CITY COUNCIL PUBLIC FORUM

Wednesday, April 17, 2019

265 Strand Street, St. Helens, OR 97051

www.ci.st-helens.or.us

Welcome!

All persons planning to address the Council, please sign-in at the back of the room. When invited to provide comment regarding items not on tonight's agenda, please raise your hand to be recognized, walk to the podium in the front of the room to the right, and state your name only. You are not required to give your address when speaking to the City Council. If you wish to address a specific item on the agenda, you should make your request known to the Mayor as soon as possible before the item comes up. The Council has the authority to grant or deny your request. Agenda times and order of items are estimated and are subject to change without notice.

1. **6:30 P.M. - Open Public Forum**

2. **Topic - St. Helens Hazard Mitigation Plan**

   2.A. Hazard Mitigation Plan
   2019 Columbia County MHMP City of St. Helens DRAFT.pdf

3. **Close Public Forum**

The St. Helens City Council Chambers are handicapped accessible. If you wish to participate or attend the meeting and need special accommodation, please contact City Hall at 503-397-6272 in advance of the meeting.

Be a part of the vision...get involved with your City...volunteer for a City of St. Helens Board or Commission!
For more information or for an application, stop by City Hall or call 503-366-8217.

City of St. Helens
Hazard Mitigation Plan
Annex

2019 Update
Columbia County
Multi-Jurisdiction Hazard Mitigation Plan

Contents

Introduction

This Annex contains specific City of St. Helens information to support the Columbia County 2019 Multi-Jurisdictional Hazard Mitigation Plan. This section further supports the County's planning process by summarizing the review and incorporation of existing plans, studies, and reports used to develop this MHMP. This annex is an addition to Columbia County's Hazard Mitigation Plan and shares attributes of that plan.

Planning Process and Capability Assessment

The following section includes a detailed capability assessment that describes the resources available to support this plan. The goal of this assessment is not to identify all capabilities the organization may have, but only those that are currently used or could be used to support mitigation efforts. Capabilities are arranged in tables by type and fall under the explicit authority of the jurisdiction/district.

DMA 2000 Requirements: Planning Process	
Planning Requirements	
§201.6(b)	An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
§201.6(b)(1)	(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
§201.6(b)(2)	(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
§201.6(b)(3)	(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
§201.6(c)(1)	[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.
§201.6(c)(4)(i)	[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
§201.6(c)(4)(iii)	[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.
Planning Elements	
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? *44 CFR 201.6(c)(1)*	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? *44 CFR 201.6(b)(2)*	

A3. Does the Plan document how the public was involved in the planning process during the drafting stage? ***44 CFR 201.6(b)(1) and 201.6(c)(1)***

A4. Does the Plan document the review and incorporation of existing plans, studies, reports, and technical information? ***44 CFR 201.6(b)(3)***

A5. Is there discussion on how the communities will continue public participation in the plan maintenance process? ***44 CFR 201.6(c)(4)(iii)***

A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? ***44 CFR 201.6(c)(4)(i)***

Steering Committee Participants

City of St. Helens is dedicated to mitigating potential natural hazards to its population and infrastructure. To fulfill that goal, a Hazard Mitigation Plan Development Steering Committee was seated; dedicated to identifying hazard threats and developing actions to mitigate damage and life losses from those threats.

Table 1 records the Steering Committee's participant list.

Table 1. City of St. Helens Steering Committee

Name	Agency/Department/Affiliation
John Walsh	City Administrator
Michael De Roia	Building Official
Sue Nelson	Engineering Director
Dave Elder	Public Works Supervisor
Shaun Brown	County Emergency Management

Public Participation

As defined by FEMA, Whole Community Planning is; a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests. By doing so, a more effective path to societal security and resilience is built.

This Hazard Mitigation Plan was conducted with opportunities for the public to participate to try and meet the goals of whole community planning. Table 2 highlights these efforts.

