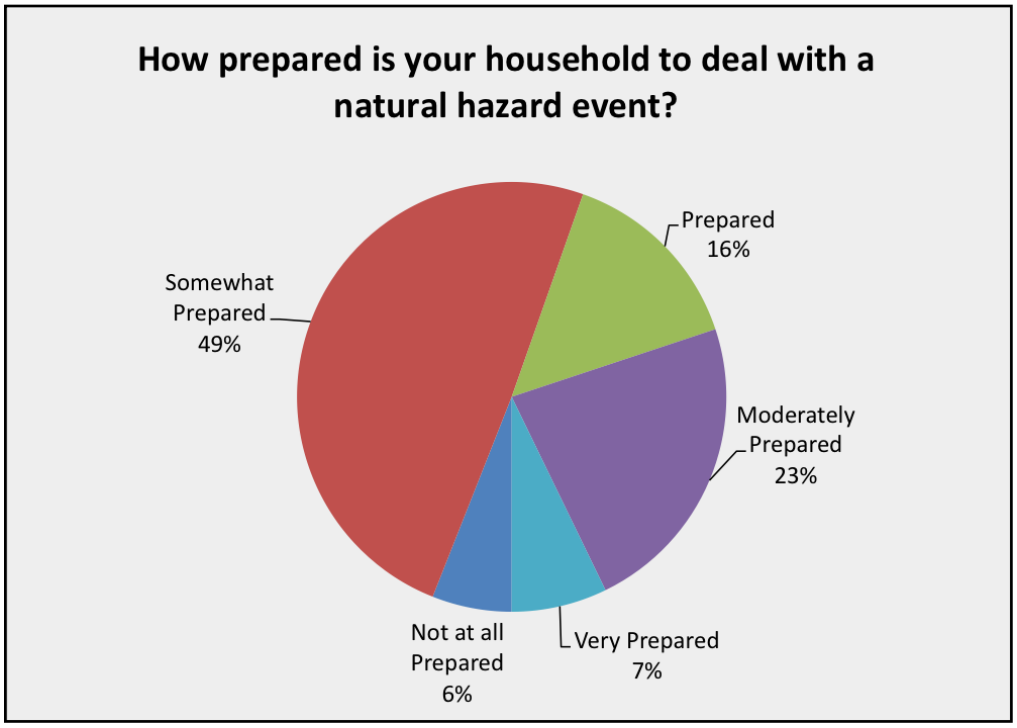
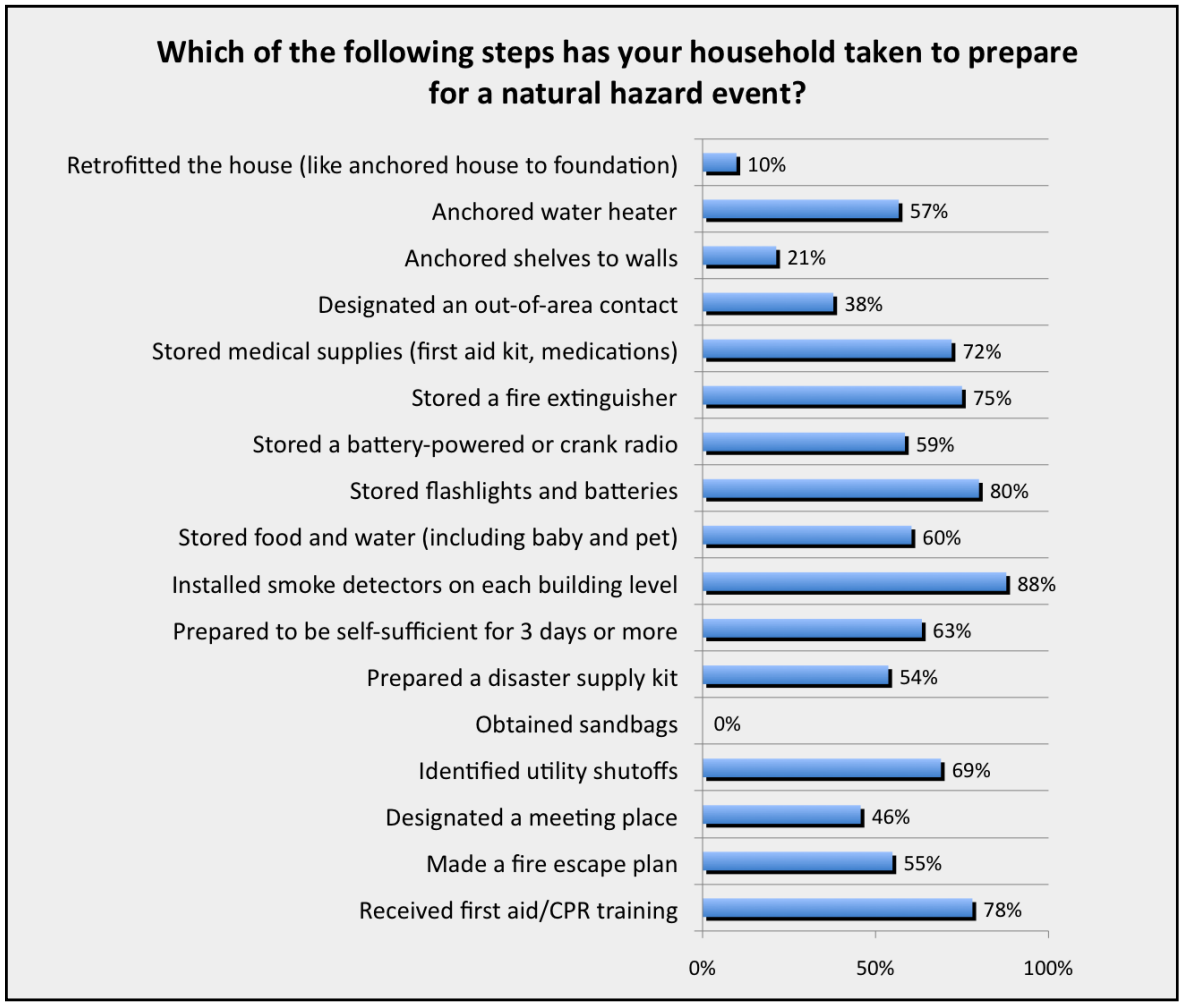
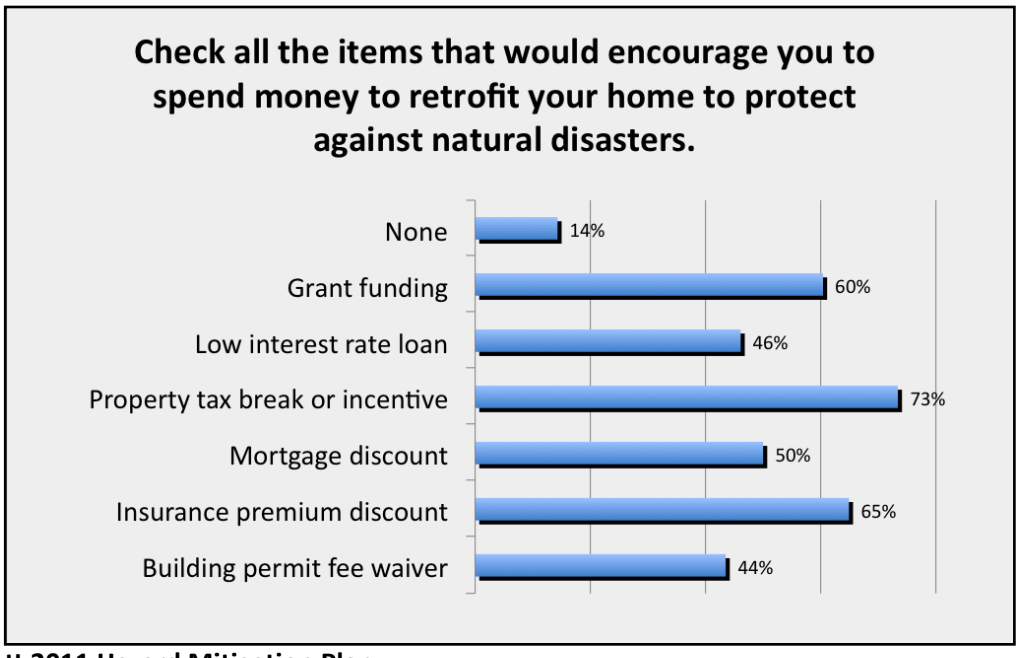


Question 4:

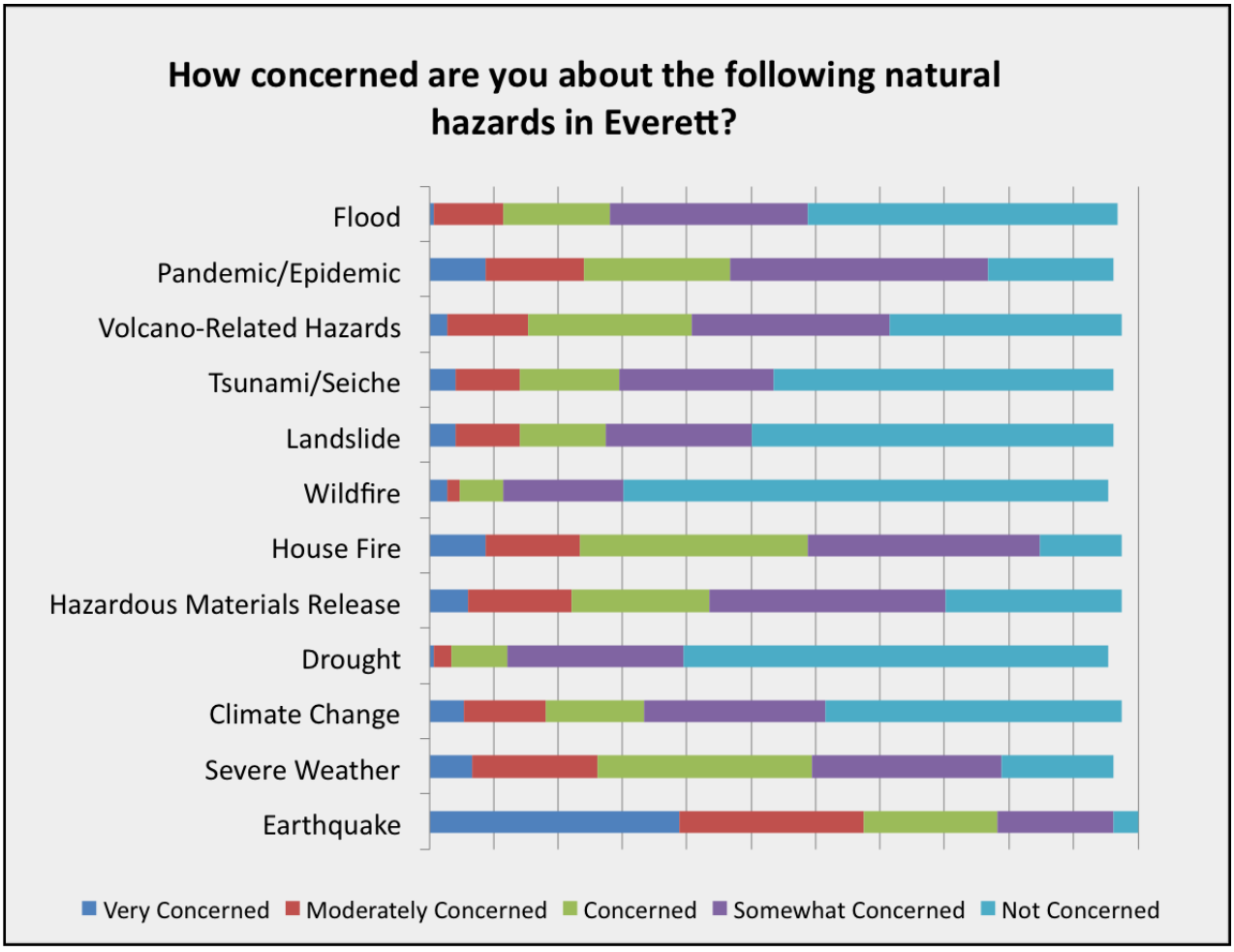


Question 5:


Which of the following steps has your household taken to prepare for a natural hazard event?
Retrofitted the house (like anchored house to foundation) 10%
Anchored water heater 57%
Anchored shelves to walls 21%
Designated an out-of-area contact 38%
Stored medical supplies (first aid kit, medications) 72%
Stored a fire extinguisher 75%
Stored a battery-powered or crank radio 59%
Stored flashlights and batteries 80%
Stored food and water (including baby and pet) 60%
Installed smoke detectors on each building level 88%
Prepared to be self-sufficient for 3 days or more 63%
Prepared a disaster supply kit 54%
Obtained sandbags 0%
Identified utility shutoffs 69%
Designated a meeting place 46%
Made a fire escape plan 55%
Received first aid/CPR training 78%
0%
50%
100%


Check all the items that would encourage you to spend money to retrofit your home to protect against natural disasters.
None 14%
Grant funding 60%
Low interest rate loan 46%
Property tax break or incentive 73%
Mortgage discount 50%
Insurance premium discount 65%
Building permit fee waiver 44%

Question 14:



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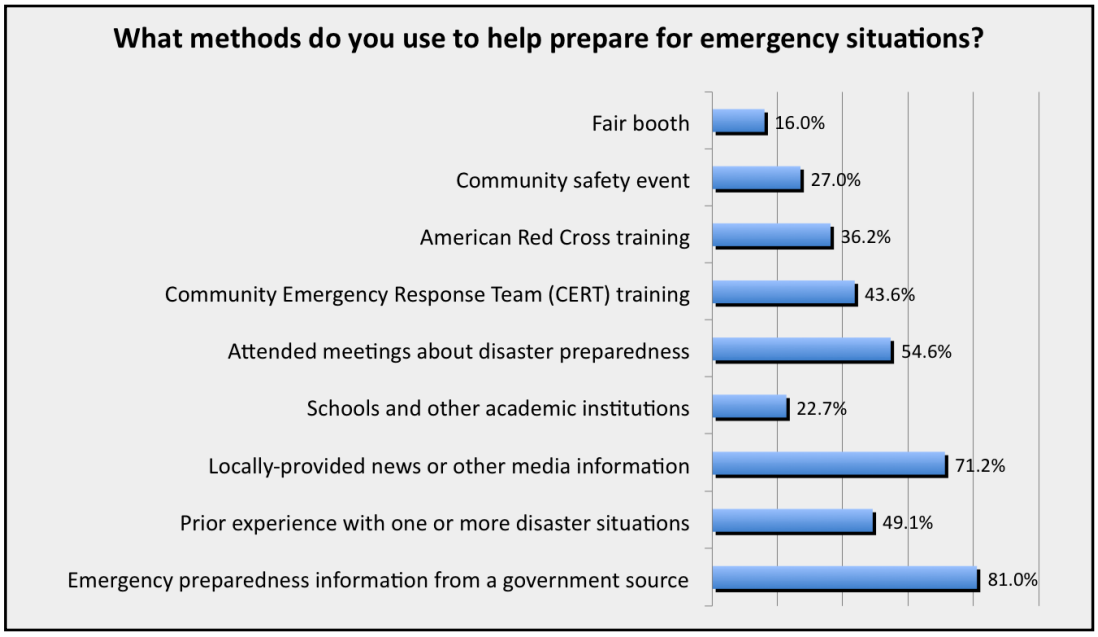

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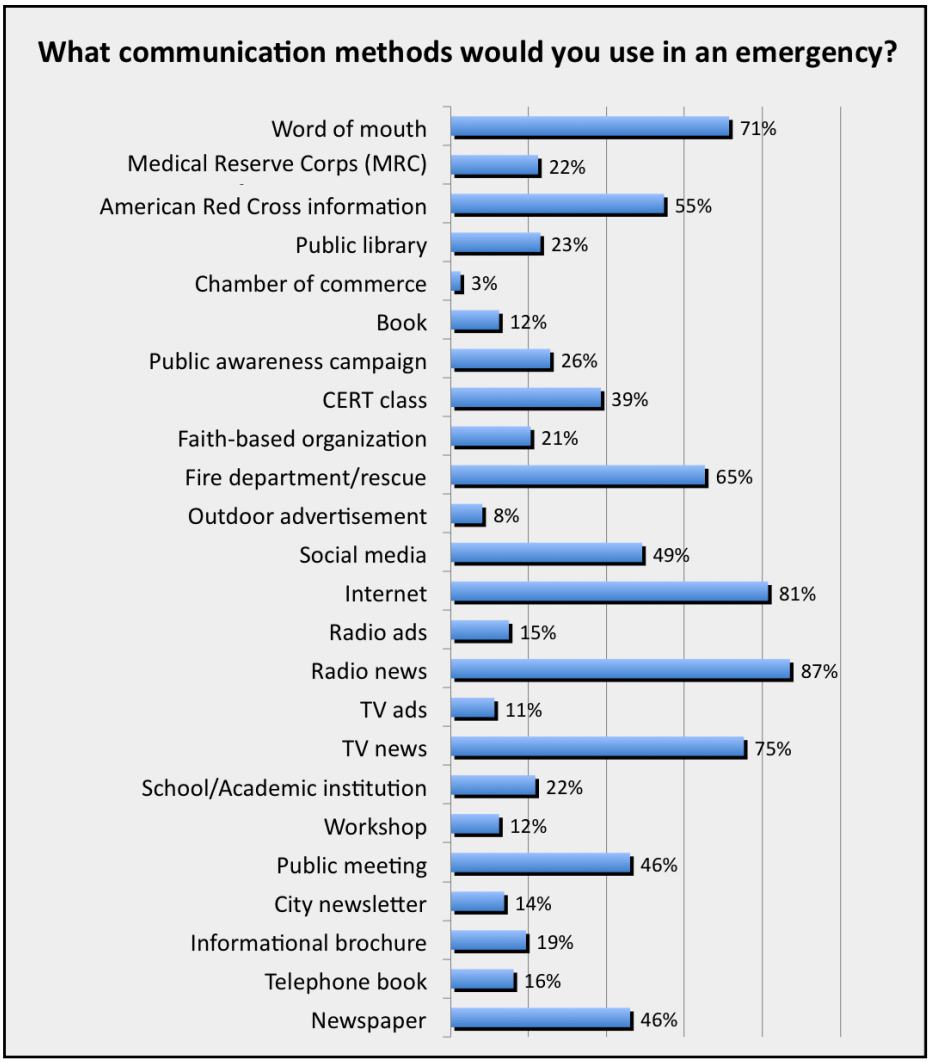
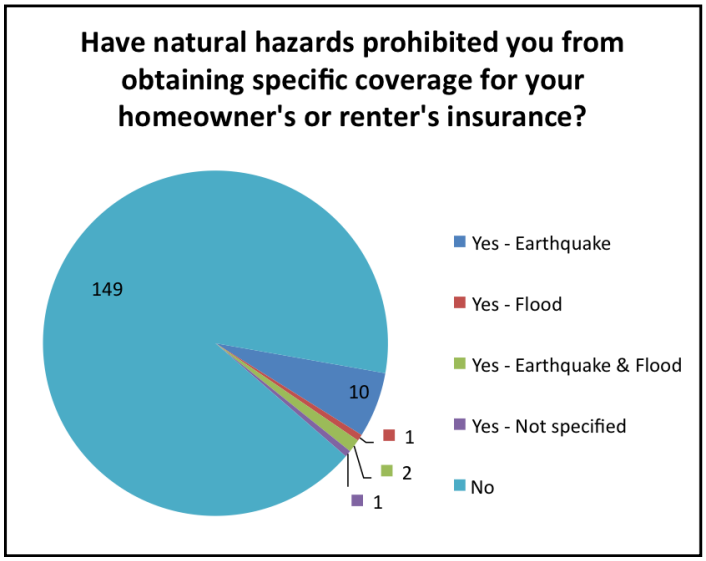


Question 10:



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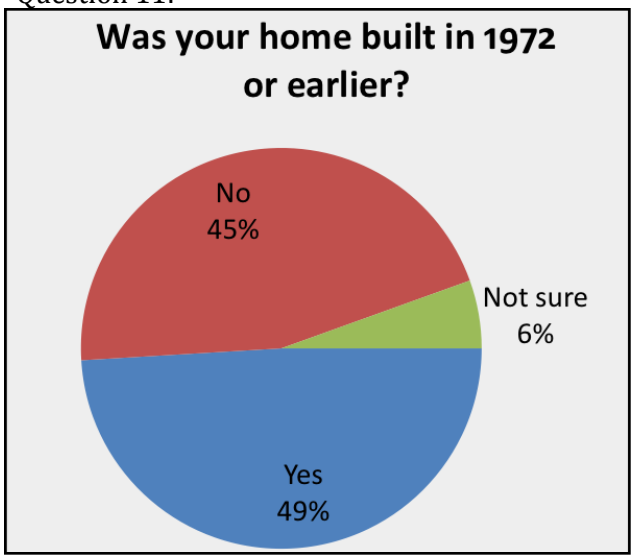

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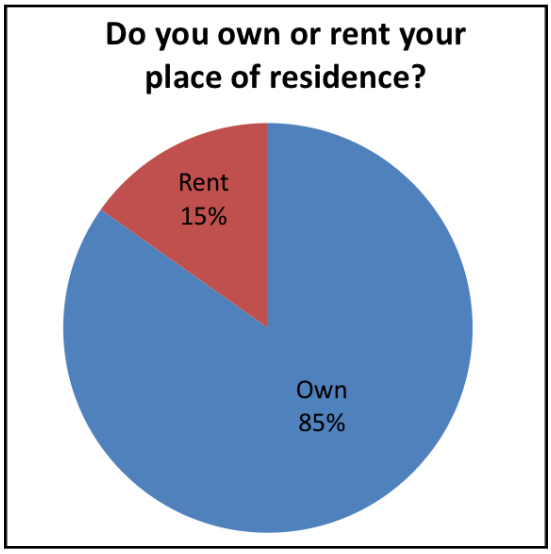

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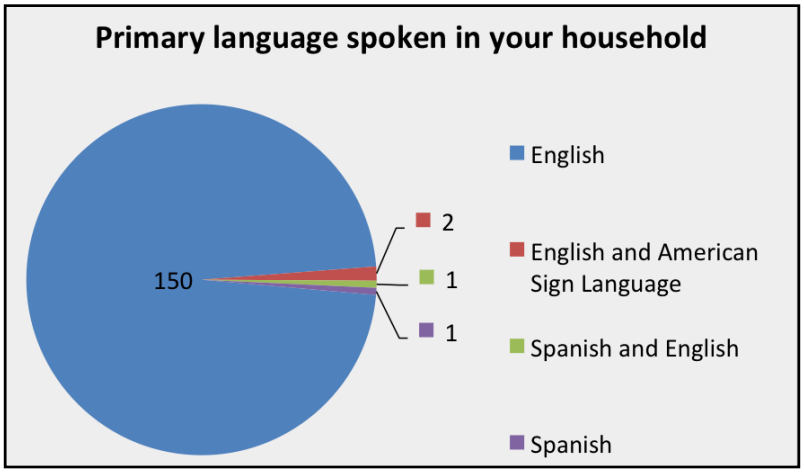

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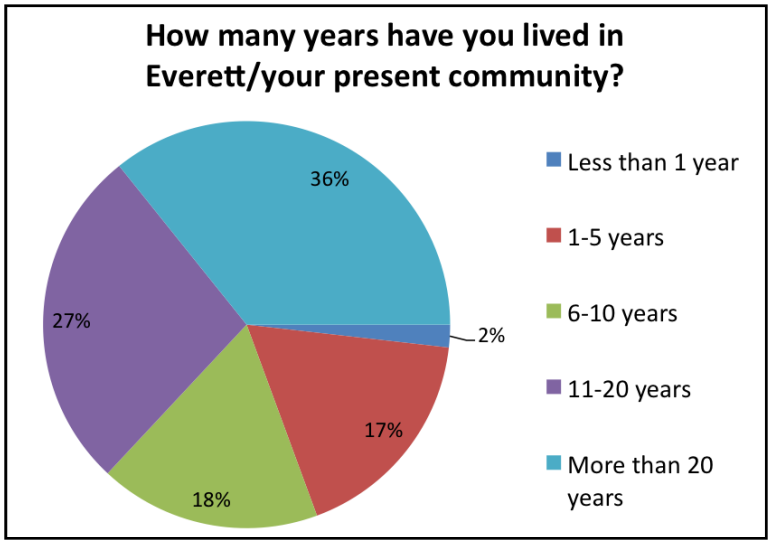
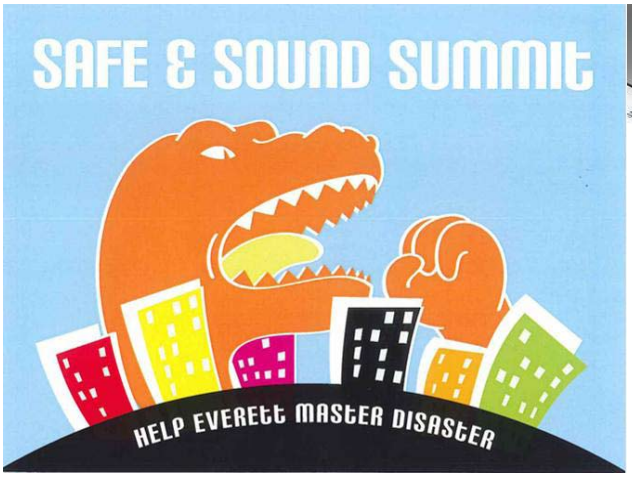
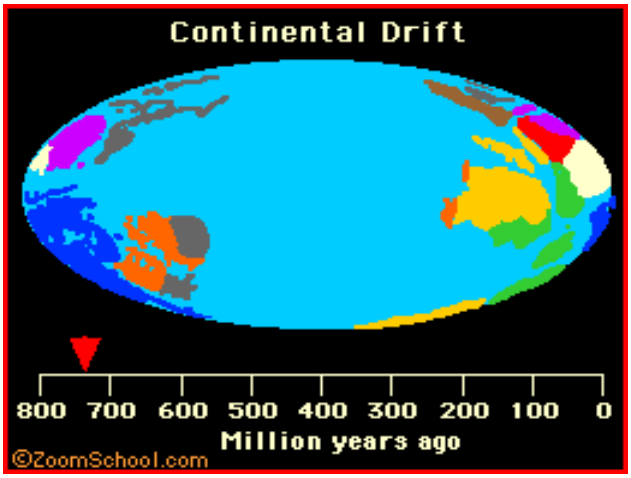


Appendix 3: Safe and Sound Summit

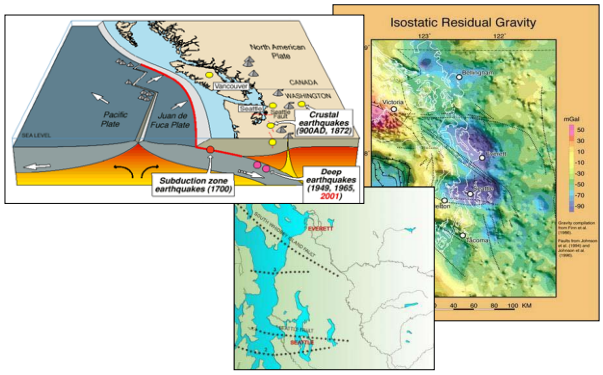
Advertisement

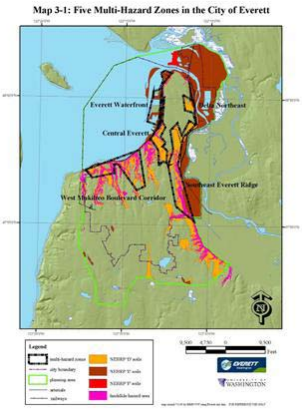
PowerPoint Slides & Photos

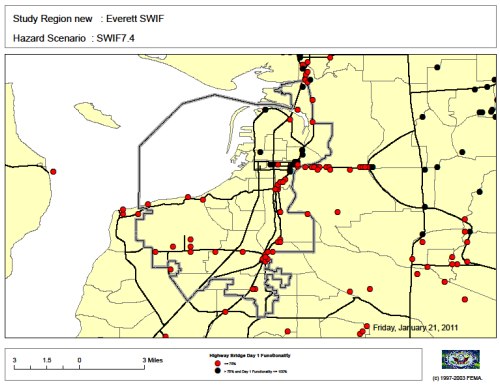




1. Earthquakes (and 9. Tsunamis)







Event photos courtesy Dara Salmon

Earthquakes

http://www.city-data.com/forum/california/1025100-california-earthquakes.html

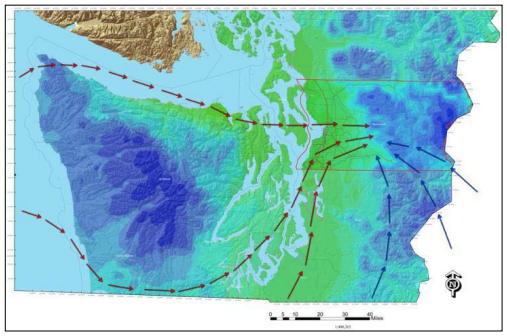
Secondary Earthquake Risks

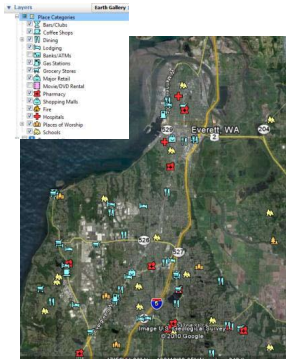
The ground response to earthquake waves can result in ruptured gas mains, which start fires, and broken water mains, which makes it hard to fight fires. These smoldering remains of an apartment complex are from the 1989 Loma Prieta earthquake. Photo: J. K. Nakata, USGS

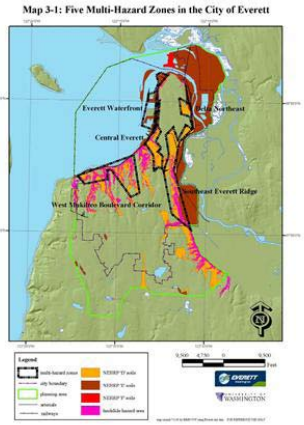
- Isolation
- Fire
- Failure of URMs, chimneys…
- Power Outages
- Industry suffers (supply chain interrupted)
- Explosions
- Flooding
- Ground Failure
- Landslides
- Tsunami
- Psychological trauma of shake
- Disorientation
- Uncertainty
- Grief

Risk Reduction: What has proven Successful

2. Severe Storms







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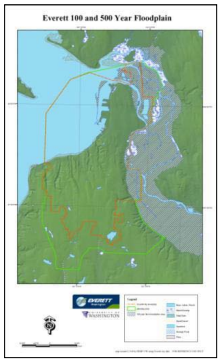
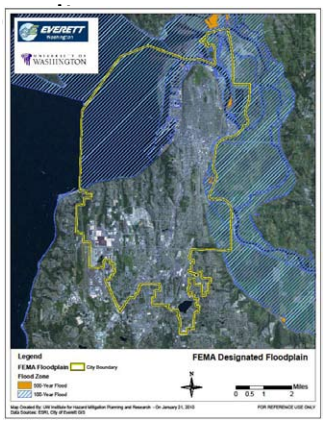
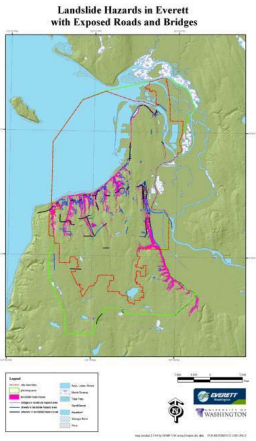




8. Lan

Land Use of Parcels in Landslide Prone Areas in Everett

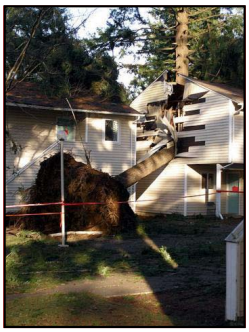
Parcel Count By Land Use	Slope Class		
Land Use (Code)	3	4	Grand Total
Residential (100)	374	827	1201
Manufacturing (200 & 300)	5	1	6
Transportation and Utility (400)	7	11	18
Services (500 & 600)	11	12	23
Parks (700)	1	15	16
Open Space (900)	56	196	252
Grand Total	454	1062	1516



Climate change impacts to Everett - High confidence

1. More extreme weather
2. Heavier winter precipitation (landslide triggers)
3. Increases in flooding (increases in discharge, decreases in upland storage, increases in development, increases in sediment release)
4. Stronger Winds
5. Greater probability of heat waves
6. Lower summer flows
7. Increases in pests not traditionally associated with Pacific Northwest
8. Increases in stresses to regional biota. (Collapse/succession)
9. Gradual increases in sea level

Secondary Weather Related Risk



- Isolation
- Food shortages
- Cannot get to work
- Heat/Cold waves
- Fire
- Explosions
- Flooding
- Landslide
- Depression
- Grief

Risk Reduction: What has proven Successful

3. Pandemics

- 2009 influenza A/H1N1
- 2003 SARS respiratory syndrome
- HIV and AIDS

Six stages and Three Periods of Pandemics

Interpandemic period - Phase 1 (No new disease (virus) detected in humans)
Strategy: Monitor. Emphasis is on ensuring that risk groups and medical and nursing personnel receive seasonal vaccinations.

Interpandemic period - Phase 2 (New virus detected in animals presenting risk to humans)
Strategy: Monitor. emphasis is placed on preventing the introduction to humans

Pandemic alert period - Phase 3 (Isolated cases of individual humans being infected)
Strategy: Isolate if not possible to prevent. developed drugs.

Pandemic alert period - Phase 4 (Small isolated outbreaks of the virus is not yet adapted very extensively to humans).
Strategy: Emphasis is on preventing the new virus from being brought into the country by humans or animals. Interrupt the animal-to-human and human-to-human chains of transmission.

Pandemic alert period - Phase 5 (Larger clusters infected but still localized, suggesting the virus is becoming increasingly adapted to humans. Virus is not yet fully transmissible.)
Strategy: As in Phase 4.

Pandemic period - Phase 6 (Widespread, sustained transmission of the new virus which has developed into a pandemic virus).
Strategy: Social and economic activities must continue as normally as possible. Minimize impact.

Pandemics -- Risks/Opportunities Issues

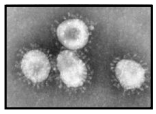
1. Multi-hazard residential areas and isolation
2. Location of areas where services can be provided

Pandemic

http://www.youtube.com/watch?v=Ix84JlfJoIQ

Secondary Pandemic Risks

1918 flu outbreak



Coronaviruses

- Forced isolation
- Fear of undertaking routine activates
- Burden of taking care of family and friends
- Fear of the unknown
- Grief

Risk Reduction: What has proven Successful

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Appendix 4: Potential Funding Sources

Federal and State Programs

Department of Defence - US Army Corps of Engineers (USACE)

Aquatic Ecosystem Restoration
Direct support for carrying out aquatic ecosystem restoration projects that will improve the quality of the environment.

Channel Renovation
Planning, Design, and other Technical Assistance for certain projects in navigable streams and tributaries. Projects can include the removal of snags and other debris, the clearing and straightening of channels, and renovation of navigable streams by nonstructural methods to improve drainage, water quality, and wildlife habitat.

Project Modifications for Improvement of the Environment
Provides for ecosystem restoration by modifying structures and/or operations or water resources projects constructed by the USACE, or restoring areas where a USACE project contributed to the degradation of an area.

Environmental Protection Agency (EPA)

Clean Water Act Section 319 Grants (Nonpoint Source Management Program) and State Centennial Clean Water Grant Program
Grants to States to implement non-point source programs, including support for nonstructural watershed resource restoration activities and urban storm water runoff activities. The State Dept of Ecology runs a combined application and funding cycle for these grants.

Wetland Program Development Grants
Grants to support the development and enhancement of State and tribal wetlands protection programs.

Puget Sound Watershed Management Assistance Grants
Grants to local governments and special purpose districts for help in integrating watershed protection and land use decisions.

Puget Sound Scientific Studies and Technical Investigations Assistance Grants
Grants to local government agencies, public and private institutions of higher education, and public interest entities located within the greater Puget Sound Basin. Provides funding for integrating flood hazard management plans with information and approaches for identifying, evaluating, and incorporating, environmental restoration opportunities.

State Water Pollution Control Revolving Fund Loan Program
Loans at actual or below-market interest rates to help build, repair, relocate, or replace wastewater treatment plants. Can also fund nonpoint source, watershed protection or restoration, and estuary management projects.

Housing and Urban Development (HUD)

Community Development Block Grant (CDBG) State Administered Program
Grants to States to develop viable communities (e.g., housing, a suitable living environment, expanded economic opportunities) in non-entitled areas, for low- and moderate income persons. The Imminent Threat Grant (a subgrant of the CDBG) provides funding for emergency needs that pose a serious, immediate threat to public health and safety.

Disaster Recovery Assistance
Grants to fund gaps in available recovery assistance after disasters (including mitigation). Subject to supplemental funding by Congress after disasters.

Public Housing Capital Fund Emergency/Natural Disaster Funding
Funding to public housing agencies for modernization needs resulting from natural disasters (including elevation, flood proofing, and retrofit).

Section 108 Loan Guarantee Program
Loan guarantees to public entities for community and economic development (including mitigation measures).

National Resources Conservation Service (NRCS)

Emergency Watershed Protection Program
Technical and financial assistance for relief from imminent hazards in small watersheds, and to reduce vulnerability of life and property in small watershed areas damaged by severe natural hazard events. (Can be opened for both a Presidentially declared and locally declared disaster.)

Wetlands Reserve Program
Financial and technical assistance to protect and restore wetlands through easements and restoration agreements.

US Department of Transportation (USDOT)

Federal Highways Bridge Program
Grants to Local Jurisdictions for locally-owned bridge repair and rehabilitation projects, including those for seismic retrofitting and scour mitigation.

Federal Emergency Management Agency (FEMA)

Hazard Mitigation Grant Program (HMGP)
Grants to Local Jurisdictions and Private Nonprofits for implementing long-term hazard mitigation measures following a major disaster declaration.

Flood Mitigation Assistance (FMA)
Grants to Local Jurisdictions for predisaster mitigation to help reduce or eliminate the long-term risk of flood damage to structures insurable under the National Flood Insurance Program (NFIP).

Pre-Disaster Mitigation (PDM)
Grants to Local Jurisdictions and Private Nonprofits for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event.

Public Assistance Program (Infrastructure)
Grants to Local Jurisdictions and Private Nonprofits to repair damaged infrastructure and public facilities, and help restore government or government-related services. Mitigation funding is available for work related to damaged components of the eligible building or structure.

Risk Mapping, Assessment, and Planning (Risk MAP) Program
Technical and planning assistance for identifying, assessing, communicating, and mitigating risk.

National Earthquake Hazards Reduction Program (NEHRP)
Technical and planning assistance for activities associated with earthquake hazards mitigation.

National Oceanic and Atmospheric Administration (NOAA)

Pacific Coastal Salmon Recovery Fund
Funding to States for acquisition projects to help protect, restore, and conserve Pacific salmon and steelhead populations and their habitats.

Coastal Community Planning and Development and other Coastal Management Training
Planning assistance for planners, elected officials, developers, business leaders, and other local decision-makers that provides examples and strategies for implementing alternative development principles in coastal communities and introduces the importance of natural hazard resilience.

Economic Development Association (EDA)

Economic Adjustment Assistance Program
Grant funding to assist with the long-term economic recovery of communities, industries, and firms adversely impacted by disasters.

Fish and Wildlife Service

Partners for Fish and Wildlife
Financial and technical assistance to private landowners interested in pursuing restoration projects affecting wetlands and riparian habitats.

North American Wetland Conservation Fund
Cost-share grants to stimulate public/private partnerships for the protection, restoration and management of wetland habitats.

National Coastal Wetlands Conservation Grant Program
Funding for acquisition, restoration, or enhancing coastal wetlands and adjacent uplands to provide long-term conservation. Mitigation linkage: protection against flooding.

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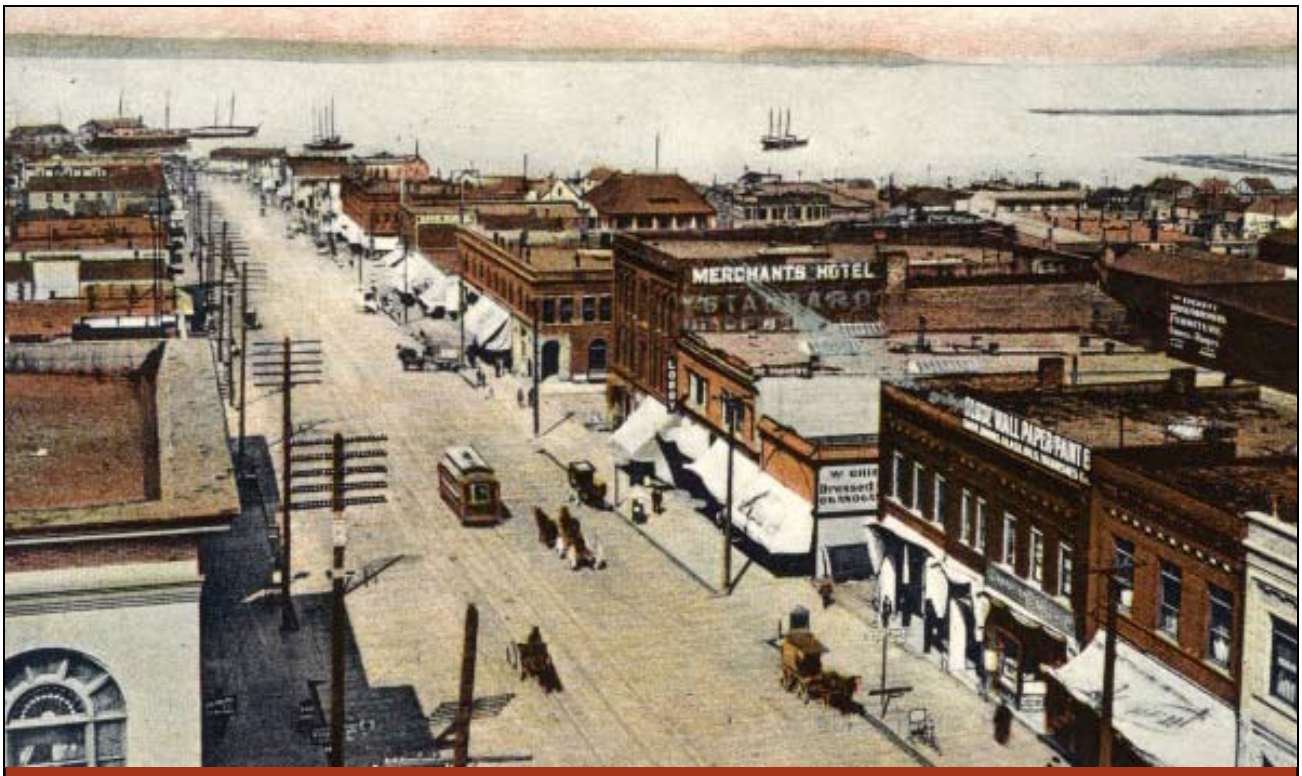

Economic Mitigation Plan Annex

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Table of Contents

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Executive Summary

The Economic Mitigation Plan first gives a brief overview of the Everett economy. Economic base analysis suggests that manufacturing and, to a lesser extent, health care and social assistance, drive the economy of Everett. This is confirmed by the research done by The Economic Development Council for the City of Everett, which has identified aerospace, life sciences, and clean technology as the three key industry clusters of Snohomish County. Table 1 ranks all sectors[1] in Everett based on three different criteria: revenue, number of employees, and number of establishments. This data offers further support to the importance of manufacturing and health care and social assistance to the Everett economy. Retail is also ranked as one of the top five industries in all categories observed. Although retail trade is not considered a primary driver of the Everett economy, special analysis of the retail trade industry will also be included in the final analysis.

Table 1: Top 5 industries

Rank	Employer sales, shipments, receipts, revenue, or business done	Number of paid employees for pay period including March 12	Number of Employer Establishments
1	Manufacturing	Manufacturing	Retail Trade
2	Retail Trade	Health Care and Social Assistance	Health Care and Social Assistance
3	Wholesale trade	Retail Trade	Accommodation and food services
4	Health Care and Social Assistance	Accommodation and food services	Professional, scientific, and technical services
5	Professional, scientific, and technical services	Administrative and Support and Waste Management and Remediation Services	Other services (except public administration)

Source: Economic Census 2007

The industries of Everett all face unique challenges during a hazard event. Many manufacturing firms in Everett rely on "just in time" production. This means that firms have very little inventory on hand in storage facilities and they import or make products as needed. Although this can reduce the operating cost of a business, it also increases these companies' vulnerability in the event of a hazard.

Health care and social assistance is another important business sector in the City of Everett. Not only is it part of Everett's economic engine that drives the creation of other jobs; it is also vital to emergency response after a hazard event. Health care and social assistance firms are different from manufacturing firms in that their market orientation is much more likely to be local.

Retail trade makes up a substantial portion of sales in the city. Most of the retail businesses in Everett are small, with fewer than twenty employees working at a given establishment. Historically, retail business and smaller business tend to have a harder time recovering after a disaster.

A meeting held with Seattle business groups by Cascadia Regional Earthquake Workgroup (CREW) in 2005 produced a report, "Just in Time Inventory: Effects on Earthquake Recovery," identifying eight potential problems that businesses might face in the event of a disaster. These included:

- Personal Concerns about families and life safety
- Loss of power

1 Sectors are based on NAICS classification and only include sectors identified at the economic place level.

- Loss of surface transportation
- Ability of business to communicate with customers
- Physical loss and damages
- Capacity of hospitals
- Losses resulting from limited Just-in-Time inventories
- Potential for permanent loss of businesses due to damaged infrastructure

This list does not include all of the risks to business and may not list them in an appropriate order based on economic impact specifically to the City of Everett. Isolation and loss of power and other utilities may be the most important risk that need to be addressed with businesses specifically in mind.

Special attention should also be given to mitigating isolation risks since Everett could essentially become an island if there were a major hazard event. Over 80% of the people who work in the City of Everett commute from outside the city, while about two thirds of the city's residents work outside of the city. This would suggest that personal concerns about things such as child care, food, and shelter are intimately tied to concerns about surface transportation, since people's workplaces are often far from their homes.

Statement of Purpose

When there is a natural disaster, a separate and equally devastating economic disaster can occur. Mitigating the impact of disasters on the local economy should be a task above and beyond the life safety and physical structure focus of traditional hazard mitigation. Even if businesses are structurally sound, damage to critical infrastructure, such as transportation routes or utilities, or a change in their customer base can negatively impact businesses if they are unable to adapt. Historically businesses have been ill-equipped to handle these types of post-disaster changes. Many mitigation measures traditionally adopted by businesses have been shown to have little impact on the likelihood that it will survive after a disaster. This is primarily due to the fact that many mitigation measures such as first-aid training, are taken to address life safety rather than business continuity. This document is intended to determine the assets and vulnerabilities of the Everett economy and suggest action items specifically designed to mitigate economic damages that a disaster could cause.

Key Business Sectors

Data from the 2007 Economic Census was used to determine the key sectors in Everett based on the North American Industry Classification System's two digit codes. The sectors were then ranked to determine the top ten sectors based on revenue, number of employees, and number of firms. It is important to note that some sectors were not included in the analysis because data for these sectors are only collected at the state level. These sectors include Mining, Utilities, Construction, Transportation and Warehousing, Finance and Insurance, and Management of Companies and Enterprises. Census data on the number of businesses in Everett in 2008 seemed to indicate that the only unrepresented sectors that have a substantial number of establishments are Construction and to a lesser extent Finance and Insurance. Although utilities are critical for post-disaster recovery, the cross industry impact that utilities have is very different from other private sectors.

Of the industries included in the sample, Manufacturing, Retail Trade, Wholesale Trade and Health Care and Social Assistance play a major role in the City of Everett with each industry having over a billion dollars in employer sales, shipments, receipts, revenue, or business done. Manufacturing, Retail Trade and Health Care and Social Assistance also are the top three employers in the city based on the number of paid employees. Manufacturing has over three times the number of employees as the next largest industry, Health Care and Social Assistance. Health Care and Social Assistance and Retail Trade are the two largest industries based on the number of establishments. Manufacturing has many fewer establishments; however, the dominance of this industry is due to the fact that Boeing's operations make up the lion's share of manufacturing employees and revenues.

Table 2: Top Sectors by Sales

Rank	2007 NAICS code	Employer sales, shipments, receipts, revenue, or business done ($1,000)
1	Manufacturing	18,143,402
2	Retail Trade	2,079,939
3	Wholesale trade	1,436,083
4	Health Care and Social Assistance	1,178,505
5	Professional, scientific, and technical services	410,561
6	Accommodation and food services	249,507
7	Administrative and Support and Waste Management and Remediation Services	167,128
8	Other services (except public administration)	155,742
9	Real estate and rental and leasing	134,063
10	Arts, entertainment, and recreation	32,004

Source: Economic Census 2007

Table 3: Top Businesses by number of employees

Rank	Meaning of 2007 NAICS code	Number of paid employees for pay period including March 12
1	Manufacturing	29,991
2	Health Care and Social Assistance	9,701
3	Retail Trade	7,619

Rank	Meaning of 2007 NAICS code	Number of paid employees for pay period including March 12
4	Accommodation and food services	4,661
5	Administrative and Support and Waste Management and Remediation Services	3,247
6	Professional, scientific, and technical services	3,189
7	Information	2,460
8	Wholesale trade	2,039
9	Other services (except public administration)	1,762
10	Real estate and rental and leasing	926

Source: Economic Census 2007

Table 4: Top Business by the number of Employer Establishments

Rank	2007 NAICS code	Number of Employer Establishments
1	Retail Trade	481
2	Health Care and Social Assistance	405
3	Accommodation and food services	332
4	Professional, scientific, and technical services	295
5	Other services (except public administration)	238
6	Real estate and rental and leasing	191
7	Administrative and Support and Waste Management and Remediation Services	156
8	Wholesale trade	139
9	Manufacturing	136
10	Information	61

Source: Economic Census 2007

The above tables do not necessarily indicate which industries are driving the economy of Everett. Economic base analysis suggests the engine of the economy is the industries that produce items for export outside of a study region, in this case Everett. Non-basic sectors, which produce items primarily consumed within the region, depend indirectly on the viability of the basic industries because they support people working in all industries. Manufacturing is the primary basic industry in the City of Everett. Health Care and Social Assistance is also a basic industry, although its impact seems to be much smaller than Manufacturing.[2] This is confirmed by the research done by The Economic Development Council for the City of Everett, which has identified aerospace, life sciences and clean technology as the three key industry clusters of Snohomish County.

Economic base analysis suggests that Retail Trade does not make up a disproportionately large number of sales or have a disproportionate number of employees relative to the typical size of a Retail Trade sector. A special analysis of the Retail Trade industry will also be included because Retail Trade and Accommodation makes up a significant percentage of the total number of business establishments in the City of Everett. Everett's 2025 Comprehensive Plan noted that the city collects

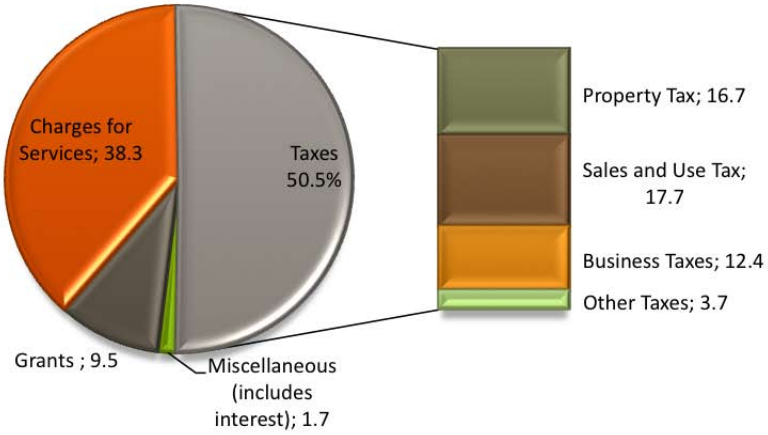
2 Everett also seems to also have a minor impact on the real estate and information sectors at the state level

approximately a quarter of the retail sales tax in Snohomish County, which is evidence of the importance of retail trade to government revenue.

Key Businesses Based on Everett Tax Base

The Finance Department of the City of Everett describes the economic position of the city in its Comprehensive Annual Financial Report. The report indicated that Everett obtained its revenue from the following sources in 2009.

Figure 1: Breakdown of the Revenue Sources for the City of Everett



Source: City of Everett, Washington Comprehensive Annual Financial Report for the Year Ended December 31, 2009.

To have a better understanding of the contributions of different industries to city revenue, the Everett Finance Department provided the following ranking of the North American Industry Classification System (NAICS) classifications for Everett's Business and Occupation (B&O) tax payers based on B&O tax revenue paid in 2010. It is important to note that not all of the businesses that pay B&O taxes have a physical location in Everett.

Table 5: Top 25 B&O Taxpayers by Industry

Rank	NAICS 2007 Industry	NAICS 2007 sector code
1	Aircraft Manufacturing	Manufacturing
2	Offices of Physicians (except Mental Health	Health Care and Social Assistance
3	Drugs and Druggists' Sundries Merchant	Wholesale Trade
4	Commercial and Institutional Building	Construction
5	General Line Grocery Merchant Wholesalers	Wholesale Trade
6	New Car Dealers	Retail Trade
7	Supermarkets and Other Grocery (except Convenience Stores)	Retail Trade
8	Electrical Contractors	Construction
9	Department Stores (except Discount Department Stores)	Retail Trade
10	Plumbing, Heating, and Air-Conditioning	Construction
11	Motorcycle Dealers	Retail Trade

Rank	NAICS 2007 Industry	NAICS 2007 sector code
12	All Other Miscellaneous Chemical Product and	Manufacturing
13	Full-Service Restaurants	Accommodation and Food
14	Other Aircraft Parts and Auxiliary Equipment	Manufacturing
15	Hardware Stores	Retail Trade
16	Soft Drink Manufacturing	Manufacturing
17	Medical Laboratories	Health Care and Social Assistance
18	Pharmacies and Drug Stores	Retail Trade
19	Automotive Parts and Accessories Stores	Retail Trade
20	Commercial Banking	Finance and Insurance
21	Ship Building and Repairing	Manufacturing
22	Electrical Apparatus and Equipment, Wiring	Wholesale Trade
23	Noncellulosic Organic Fiber Manufacturing	Manufacturing
24	Offices of Dentists	Health Care and Social Assistance
25	Transportation Equipment and Supplies	Wholesale Trade

These results are consistent with the results established in the previous section, when industries were sorted based on total revenue. Many of the top industries are in the Manufacturing, Retail Trade, Wholesale Trade of the Health Care and Social Assistance industries. The construction industry also seems to contribute significantly to the B&O taxes in Everett. Unfortunately, analysis could not be done on this sector in the general analysis because no data is available from the census that analyzes this sector at the city level.

Manufacturing

The Census data does not give sufficient detail for the Manufacturing industry. It omits many of the small firms and provides almost no information on the larger firms because it would disclose too much information on individual companies. The Census does however confirm that the major industries in the Manufacturing sector are pulp, paper and paperboard mills, computer and peripheral equipment manufacturing, electronic and instrument manufacturing, and aerospace product and parts manufacturing. The table below shows the key subclasses of Manufacturing and provides information on approximately how many people are employed in each subcategory.

Table 6: Manufacturing Business by number of employees

Meaning of Type of operation or tax status code	Number of paid employees for pay period including March 12
Pulp, paper and paperboard mills	500-999 paid employees
Computer and peripheral equipment manufacturing	500-999 paid employees.
Electronic and instrument manufacturing	1,000 to 2,499 employees
Aerospace product and parts manufacturing	10,000 to 24,999 employees.

Source: Economic Census 2007

According to the Aerospace Industries Associations' "2010 Year End Review and Forecast" the aerospace industry is continuing to improve. As we move out of the global recession foreign sales are

expected to continue to grow. Foreign purchases are also increasing as it becomes easier for firms to obtain credit for the purchase of civil aircraft. They noted that the aviation industry overall is still facing issues because of "falling demand, restrictive credit markets and strong competition from used aircraft"(AIA Research Center, 2010). Larger airplanes, however, have been cushioned against these issues. Since the Everett plant produces only larger aircraft this impact might be minimal. Rising fuel prices might also help Everett's economic prospects. As fuel prices continue to rise, there is an increasing incentive for airlines to replace older airplanes, especially with models such as the fuel-efficient 787 coming into production. Boeing expects that 85% of the airplanes flying in 2029 will be made after 2010. Boeing is in an especially good position after winning the contract to build the air-refueling tanker in February 2011. This is important not only because the contract is worth more than $30 billion dollars but also because the company can switch engineers from the 747 and 787 to the tanker as it goes into production (Seattle Times, 2011). The Air Force contract is also expected to extend the projected lifespan of the 767 production line in Everett (Vance-Sherman, 2011).

"Just in Time" Production

One potential concern with manufacturing firms is that many rely on "Just in Time" production. This production model suggests that firms have very little inventory and they process goods as needed for production. The benefits of Just-in-Time production are that the business can adapt quickly to change, reduce overhead and prevent over-production. The drawback is that these businesses become much more vulnerable if there is a disaster. Since businesses have little to no supply stock to fall back on, if any of the suppliers or transportation routes is impacted by a disaster, the company can be incapacitated.

The recent earthquake in Japan has brought to light many issues with this production model. The first is that manufacturing firms should have deeper understandings of the risks facing their supply chain. When collaboration between the city and key businesses takes place, it may be beneficial to include local suppliers in some capacity. This is because suppliers may have unique concerns of which the larger corporations are not aware. While it would be impractical to involve all international, and perhaps even regional, suppliers in a discussion, since even one part can sometimes stop all production, it would be beneficial for Everett to harden manufacturing channels where they are able. The disaster also demonstrated the importance of having transportation recover as quickly as possible. To this end, the government and businesses could work together to identify priority routes to be opened following a disaster.

Health Care and Social Assistance

Health Care is one of the fastest growing sectors nationally and is expected to generate many new jobs in the future with the fastest growth in home care services. Health Care and Social Assistance is an important business sector in the City of Everett. Not only is it part of the economic engine of Everett, driving the creation of other jobs, it also will be vital to emergency response after a hazard event. The Health Care and Social Assistance sector also contributes a great deal to city revenues directly with Offices of Physicians being the second largest B&O tax payer. Health Care and Social Assistance is different from Manufacturing in that their market orientation is much more likely to be local. A study on Business Vulnerability in King, Kitsap, Pierce and Snohomish County in 2002 found that 100% of the primary market orientation for Health Care and Social Assistance was in the Pacific Northwest (Beyers and Chang, 2003). This could be compared to only about 50% of manufacturing business done by the companies surveyed.

The paper, "Modeling Post-Earthquake Functionality of Regional Health Care Facilities," (Yavari, Chang and Elwood, 2010) highlighted the importance of external lifelines in the event of a disaster. The

paper noted that many medical clinics may not have sufficient redundancies for other critical utilities. For example, many hospitals do not have a large enough back-up supply of potable water to meet demand if there was a loss of water to the facility. Although the Providence Region Medical Center is working on methods to reduce this vulnerability, it is something that always must be considered in a mitigation and recovery plan. Hospitals have also often had concerns about loss of electricity and communication following a disaster. Even if the hospital has taken all necessary precautions to mitigate a disaster internally, a disaster causing physical damage to the communication infrastructure may lead the hospital to have difficulty contacting staff, emergency vehicles, government partners, or even communicating to other people within the building.

Another concern of the health and medical profession is having enough personnel on staff in the event of a hazard event. Road blockage could make it difficult for staff to get to the hospital. In addition, when there is a serious disaster demands for medical care will be even higher. Transportation then becomes doubly important because hospitals will have to determine how they can receive critical supplies following a disaster. Pharmacies will have similar problems determining how they will be able to meet the increased demand for prescriptions. Everett must be concerned with how it can ensure that hospital staff can get to their jobs to provide needed services.

Communication and transportation availability is also important to people within the health care profession because many of the workers will be torn between their obligations at work and their personal responsibilities. People who work in the medical profession deal with people who are especially vulnerable after a disaster. There will be added stress associated with their jobs as they face increased demands under what will most likely be more complicated constraints. Medical facilities must then also be concerned with what actions they can take to help assuage their staff's personal concerns during a disaster. This would include determining how staff could obtain housing for themselves and possibly their families following a disaster. Although it may not be necessary for medical facilities to pay for these services, having a plan in place will allow people to respond quickly following a disaster.

Data from the census provides more specific information about the Health Care and Social Assistance sector in Everett. The tables below list the number of establishments by size, the various subclasses within the Health Care and Social Assistance category and provides information on the number of firms, revenue, and employees in each subcategory.

Table 7: Health Care and Social Assistance Businesses by number of employees

Number of Employees	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000 or more	Total
Number of Establishments	204	105	82	60	14	11	2	1	1	480

Source: U.S. Census Bureau, North American Industrial Classification System (2008)

Table 8: Breakdown of Healthcare Sector by Tax Status Code

Meaning of Type of operation or tax status code	Number of employer establishments	Employer sales, shipments, receipts, revenue, or business done ($1,000)	Number of paid employees for pay period including March 12
All establishments	405	1,178,505	9,701

Meaning of Type of operation or tax status code	Number of employer establishments	Employer sales, shipments, receipts, revenue, or business done ($1,000)	Number of paid employees for pay period including March 12
Establishments subject to federal income tax	344	537,831	4,847
Establishments exempt from federal income tax	61	640,674	4,854

Source: Economic Census 2007

Table 9: Breakdown of Healthcare Sector by Industry Group

Meaning of 2007 NAICS code	Number of establishments	Receipts/Revenue ($1,000)	Number of paid employees for pay period including March 12
Offices of physicians	85	291,229	1,800
Offices of other health practitioners	79	40,568	409
Offices of dentists	74	56,581	452
Child day care services	32	D	250 to 499 employees
Community care facilities for the elderly	31	D	250 to 499 employees
Outpatient care centers	29	D	1,000 to 2,499 employees
Individual and family services	23	D	500 to 999 employees
Community food and housing, and emergency and other relief services	16	D	100 to 249 employees
Home health care services	7	53,253	801
Nursing care facilities	6	D	500 to 999 employees
Vocational rehabilitation services	6	D	20 to 99 employees
General medical and surgical hospitals	1	D	2,500 to 4,999 employees

Source: Economic Census 2007

A vast majority of businesses in the Health Care and Social Assistance industry have fewer than twenty employees; the Providence Regional Medical Center is the major exception with over 3,000 employees. One benefit that Providence Regional Medical Center offers to the City of Everett is that their new facility has been built to accommodate growth. The facility has also been designed to be able to adapt as needs change, which will be important during a hazard event. Since the hospital's medical tower was recently built it should also have a much better probability of surviving a major hazard event. Many articles have noted that having open collaboration between the hospital and government will be critical. Discussions about life safety, as well as economic needs of the hospital, should take place before the disaster occurs. That way, both parties can collaborate to come up with solutions to potential problems when there is not the added stress of the disaster.

Offices of physicians are also important to the economy. The impact that the disaster will have on these businesses can vary quite significantly based on the type of office. Many people may need to contact physician offices following a disaster to obtain medical information that was lost or destroyed.

Physician offices will then need to determine how they can contact patients and pharmacies and provide critical information even if they suffer physical damage to their office. Disasters can also have a significant impact on the customer base of physician offices. If patients are significantly impacted by the disaster or lose a significant portion of their disposable income as a result of the disaster, then they choose to defer appointments. This may be especially true for offices whose services are not considered critical. Patients relocating after a disaster can also change the consumer base. The development of detailed business continuity plans then becomes important to determine how private offices will deal with changes in their patient base, and how to not lose patient confidence when there is damage to their facility.

Retail Trade

As discussed earlier, Retail Trade makes up a substantial portion of sales in the city. Most of the retail businesses in Everett are small, with fewer than 20 employees working at a given establishment.

Table 10: Retail Businesses by number of employees

Industry Code Description	Total Establishments	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000 or more
Retail Trade Total	575	226	157	99	50	25	14	3	1	0

Source: U.S. Census Bureau, North American Industrial Classification System (2008)

Historically, retail businesses and smaller businesses tend to have a harder time recovering after a disaster. This is due, in part, to the fact that retail businesses are more reliant on other local businesses. Retail Trade is also more likely to have substitutes, which can cause businesses to lose customers as they struggle to recover. Since many businesses are smaller, they are less likely to have a comprehensive recovery plan. Another reason that retail businesses might be at risk is because many businesses are likely to lease, rather than own, their property. This means that the businesses will be less likely to invest in mitigation items, such as retrofitting or investing in a generator, because they are unlikely to reap the full benefit of that investment.

Data from the 2007 Economic census gives us a more detailed picture of the Retail Trade by subsector. This breakdown is included to provide information on the relative size of the subsectors. It does not mean that subsectors with a larger number of establishments, sales or employees are necessarily more important to the city's economy.

Table 11: Breakdown of Retail Trade Sector by Subsector

Meaning of 2007 NAICS code	Number of establishments	Sales ($1,000)	Number of paid employees for pay period including March 12
Motor vehicle and parts dealers	77	631,877	1,416
General merchandise stores	10	443,616	1,656
Food and beverage stores	71	300,878	1,064
Building material and garden equipment and supplies dealers	36	187,995	838
Gasoline stations	45	131,926	277

Health and personal care stores	29	75,812	381
Electronics and appliance stores	20	74,570	339
Clothing and clothing accessories stores	55	65,877	547
Miscellaneous store retailers	55	57,867	493
Sporting goods, hobby, book, and music stores	33	42,931	327
Furniture and home furnishings stores	29	42,463	196
Nonstore retailers	21	24,127	85

Source: Economic Census 2007

The paper, "Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters" identified key variables that predict small business and not-for-profit organizations' chance of surviving a disaster (Alesch, Holly, Mitter and Nagy, 2001). These included:

- **"The extent to which the customer base was affected adversely":** Businesses are more likely to fail if their customer base decreases as a result of the disaster. This can occur if their customers were negatively impacted by the disaster, have less disposable income as a result of the disaster or leave the region.
- **"Industry competition":** If there is a large amount of competition, then customers will buy product from another company while the business is making repairs and the impacted store will lose these potential sales. This can be devastating for businesses which produce durable goods since purchases may not be made again for several years.
- **"Product necessity":** Customers will usually change purchasing choices as they recover from a disaster. Stores that sell items whose purchase can be deferred for a while, especially niche items, are more likely to suffer a decrease in sales following a disaster.
- **"Overall business stability before the event":** The financial position of a business is strongly tied to the probability that it will survive. If a store is already struggling, then a disaster might push it over the edge. Stores that were stronger before the disaster tend to be more resilient.
- **"Position on the industry curve":** If a business is located in a location that is shrinking or selling a product that is losing market share then it will be less likely to survive than a business that is in a burgeoning location or selling a product that is growing in demand.
- **"The extent of direct organizational loss during the event":** Stores that suffer greater loss of inventory and production capabilities will have a harder time recovering following a disaster, controlling for the other variables. Although the purchase of business continuity and hazard specific insurance can ameliorate the impact of loss, it is important for businesses to fully understand their coverage and risks. Many businesses suffered significant losses in spite of purchasing insurance because they did not understand what was actually covered by the insurance. Other businesses did not purchase the correct type of insurance because they did not know what their actual risks were.
- **"Extent of proactive entrepreneurial response to a disaster":** A firm's ability to assess how markets have changed after a disaster and adapt are more likely to survive. This appeared to be one of the largest indicators of whether a business would or would not survive. Educating businesses about the potential issues following a disaster may help them to adapt more quickly to the new economic environment when a disaster occurs.

Although these variables can be used to predict the likelihood that any business will survive a disaster, it is important to pay special attention to these variables as they relate to small retail businesses because they are more likely to be poorly positioned after a disaster.

Most of the factors that predict survivability are out of the direct control of the local government. The Everett Hazard Mitigation Plan does have some action items that would encourage citizens to take steps to mitigate their losses following a disaster, which would indirectly strengthen the consumer base following a disaster. In addition, steps taken to harden transportation routes and water systems may reduce organizational loss due to the loss of these services. Although the government could try to encourage businesses that are leading the industry curve to locate in Everett, many of the variables are ultimately dependent on the choices made by the local business owners. The city of Everett should then help to facilitate the recovery of businesses through communication and collaboration.

A recurring theme in disaster mitigation articles on small businesses is that mitigation steps seem so daunting and the likelihood of disaster so remote that small businesses ignore the potential threat. The city should then work to inform them of the potential disaster problems and actionable steps that they can take to reduce their risks in a meaningful way. By discussing potential hazards with businesses, the city can help businesses to reduce direct losses that occur as a result of the disaster and to encourage businesses to respond proactively to the disaster. This will enable businesses to take advantage of the changing climate following the disaster or at least minimize the burden.

Banking

The finance and banking sector of the Everett economy will be critical following a disaster. Fortunately, this sector is better positioned to survive. There are many federal laws that require businesses to have a plan to keep information protected even following a disaster. Studies have also shown that "this industry has become the leader in the private sector with regards to investments and expenditure on (Business Continuity) plans" (Ghosh, Lunce, and Maniam).

It seems that the vulnerability for this sector lies in communication as well as testing and updating continuity plans. Communication will be a critical factor for banks following a disaster because they will need to have a method of gathering information on customers' accounts and transactions quickly, accurately and securely. Methods of testing a bank's communication capabilities will be essential. For many banks, problems arose following a disaster not because the bank did not have a contingency plan, but because their plan was not properly tested. The most recent example of this was the ATM failure experienced by Mizuho Bank following the Tohoku earthquake in Japan. According to the American Banker, a system overload due to an increase in the volume of transactions "delayed 1.16 million transactions worth about $10 billion and ATMs were down for three days" (Crossman, 2011).

The system was overwhelmed partially because the bank was still using an old computer system and had not fully integrated all of its branches following a recent merger. Although they had a plan in place, they had not fully anticipated the problems posed by the older system. Although businesses in the banking sector are ultimately responsible for testing and updating their continuity plans, the city can help by properly informing local businesses of risks. If businesses have a better understanding of the risks and accurate expectations of the city's actions following a disaster they can better prepare their continuity plan.

Having an accurate understanding of risks and tested methods of dealing with all potential disasters can help financial institutions open quickly following a major disaster. For example, a small credit union in the United States was able to minimize the amount of time they were closed due to flooding in the area by literally moving their computers and customer information to a safe location. They

were only able to do this because they were aware of the potential risks of their location and had taken steps to minimize the impact on their business.

As with many other sectors, larger businesses in the finance sector with more branches are generally better able to survive a disaster than smaller institutions. This is largely because these larger businesses can pull resources from other branches that are unaffected by the disaster. Mitigation tools are generally determined at the national level for these larger organizations. It would then behoove the city to partner with local banks and credit unions to coordinate their response effort since these institutions will often need to rely on more innovative steps to ensure that they stay open following a disaster.

The availability of cash will be important in many disasters. The increase in cash demands affects not only banks, but also retail businesses where customers can get cash back. Before an expected disaster such as a flood or severe storm, many businesses will find increases in cash demands as customers try to have more cash on hand so that they can make emergency purchases. Finally, there may be in increase in cash demands throughout the recovery process. Coordination between banks, the retail industry, utilities, and the city are then important to make sure that these demands are met, and that this economic impact of the disaster is limited.

Wal-Mart's disaster management strategy is a good example of how effective cooperation can be following a disaster. Wal-Mart has contingency plans established with banks to meet their cash needs following a disaster (Starkley, 2011). Whenever there is a warning, Wal-Mart is able to activate the pre-negotiated strategies with banks for pre- and post- disaster cash needs. This minimizes the need for decision making during the crisis and can make the recovery process more seamless. Wal-Mart has boasted that they are one of the last businesses to close and one of the first to open following a hurricane. Having a similar comprehensive plan would be infeasible for smaller businesses in the city; however, the government can then help to facilitate this coordination between key businesses and the banking sector to make the recovery process easier.

Utilities

Although there was no information on the size of the utility sector at the city level in the 2007 economic census, the availability of utilities including water, garbage, electricity, and communication will be important for business recovery following a disaster. The operation of utilities may also be difficult because if the infrastructure for water, electricity, or communication is damaged during the disaster, it could affect businesses that are not otherwise impacted.

The Mitigation Plan lists the exposure for some of these utilities in its section on critical facilities. This section lists the number of parcels/facilities located on class E soils for the critical facility categories. Facilities on class E soils were isolated because this soil type is the least stable soil in Everett. This means that buildings on top of these soils will be susceptible to increased ground shaking in an earthquake as compared to similarly reinforced buildings in area on more stable soils.

Table 12: Number of Critical Facilities on least Stable Soils by Category

Critical Facility Categories	Number of Parcels/ Facilities on E Soils
Electrical Facilities	6
Natural Gas Facilities	2
Water Facilities	5
Sewage Treatment Facilities	3
Solid Waste Facilities	1

Source: City of Everett 2011 Hazard Mitigation Plan

The city does not have direct control over electricity or communication. In addition, information on lines which run through vulnerable soils is not publically available due to security concerns. The city has noted that the water and sewer lines that run through vulnerable soils are a concern. Several steps have already been taken to ensure the resiliency of water and sewer utilities. There are currently pressure sensors in the pipelines so that they can determine if there is a break in the pipeline. In addition, the city has three to four days' worth of water stored in reservoir reserves that can be tapped into if the main pipelines were to break. There are also specific action items in the 2011 Hazard Mitigation Plan designed to further strengthen the water supply infrastructure.

Potential Risks

A meeting held with Seattle business groups by Cascadia Regional Earthquake Workgroup (CREW) identified eight potential problems that businesses might face in the event of a disaster (Salvagio and Freitag, 2005). They included:

- Personal concerns about families and life safety
- Loss of power
- Loss of surface transportation
- Questions of the ability of business to communicate with customers
- Physical loss and damages
- Questions of the capacity of hospitals
- Losses resulting from limited Just-in-Time inventories
- Potential for permanent loss of businesses due to damaged infrastructure

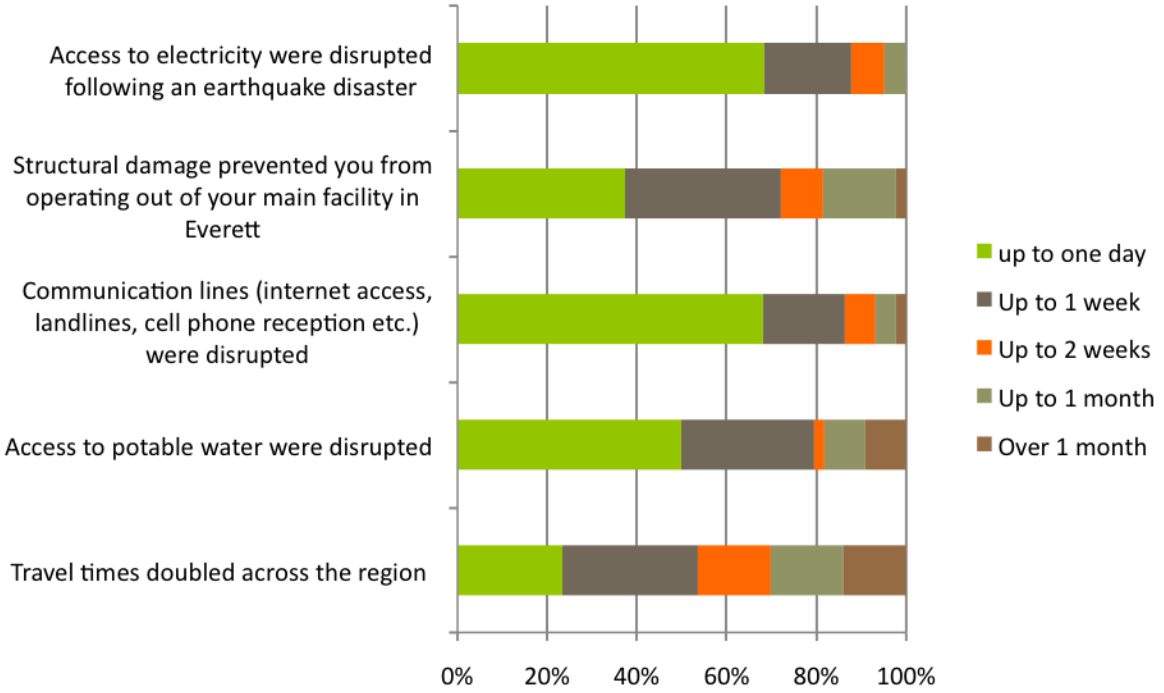
This list does not include all of the risks to business and does not necessarily list them in an appropriate order based on economic impact specifically to the City of Everett. Isolation and loss of power and other utilities may be the most important, and certainly the most obvious, risks that need to be addressed with businesses specifically in mind.

Risks Identified By Everett Businesses

A survey was sent to the businesses of Everett to determine what mitigation step they had already taken and identify what they believed to be their key risks. Of the forty-five businesses that responded, most had taken some disaster mitigation steps. The most common mitigation steps taken were to store critical data offsite, to provide first aid training for employees or store first aid supplies, and to purchase business disruption insurance. The least common mitigation steps taken were to have a professional assess the earthquake safety of the building, to invest in structural or non-structural retrofits of their building, and to develop a workforce housing or transportation plan. Although not the least common preparedness action, most businesses did not have a specific business recovery plan.

When asked to identify their biggest threat to businesses following a disaster, many of these businesses identified disruption of power, disruption of transportation services, disruption of communication services, and loss of clients as their biggest threat following a disaster. The amount of time that businesses could tolerate disruption of utilities seemed to vary greatly. Most businesses stated that their most immediate need after a disaster would be access to electricity and communication. Extended travel times could be tolerated for the longest amount of time. A copy of the survey questions is located in Appendix E.

Figure 2: Amount of time service could be disrupted before business suffered a severe loss



The city only has direct control over the availability of potable water, and to a lesser extent, travel times. In the main mitigation plan many actions items have been specifically crafted to address the issue of hardening the water supply system or increasing the likelihood that it will remain functional after a hazard event. Action items have also been created as an attempt to harden transportation corridors. Due to some of the peculiarities of the city, which will be discussed in the next section, additional attention will be given to transportation with Everett businesses specifically in mind. The fact that many of the biggest concerns for businesses are not things that the city has direct control over will shape the type of actions that the city will take in mitigating economic disaster. The city will try to make businesses a partner in the mitigation and recovery effort. It will work to increase communication, and collaboration with the private sector. It will also support businesses with their private mitigation endeavors.

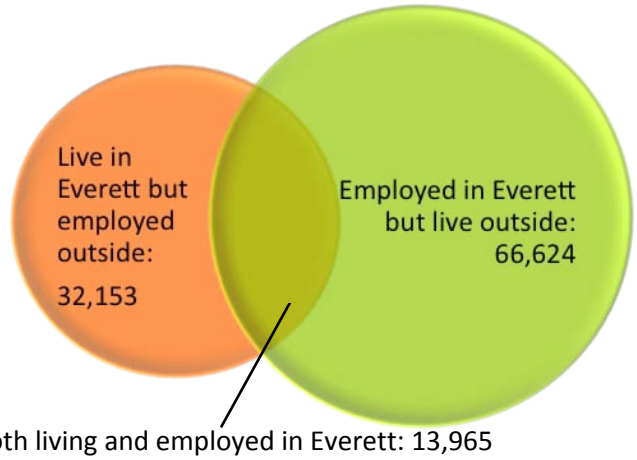
Isolation

To better understand potential issues of isolation in Everett, it is important to understand the travel patterns of Everett workers and residents. A picture of the Everett transportation patterns was generated by using information from OnTheMap through the US census.[3]

Over 80% of the people who work in the City of Everett live outside the city. About two thirds of the city's residents work outside of the city. This would suggest that personal concerns about things such as child care, food and shelter are intimately tied to concerns about surface transportation.

3 OnTheMap uses unemployment insurance records to determine the home and work location of the Everett population. Workers who do not pay unemployment insurance are not included in the sample. This would include self-employed workers, federal workers and military personnel.

Figure 3: Most People Do Not Live Where They Work

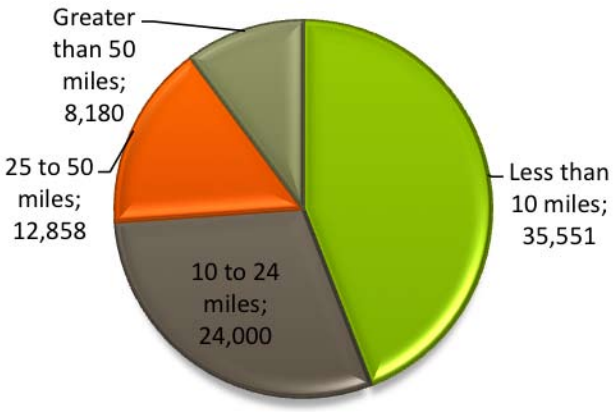


Source: On the map, Longitudinal Employer-Household dynamics

Analysis of Everett Workers

Only about 17% of the people who work in Everett live in the city. All other workers come from a variety of locations, with less than 3% of workers coming from most cities. The only exceptions are Seattle, where roughly 6.6% of workers live, Seattle Hill-Silver Firs CDP with 4.5% and Marysville with 4.4%. Although workers do come from a variety of towns, many of the non-resident workers live in cities located to the south of Everett. (A Figure depicting the top 10 cities where workers live is included in Appendix A). Most workers do not travel very far to get to work in the city. Less than 10% of city workers travel more than fifty miles in order to get to work.

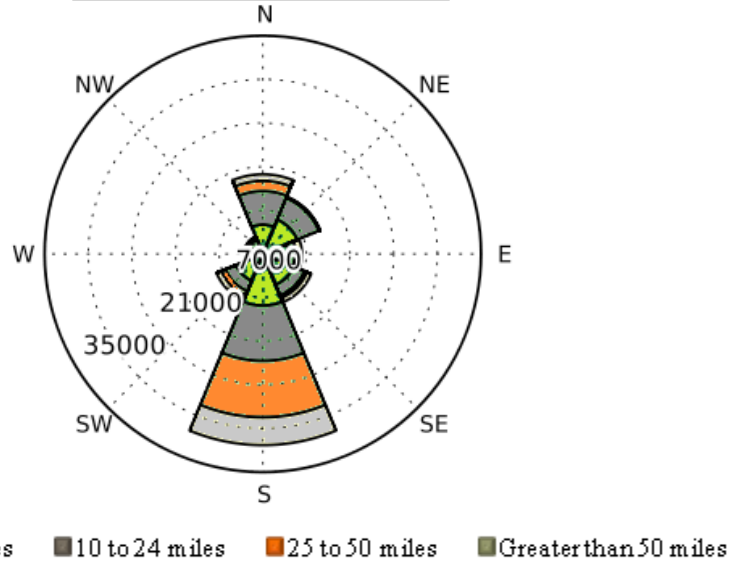
Figure 4: Travel distances are relatively short for people who work in Everett



Source: On the map, Longitudinal Employer-Household dynamics

Analysis on the direction of travel demonstrates that a vast majority of workers live to the south of Everett. Figure 5 shows the direction of travel and the number of workers coming from each direction. The center of the Figure represents the location of the job and the direction demonstrates where their home is located relative to their job.

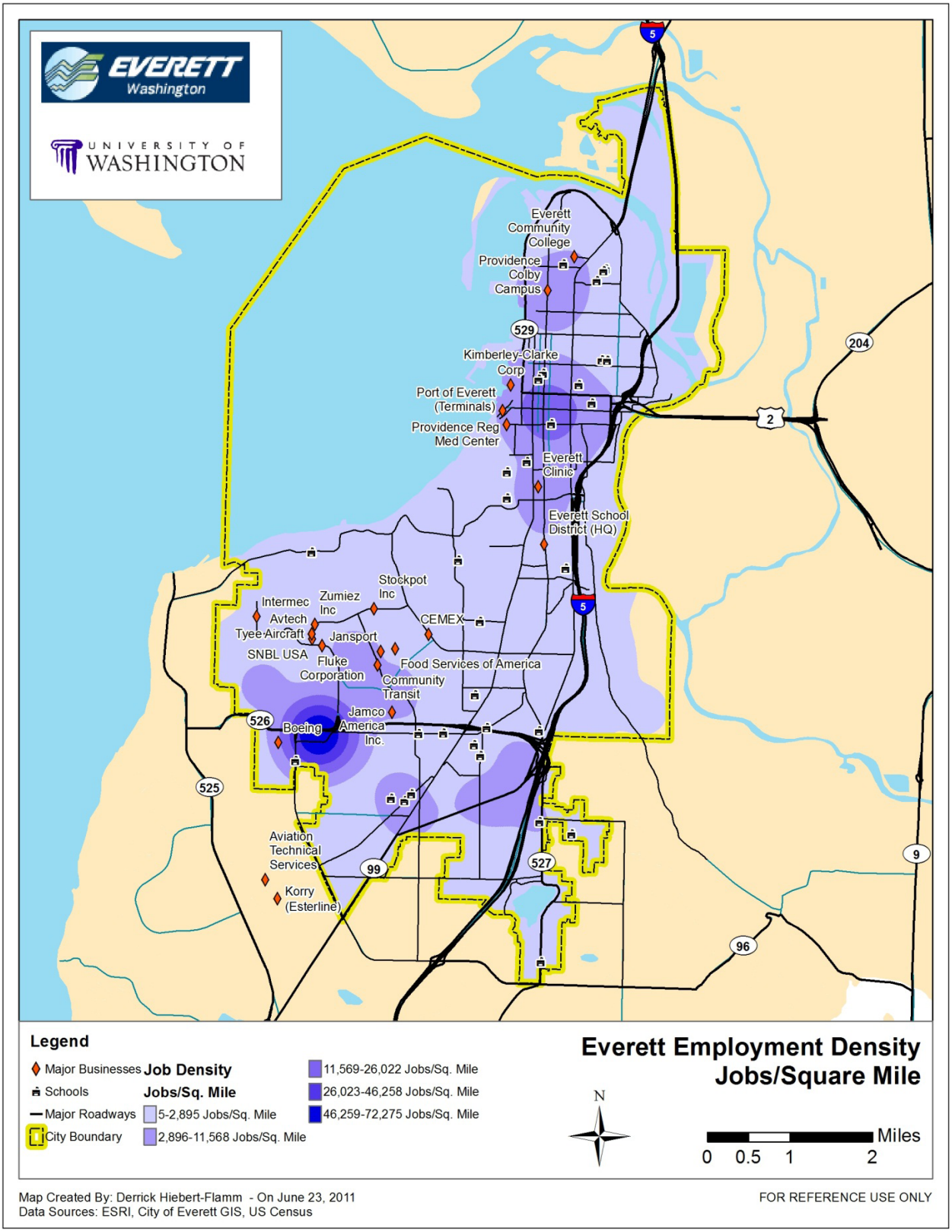
Figure 5: Spatial representation of the relative location of home block to work block for people who work in Everett



Source: On the map, Longitudinal Employer-Household dynamics

The map shows job density for Everett based on data collected by OnTheMap as well as the location of public schools and businesses with over a hundred employees as identified by the Economic Development office. It is important to emphasize that this does not include people who are self-employed, military personnel or federal employees.

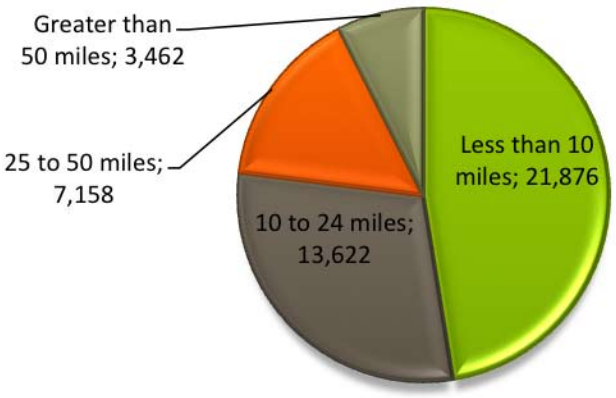
FIGURE 6: JOB DENSITY AND MAJOR BUSINESSES IN THE CITY OF EVERETT



Analysis of Everett Residents

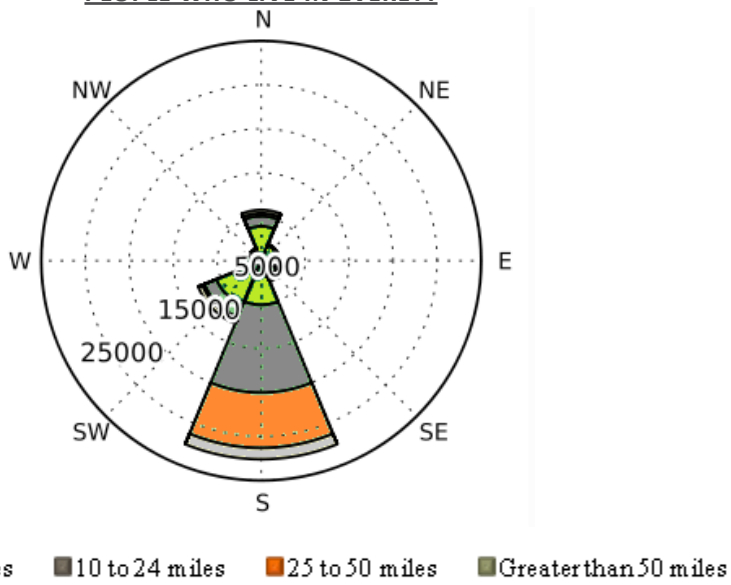
Only one third of city residents also work in the city. Most residents have a fairly short commute, with over three quarters of residents traveling less than twenty-five miles to get to work. Traffic patterns for people who live in Everett are the opposite of the traffic patterns for people who work in Everett. Most Everett residents live to the north of their jobs. Residents who work outside of the city work in a variety of locations, with less than 3% of the population working in most cities. The only exceptions are Seattle, where 14.9% of Everett citizens work, Bellevue with 4% and Lynnwood with 3.8%. (A Figure depicting the top 10 cities where residents work is included in Appendix B). Figure 8 shows the relative location of residents' jobs to their homes. Again, the center of the figure is Everett.

Figure 7: Travel distances are relatively short for people who live in Everett



Source: On the map, Longitudinal Employer-Household dynamics

Figure 8: Spatial representation of the relative location of work block to home block for people who live in Everett



Source: On the map, Longitudinal Employer-Household dynamics

This would mean that the ability for Everett to function after a disaster depends not only on its own mitigation efforts but also the mitigation efforts of neighboring cities. This is concerning because the

two major crustal faults, the South Whidbey Island fault and the Seattle fault, are located to the south of Everett, so cities to the south of Everett may have more damage. The actual economic impact also depends on which sectors the non-resident workers are employed. If a large portion of these employees are working in basic sectors, then the Everett economy could suffer greatly in disaster even if the city is not severely impacted. It is then critically important to ensure that transportation routes serving the city, especially to the south, are viable after a disaster, since this is where many employees live and where most residents work.

Communication

Communication is vital to any business' recovery effort. After a disaster, businesses will need to coordinate with employees to determine how the business will operate after the disaster. For some businesses communication is more crucial than others. For example, in the trucking business, many routes are assigned to trucks at the last minute as requests come in so that companies can more efficiently allocate trucks to routes. During an earthquake, a trucking company lost the communication capabilities in their hub for eight hours, and this caused them to lose millions of dollars in revenue because, although the trucks were not damaged, they could not be assigned new routes.

For other businesses, communication might not seem obviously critical, but will be vital for the recovery effort. Some businesses rely on phone trees to relay information after a disaster. However, cell phones and land lines may not be operational after a major disaster. Communication lines may also be important for businesses that are not in regular contact with suppliers and consumers. As seen in Japan, ATM machines are sometime subject to the same overload problems as other communication technology. In addition, the physical infrastructure used to verify credit card information sometimes uses the same lines as other communication technology. If a large disaster were to damage the communication lines, it is then possible that it would reduce businesses' capability to make transactions.

Communication outside of the corporation is also important. Although the city does not have direct control over communication services, coordination of the government and private organizations will be important. Businesses need to be able to tell local officials what their needs are for recovery. Businesses also need to communicate if they are open. If a local grocery store was damaged during a disaster, it would be beneficial if they had a way of informing their customers so that they would not venture out on potentially dangerous roads unnecessarily.

"Telecommunication Infrastructure in Disaster" identified three primary reasons for telecommunications failure following a disaster (Townsend and Moss, 2005).

They include:

- Physical destruction of network infrastructure
- Disruption in supporting infrastructure
- Disruption due to congestion

Damage to telephone lines, interconnection facilities and cell phone towers can all cause a loss of telecommunication services. The increased variety of service providers can be a mixed blessing. Although it is now easier to diversify one's telecommunication capabilities, and to make sure that a business has many ways of contacting key people, it also means that more collaboration may be required after a disaster. It may be important for the government to work with the various telecommunication providers to identify vulnerable areas that multiple media rely on and then determine

how these locations can be strengthened. Transportation infrastructure will be vital in allowing repair personnel access damaged areas.

Communication technology can also be disrupted because of a disruption in supporting infrastructure. Telecommunications, like any other industry, will rely on electricity to continue to function. If there is a loss of power then these telecommunications might also be unable to provide services to their clients. Even if critical nodes have backup generators, they will rely on transportation to transport additional fuel to these sites if the loss of power lasts longer than anticipated. Communication choices that businesses make may determine whether they have access to critical telecommunication technology during small disasters where communication systems are otherwise operational. For example, wireless landline phones will not operate if a business loses electricity, but a wired landline will. Having a wired phone in the business would then make it easier to relay information to people on the phone tree than if only a wireless landline phone were available during a power outage. It then becomes important to not only know that communication capabilities are needed, but also to determine how one will be able to communicate based on the magnitude of the disaster.

When determining the best course of action for businesses to take, it is important to remember that disruption of services can also occur because of congestion, and that determining the best response might be based on common congestion patterns. Following a disaster there will be undoubtedly an increase in the demand on communication systems. Bottlenecks can cause a loss of telecommunication capabilities even if all systems are otherwise functional. Businesses should use the same strategies as are encouraged for families. Following a disaster it is usually easiest for people to make calls outside of the disaster region than it is to contact another person within the disaster region. Since many people who work in Everett live to the south of the city, it is likely that many will be living in the disaster region and not be able to make internal calls to the phone tree. It might be better for business to have a website or access to an out of state number that employees could call to get critical information. It is also important that the business is able to update information presented through the outside line in a variety of ways, such as by phone, through the internet, or through text messaging. Businesses should also discuss with communication providers likely communication problems that will occur in all disaster magnitudes, and try to determine ways that they can continue critical operations during the recovery process.

Action Items

Having identified some of the key risks to Everett, the next step is to create strategies and actionable steps that the city can take in order to reduce these risks. The city of Everett cannot directly address many of the needs identified by businesses. Many cities facing similar hazards have found success in being a catalyst for private mitigation measures. Everett would be able to have similar, if not greater success if it worked to coordinate its mitigation actions with businesses before a disaster, provideing mitigation assistance to businesses and setting up a support system to help businesses adapt after a disaster.

Strategies were narrowed by looking at the best practices and bottlenecks identified by the companies during previous disasters. These include, but are not limited to, concerns identified in the Nisqually Earthquake, the Northridge Earthquake, the Tōhoku earthquake, the aftermath of Katrina, and the 9/11 attack, as well as a variety of smaller storms and flooding events throughout the United States. These were then further refined by comparing them to and synthesizing innovative strategies from plans with an economic mitigation focus from a variety of cities, as well as information provided by the International Economic Development Council and other non-profit economic development think tanks. Strategies were then refined based on input from city officials and experts in the field, and on concerns raised by businesses attending the Business Resiliency Summit. Action Items that were suggested, but not included in this plan, are located in Appendix C.

Through this process, seven key action items were chosen based on their ability to address these concerns and appropriateness for mitigation, rather than for a recovery plan and ease of execution.[4]

They include:

- Include "providing support to business" as an element within the relevant Everett departments' Continuity Of Operations Plans (COOP).
- Establish a private sector response and recovery center (PSRRC) after a disaster declaration.
- Increase the City's building inspection capabilities following a disaster.
- Partner with businesses and neighboring governments to coordinate transportation planning for disasters.
- Build on current disaster awareness education programs for local businesses.
- Expand the responsibility of the Business Improvement Service Area to include mitigation, preparedness, response, and recovery.

4 Other action items created presented at the Business Resiliency Summit but not included in the final plan are included in Appendix A.

Everett Business Action Items

The following action items were developed with business specifically in mind, to ensure that they remain viable following a disaster.

Action Item 1: Include "providing support to business" as an element within the relevant Everett Departments Continuity of Operations Plans (COOP)

Everett businesses, although not necessarily critical for immediate event life safety, are vital to Everett's recovery. The business community, like residents, can both benefit from support from the city and can support government actions during an event. It is important to have the government departments that deal with businesses be ready to provide this support following a disaster. City departments should then think more broadly about who is relevant following a disaster, should have a Continuity of Operations Plan (COOP) and identify what duties they should expect to continue after a disaster. In support of this action item, Everett will undertake the following:

1. Create the Everett Disaster Council and create a Business sub-committee. This committee could help to define and lead many of the projects discussed under the following action items, including:
    a. Add to the COOP plans
    b. Create a Private Sector Response and Recovery Center (PSRRC)
    c. Develop a Business Economic Network (BEN)
2. Provide opportunities for the Business Community to have a presence in the City Emergency Operations Center
3. Have all city offices re-evaluate their need to have a COOP plan based on their importance to the city's economy and/or ability to disseminate information to businesses. Critical offices can be identified through:
    a. Recommendations of businesses
    b. Participation in PSRRC
    c. Self-identification
4. Add to items covered under the Continuity of Operations Plans. Through COOP, all Departments are expected to be operational following a disaster. In addition, COOPs for those specific Departments identified as being able to offer support to businesses will:
    a. Make full use of alternative communication opportunities including but not limited to social media vehicles to establish a Private Sector Response and Recovery center (PSRRC) – defined in the following section
    b. Include businesses in department exercises to test PSRRC operations
    c. Configure the PSRRC to be operational from remote locations
    d. Use the PSRRC not just for response, but also to promote structural and non-structural mitigation and recovery

Assessment

This action item will be considered completed when all departments that have been identified as critical offices have developed and exercised their COOP elements that support businesses.

Action Item 2: Establish a Private Sector Response and Recovery Center (PSRRC) after a disaster declaration.

Getting accurate information quickly following a disaster is vital to the recovery of businesses following an event. Many cities have established business recovery centers[5] following a disaster and have collaborated with businesses to:

- Inform the economic community of the current post-disaster situation and response steps being pursued
- Allow the government and businesses to communicate their needs to each other
- Collaborate with business on decisions that affect economic response and recovery

These business centers help to make the recovery process more efficient. It reduces the burden on the main emergency response team because they will not have to process the businesses concerns individually. It also ensures that businesses do not feel neglected because there is a dedicated location for them to obtain information that is tailored to their needs beyond basic life safety concerns. The Private Sector Response and Recovery Center (PSRRC) would support information gathering, dissemination, and decision making in many ways including, but not limited to:

- Collaborating with FEMA in support of the use of local contractors
- Supporting businesses that have become official and de facto shelters and gathering places to help citizens following a disaster
- Working with these businesses to determine how they can reduce the financial burden of becoming a gathering place
- Working with the Providence Regional Medical Center to ensure their economic viability during and following a disaster
- Enabling critical businesses to have access to utilities following a disaster
- Promoting structural and non-structural mitigation opportunities

Specific steps needed to establish a PSRRC would include:

1. Identification of a department responsible for operating the PSRRC (see Action Item one)
2. Creation of a means to achieve two way communications between the PSRRC and the Emergency operation center as well as between the PSRRC and businesses after a disaster
3. Inclusion of business in the development of PSRRC so that the city can ensure that it meets businesses' needs. Through this collaboration the city should:
    a. Determine a process whereby priorities can be determined that reduce the potential bottlenecks and competing interests for post-disaster resources and funding
    b. Provide businesses with information on what the government plans to do following a disaster so that they can coordinate their mitigation efforts
    c. Establish realistic recovery scenarios to help businesses better prepare for and understand the length and potential difficulty of recovery
4. Delegation of roles and responsibilities for different economic functions

5 An example of the steps for establishing a business recovery center is included in Appendix D of this document.

5. Creation of an Internet-based Business Economic Network (BEN) that will allow the City of Everett to communicate with businesses directly, and provide and receive critical information following a disaster. BEN may involve:
    a. Social media tools
    b. Reliance on offsite servers to the extent possible to ensure post disaster viability
    c. A website that allows the creation and editing of any number of interlinked web pages via a web browser using a simplified markup language or a WYSIWYG text editor similar to a wiki
    d. This webpage should provide businesses with
        i. Hazard recovery information
        ii. A road closure map whose creation and update is coordinated with the state through its business portal
        iii. Supporting partnerships needed by the city
        iv. A business recovery database that clearly defines federal, state, and local business recovery responsibilities and provides information on business assistance grants and loans
    e. The WYSIWYG page should also be connected to the citizen-focused page so the businesses can inform residents about businesses in operation, supplying services and closures of critical businesses
        i. Information about closures of key businesses could also be forwarded to the emergency E-Alert system so that businesses could inform their customers and employees
        ii. This reinforces action item C4 in the Mitigation plan

Assessment

This action item will be considered completed when the city

- Establishes a committee that will oversee the PSRRC
- Determines how the PSRRC will interact with emergency management following a disaster
- Establishes a website that will have critical disaster information available
- Creates a list-serve of businesses that will be sent information through the website during a disaster
- Compiles key recovery information that should be available on the server
- Determines who will be responsible for maintaining the website before, during and following a disaster

Other measures of progress will include:

- The creation of a database of potential business partners
- The establishment of a memorandum of understanding to govern post disaster business contracting

- While creating the website, it is important to discuss the process with representative businesses to ensure that the website meets the needs of local business. The website can also be beta tested during moderate storms and floods to see how useful it might be following a severe disaster

Action Item 3: Increase the City's building inspection capabilities following a disaster.

Much of the City's retail operates out of unreinforced masonry (URM) structures that are uniquely vulnerable to earthquake-generated ground shaking. Many businesses located along the coast operate out of older structures that were not built to survive the poorer coastal soils and are also more vulnerable to ground shaking. These conditions increase the need for the availability of post-disaster building inspection. The Department of Engineering and Public Services should partner with the Office of Emergency Management to take steps to ensure that buildings can be inspected as quickly as possible.

Specific steps included in this action item are:

1. Setting up relationships with other jurisdictions to use their building inspectors in the event of a disaster as permitted by the mutual aid system.
2. Exploring the possibility of permitting owners of private buildings to hire qualified architects, engineers, and other licensed construction professionals to create building-specific, post-disaster inspection plans.
3. Creating a special process whereby the Building Official and the City Engineer could deputize qualified inspectors in the event of an earthquake or other disaster.
4. Setting up relationships/ contracts with local engineering consultants to assist with timely post-disaster building assessment and reporting strategies.

Assessment

This would be a continuous process. Initial benchmarks would include the creation of a database of potential inspectors and the establishment of a memorandum of understanding between local cities to offer mutual aid. A secondary benchmark would be for the Building Official and City Engineer to develop a contract and/or procedure for deputation of inspectors. All information generated through the completion of this action item should be made available to businesses through the PSRRC.

Action Item 4: Partner with businesses and neighboring governments to coordinate transportation plans in disasters.

Having transportation operational after a disaster will need to be a priority. Not only is it important for the manufacturing businesses of Everett, who rely on just-in time production, but it also will be critical for obtaining hospital supplies following a disaster and for the city's emergency officials to get to their jobs. Businesses will be better able to make their own contingency plans if they have some idea of what the priority and reliability of the city's transportation system will be following a disaster. The city should then try to preempt some concerns the businesses will have about transportation following a disaster and include businesses in discussions on how transportation routes will be repaired following a disaster.

Specific measures of progress include:

1. Meet with the PSRRC, local/state/federal departments of transportation and representative businesses to discuss the priority routes for debris/snow removal.
    a. Involve business representatives in organizing the priority routes for debris removal in order to keep business needs in mind.
2. Have the PSRRC work with Public Works to encourage businesses to partner with each other to develop a workforce transportation strategy in the event of a hazard. This reinforces action item IT2 in the 2011 Everett Hazard Mitigation Plan.
3. Work with local/state/federal departments of transportation to place priority on having multiple routes to the south of Everett following a disaster.
4. Share information about vulnerabilities and mitigation steps with businesses in Everett so that they can take mitigation steps accordingly.
5. Use the educational meetings discussed in Action Item 5 to remind businesses that they are responsible for their own debris removal.
    a. Have information on how to get debris removed following a disaster available to businesses through the PSRRC and at educational meetings.
6. Coordinate road repair with other cities in the County and Region.
7. Coordination between the Office of Emergency Management and key businesses to ensure that critical employees are able to travel following a disaster.
8. Consider creating a tiered evacuation and re-entry plan for local businesses.
    a. The tiered process would identify businesses that provide critical functions for the city, such as grocery stores, banks etc. that are not a part of emergency management or life safety. The city would implement measures to facilitate the prioritized re-entry of employees in these service areas behind life safety professionals but before the general population.

Assessment

This would be a continuous process. Initial benchmarks would include establishing a procedure for businesses to have input on priority routes or to establish why input is infeasible. Another benchmark would include the creation of a workforce transportation strategy.

Action Item 5: Build on current disaster awareness education programs for local businesses.

The probability of a business surviving a disaster will ultimately depend on actions taken by the business. The city should make it a priority to inform businesses of what steps they can take to increase the probability that they will survive. The PSRRC should then partner with the Office of Emergency Management and the Office of Neighborhoods to create a series of workshops that will inform businesses of how they can best prepare for a disaster.

In support of this action item, Everett can pursue the following steps:

1. Educate business owners about the means of seeking disaster assistance. Through the education program, encourage businesses to prepare as much paperwork as possible ahead of time so that they can be submitted quickly following a disaster. This would include informing businesses about the types of records they will need to have access to after a disaster including those required to obtain a business administration loan.
2. Partner with businesses to provide emergency response training to their key employees.
3. Partner with businesses to provide workshops on how businesses can ensure that workers are personally prepared.
4. Have workshops to discuss the benefits and costs of business interruption insurance with small and midsized businesses.
5. Develop a workshop to encourage businesses to establish and test business continuity plans prior to a disaster.
6. Hold a workshop that will inform businesses of non-structural retrofit actions that mitigate losses following a disaster.
7. Develop public education programs that will compare the costs of mitigation versus various types of disaster insurance (flood, fire, earthquake etc.)
8. Partner with the Port of Everett and owners of brownfields in overcoming the long term economic threat posed by multiple hazards that may more severely impact these areas.
    a. Also provide potential businesses with cost effective ways to mitigate these hazards and other potential places to locate within the city.
9. Identify potential post-disaster land use scenarios and work with businesses to show how they may impact recovery and rebuilding.
10. Explore the adoption of one of the following strategies as incentive to encourage businesses to take mitigation steps.
    a. Waivers or reduction in permit fees
    b. Below-market loans
    c. Local tax breaks
    d. Grants to cover the cost of structural analysis/ retrofit
    e. Land use and procedural incentives
    f. Technical assistance

Assessment

This would be a continuous process. Initial benchmarks would include the creation of a curriculum, or packet of information for the meetings with businesses or the identification of separate organizations that would run the events. This action item will be satisfied if the city can demonstrate that it has put in a reasonable amount of effort to educate the businesses of Everett and demonstrate that it has explored possible incentive strategies and implemented the ones that it considers to be most feasible.

Action Item 6: Expand the responsibility of the Business Improvement Area to include mitigation, preparedness, response and recovery.

The Everett central business district is uniquely vulnerable. URMs could collapse following an earthquake, injuring occupants and those within the shadow of the falling structure. Streets could be impassible, limiting the economic resiliency of surviving businesses. The train tunnel could also collapse, destroying businesses located above the corridor.

The Business Improvement Area organization could provide a forum to address the district's vulnerabilities.

Guidelines for the implementation of this Action Item include:

1. Encourage the Service area to address issues of vulnerability
2. Provide support for the Service Area to develop a neighborhood plan. This can be accomplished by focusing on the vulnerable areas in downtown Everett when implementing specific action items contained within the Everett Hazard Mitigation Plan update. These include:
    a. Establish programs to encourage building owners to perform structural and non-structural retrofits to brace their property against seismic hazards (E3)
    b. Include businesses in the process of creating a database of Everett's unreinforced masonry buildings and pre-seismic building code structures. (BE4)
    c. Support businesses in adopting the same non-structural mitigation measures that will be implemented by city facilities upon the completion of action item BE5.

Assessment

This item would be complete when the BIA has developed a disaster risk reduction strategy.

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Business Recovery Managers Association: http://www.brma.com/

DisasterRecover.org: http://www.disasterrecovery.org/index.html

Economic Development Administration: http://restoreyoureconomy.org/?page_id=73

Federal Emergency Management Agency: http://www.fema.gov/privatesector/tips.shtm ; http://www.fema.gov/plan/prevent/howto/index.shtm ; http://www.ready.gov/business/plan/planning.html

IM Diversity: http://www.imdiversity.com/Villages/Channels/healthcare/Articles/overview.asp

International Economic Development Council: http://www.iedconline.org/ ; http://restoreyoureconomy.org/

Small Business Administration: http://archive.sba.gov/training/index.html ; http://archive.sba.gov/idc/groups/public/documents/sba_homepage/sba_h1n1.pdf

United States Census: http://lehd.did.census.gov/cgi-bin/broker?_SERVICE=industry_focus&_PROGRAM=pgm.top_report.sas&_table=no&_skin=0&_from=pgm.top_report.sas&_top=20&_rankings=1+&_1=ON&_4=ON&_2=ON&_5=ON&_entity=county&_state=wa&_geog=061+&_ind2=off&_ind3=000&_level=naics3&_agegroup=A00+&_sex=0+&_pgmrun=View+Report ; http://www.bls.gov/oes/#tables

Washington State Economic Recovery Forecast Council: http://www.erfc.wa.gov/

Washington State Emergency Management Division: http://www.emd.wa.gov/preparedness/business/prep_business_plan.shtml

Workforce Explorer: http://www.workforceexplorer.com/

Cover photo

Everett, Washington, Hewitt Avenue looking West. Postcard ca. 1900, courtesy Everett Public Library.

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Economic Mitigation Plan Appendices

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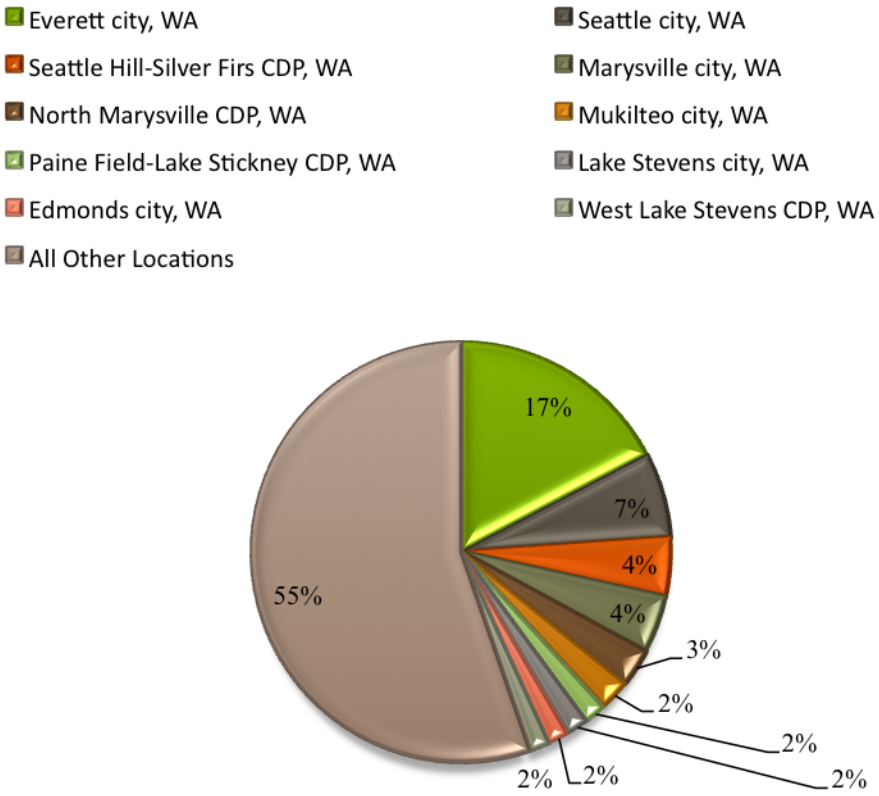
Appendix A: Top 10 Cities Where Workers Live



Source: On the map, Longitudinal Employer-Household dynamics

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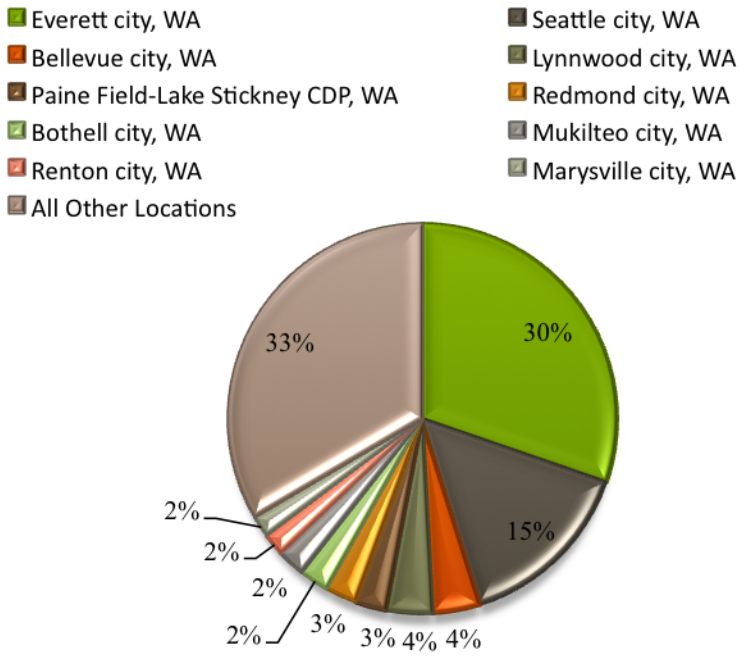
Appendix B: Top 10 Cities Where Residents Work



Source: On the map, Longitudinal Employer-Household dynamics

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Appendix C: Additional Action Items

Action Items not included that deserve further consideration

1. Explore and develop a repair and reconstruction ordinance to ensure that damaged buildings are repaired and/or retrofitted where appropriate.
2. Develop a rainy day fund for immediate post-disaster grants and loans to local businesses.
3. Help businesses to establish a temporary workforce housing plan.
    a. Encourage businesses to create their own workforce housing plans.
    b. Partner with local real estate agencies to identify potential temporary housing locations for employees after a disaster.
    c. Explore the possibility of establishing subsidized rental locations that people could rent after a disaster.
4. Establish a disaster mitigation incentive program for local businesses, working with insurance companies to consider rate breaks in return for mitigation actions.
5. Coordinate with the hospital to get critical information collected from victims after a disaster in the field when possible.
6. The city should help facilitate the creation of co-ops between similar businesses in Everett and in the surrounding area. These co-ops would be designed to help businesses rebuild and provide alternate work locations in the event of a hazard.
    a. Encourage businesses to partner with other businesses within and outside of Everett following a disaster.
    b. Encourage existing businesses associations to fill this role when possible.
7. Explore partnering with a business incubator to encourage new job development in Everett.
8. The city should give special attention to schools and daycare centers when developing their recovery plan.
    a. Work with local school districts to create a coordinated recovery plan.
    b. Include daycares with schools as critical infrastructure for Everett.
    c. Specifically target all critical workers in schools and daycare centers to have emergency response training and to take mitigation steps at home.
9. Perform analysis of current data lines and communication technology in Everett.
    a. Determine potential locations of vulnerability.
    b. Work with private organizations to harden these locations.

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Appendix D: Example Of a Business Recovery Center

These are the guidelines for establishing a Business Recovery Center listed on the website RestoreYourEconomy.org. http://restoreyoureconomy.org/?page_id=93

Financing and Technical Assistance for Businesses

According to the Institute for Business & Home Safety (IBHS), at least one in four businesses will not re-open after a catastrophic event. Particularly vulnerable are small businesses, because of a host of issues which may include:

- Lack of capital and access to financial assistance
- Limited workforce options
- Lack of insurance or being under-insured
- Problems with restoring damaged inventory
- Problems with rebuilding property and permitting issues
- Problems with finding alternative, temporary workspace
- Limited resources/capacity to withstand a few weeks of business disruption
- Diminished customer base
- Limited access to business/technical assistance resources
- Limited or no utility access (water, sewage, telecommunications, etc.)
- Lack of knowledge for re-tooling a business in a post-disaster environment

These business closures have devastating impacts on the local economy and the community's recovery, due to reduced employment and tax revenues as well as diminished business services. A business recovery center can play a crucial role in getting local companies the assistance needed to re-open and/or stay open.

What is a business recovery center?

A business recovery center is a one-stop shop set up to provide local, state, and federal resources and services for businesses after a catastrophic event. Because their services are tailored to address business needs, they typically are established separately from FEMA disaster recovery centers to avoid confusion with individuals needing social services.

A local economic development organization (EDO) often takes responsibility for establishing the center, in cooperation with local, state, and federal partners, so that representation includes the local small business development center (SBDC) and SBA representation. Other representation may include local bank officers, specialized technical assistance counselors, SCORE, chamber of commerce, workforce development entities, and other local organizations that provide financial or technical assistance to small businesses. Ideally, a community will have conducted some pre-disaster preparation activities and talked about the process and lead agency for establishing a business recovery center.

Action Steps

The following steps are helpful to consider when establishing a business recovery center:

Step 1: Establish a business recovery center (BRC) as quickly as possible. Most disaster-impacted communities have found it very effective to have the BRC up and running within one to two weeks after a disaster.

Step 2: Select an appropriate location for the business recovery center. Communities typically establish them in the most impacted area to provide close access to affected businesses. Examples include conference space of a local business, a vacant retail space in a mall, a FEMA trailer, etc.

Step 3: Reach out to local, regional and federal partners so the center has representation from a multitude of private, non-profit, and government service providers. Counselors should be prepared to educate businesses on the various financial and technical assistance services available (bridge/gap financing, SBA low-interest loans, etc.), as well as to provide guidance in the application process for federal loans.

Step 4: Develop a marketing and promotion campaign to advertise the center's location and services. Communication with businesses will be a major issue if telecommunication lines are down. Consider alternative promotion methods, such as canvassing flyers directly to impacted businesses; using the local media, particularly radio advertising; advertising on billboards with a hotline number; etc.

Coordinate the various EDOs within the affected area to advertise to their own networks of businesses. For example, chambers of commerce are likely to have the largest network of small businesses. One community in Florida worked with a technology company to provide a mobile alert system to communicate with businesses through text messaging (text messaging gets prioritized in a major disaster/incident). Make sure the local government is advertising the BRC on its website for emergency information as well as posters/flyers at city hall and the disaster recovery center.

Step 5: Establish a hotline number that business owners can call to get information about the center and its services. Make sure to advertise the hotline number such as on a centrally located billboard and in all promotional efforts.

Step 6: Provide business recovery materials and loan/grant applications in relevant languages to assist major demographic groups in your community. In a Florida community, the BRC provided documents in Spanish and French to reach the community's large Latino and Haitian populations.

Step 7: Disseminate an outreach survey at the BRC for local business owners to complete to gather intelligence on what programs or information they need in the long term. Page 33 of Polk County's Disaster Recovery Plan has an example of an outreach survey.

Step 8: Consider holding workshops at the BRC on specific or common issues. One community brought in a panel of speakers that included IRS representation, which provided critical information to help with business recovery.

Step 9: Consider brief training or providing mental health services to the counselors providing services at the BRC. The counselors should be prepared to listen to many business owners share tearful stories of how their lives have been impacted, and might be overwhelmed.

Step 10: Be prepared to keep the BRC open anywhere from a few months up to a year (for unprecedented disasters like Hurricane Katrina). Consider applying for Department of Labor's National Emergency Grant (NEG) to fund temporary workers at the BRC.

Other Resources

Ready Business was created to educate and empower individuals, small businesses and interested parties to prepare for and respond to emergencies.

Small Business Development Centers (SBDCs) assist small business owners by offering technical assistance to individuals and small businesses both before and after a disaster.

Business Disaster Planning Guidebook is a comprehensive disaster planning resource that provides specific technical assistance on business preparedness and continuity planning, hazards analysis and response, recovery and mitigation, and other resources.

DisasterRecovery.org is an independent organization dedicated to providing guidance and information about disaster recovery and business continuity planning. Resources available through their website include: plan templates, case studies, and online live support.

Agility Recovery Solutions provides business continuity and recovery strategies, consulting services and testing options to businesses across the United States and Canada.

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Appendix E: Economic Mitigation Survey

Thank you for filling out the Economic Mitigation survey. Your answers will help us to better understand the needs of Everett business following a disaster.

In which neighborhood is your business located?

Please select the industry of your business

(Please select the primary industry)

Approximately how many full-time employees do you have?

(Please list your full-time and part-time employees separately)

Approximately how many part-time employees do you have?

(Please list your full-time and part-time employees separately)

Please check the category that best describes your geographic market.

- ☐ The city of Everett
- ☐ The central Puget Sound region
- ☐ The Pacific Northwest
- ☐ The US as a whole
- ☐ The global marketplace
- ☐ Other:

Please check the category that best describes the location of your suppliers.

- ☐ The city of Everett
- ☐ The central Puget Sound region
- ☐ The Pacific Northwest
- ☐ The US as a whole
- ☐ The global marketplace

- [x] Other:

Which of the following preparedness actions have you taken?

- [ ] Purchased earthquake insurance
- [ ] Purchased flood insurance
- [ ] Purchased business disruption insurance
- [ ] Had a professional assess the earthquake safety of your building
- [ ] Invested in an earthquake retrofit for your building
- [ ] Invested in non-structural retrofits (ex. bracing shelves, equipment or heavy objects)
- [ ] Built redundancy into business (ex backup machines, backup generator etc)
- [ ] Stored critical data offsite
- [ ] Developed a business emergency plan
- [ ] Developed a business recovery plan
- [ ] Conducted drills
- [ ] Trained employees in emergency response
- [ ] Provided first aid training for employees or stored first aid supplies
- [ ] Developed a workforce housing plan in case workers become stranded
- [ ] Developed a workforce transportation strategy
- [ ] Other:

Suppose travel times doubled across the region following an earthquake disaster. How long could this be tolerated before the business suffered severe revenue loss?

- [ ] Up to 1 day
- [ ] Up to 1 week
- [ ] Up to 2 weeks
- [ ] Up to 1 month
- [ ] We would not suffer severe revenue loss even if this situation persisted for over a month

Suppose access to electricity were disrupted following an earthquake disaster. How long could this be tolerated before the business suffered severe revenue loss?

- [ ] Up to 1 day
- [ ] Up to 1 week
- [ ] Up to 2 weeks
- [ ] Up to 1 month
- [ ] We would not suffer severe revenue loss even if this situation persisted for over a month

Suppose that access to potable water were disrupted following a disaster. How long could this be tolerated before the business suffered severe revenue loss?

- ☐ Up to 1 day
- ☐ Up to 1 week
- ☐ Up to 2 weeks
- ☐ Up to 1 month
- ☐ We would not suffer severe revenue loss even if this situation persisted for over a month

Suppose that communication lines (internet access, landlines, cell phone reception etc.) were disrupted following a disaster. How long could this be tolerated before the business suffered severe revenue loss?

- ☐ Up to 1 day
- ☐ Up to 1 week
- ☐ Up to 2 weeks
- ☐ Up to 1 month
- ☐ We would not suffer severe revenue loss even if this situation persisted for over a month

Suppose that structural damage prevented you from operating out of your main facility in Everett. How long could this be tolerated before the business suffered severe revenue loss?

- ☐ Up to 1 day
- ☐ Up to 1 week
- ☐ Up to 2 weeks
- ☐ Up to 1 month
- ☐ We would not suffer severe revenue loss even if this situation persisted for over a month

What percentage of your workforce would be able to telecommute in the event of a disaster without resulting in severe revenue loss? ☐

What do you believe is the biggest threat to your business following a disaster?

☐

Do you have any further questions or comments?

☐

If you would like to receive information about the plan's progress, please leave your email address below.

☐