Table 2. Public Involvement Mechanisms	
Date	Description
April 3, 2019 – 7:00pm	City Hall – Present MJHMP updating project to council at public meeting
April 10, 2019 – 5:00pm	City Hall – Draft of MJHMP distributed to community via the press, website, social media and email
April 17, 2019 – 6:00 pm	City Hall – Public forum to discuss the MJHMP and obtain public comment.

Capability Assessment

Table 3, 4, and 5 contain the City of St. Helens resources used to support planning activities, including the reports and studies reviewed as part of the update process.

Table 3. City of St. Helens Legal and Regulatory Resources Available for Hazard Mitigation		
Regulatory Tool	Name	Effect on Hazard Mitigation
Plans	City of St. Helens Comprehensive Plan	Provides overall guidance for a community's land use, economic development, and resource management.
	Transportation System Plan	Provides overall guidance for the community's transportation system development and resource management.
	City of St. Helens Emergency Operations Plan 6/19/08	Provides overall guidance for emergency management responsibilities and authority.
	Strom Water Master plan	Provides overall guidance for the community's storm water system and future developments
	Parks and Trails Master Plan	Provides overall guidance for the community's parks and trails system.
	Water Master Plan	Provides overall guidance for the community's water use and future development requirements.
	Wastewater Master Plan	Provides overall guidance for the community's wastewater use and future development requirements.
	Water Management and Conservation Plan	Provides overall guidance for the community's water use and conservation efforts.
Programs	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods.

Table 3. City of St. Helens Legal and Regulatory Resources Available for Hazard Mitigation		
Regulatory Tool	Name	Effect on Hazard Mitigation
Policies (Municipal Codes)	City Charter	To provide for the government of the City of St. Helens and to repeal all charter provisions of the city enacted prior to the time that this charter takes effect except as hereinafter specifically retained.
	Title 17 Community Development Regulations	As a means of promoting the general health, safety, and welfare of the public, this code is designed to set forth the standards and procedures governing the development and use of land in the city of St. Helens and to implement the St. Helens comprehensive plan.
	St. Helens Municipal Code	The St. Helens Municipal Code is hereby adopted as the official city code of the city of St. Helens. The code shall be cited as the "St. Helens Municipal Code." It consists of the ordinances of the city that have ongoing effect and which have not expired according to their terms.
	Engineering Standards Manual	The purpose of this title is to set standards for the construction of public improvements to serve new and future developments and for the reconstruction of existing facilities to upgrade existing infrastructure.

Table 4. City of St. Helens Administrative and Technical Resources for Hazard Mitigation	
Staff/Personnel Resources	**Department/Division Position**
Planner(s) or engineer(s) with knowledge of land development and land management practices	City Engineer: Sue Nelson City Planner: Jacob Graichen
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Building Official: Michael De Roia
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	City Engineer: Sue Nelson
Floodplain manager	City Planner: Jacob Graichen
Personnel skilled in GIS and/or HAZUS-MH	City Planner: Jacob Graichen
Director of Emergency Services	Police Chief: Brian Greenway
Finance (grant writers, purchasing)	Finance Director: Matt Brown Grant Writer: Jenny Dimsho
Public Information Officers	Police Department: Melinda Duran Communication Officer: Crystal Farnsworth

Table 5. City of St. Helens Financial Resources for Hazard Mitigation	
Financial Resources	**Effect on Hazard Mitigation**
General funds	yes
Authority to levy taxes for specific purposes	yes, with voter approval
Incur debt through general obligation bonds	yes
Incur debt through special tax and revenue bonds	yes
Incur debt through private activity bonds	Unknown
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which is available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only.
Flood Mitigation Assistance (FMA) grant program	FEMA funding which is available on an annual basis. This grant can be used to mitigate repetitively flooded

Table 5. City of St. Helens Financial Resources for Hazard Mitigation	
Financial Resources	Effect on Hazard Mitigation
	structures and infrastructure to protect repetitive flood structures.
United States Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.
Fire Mitigation Fees	Used to finance future fire protection facilities' construction and other fire capital expenditures to protect new development. The City Council or Fire District may charge fire mitigation fees to ensure new development pays their fair share of constructing these improvements.

Hazard Identification and Vulnerability Assessment

DMA 2000 Requirements: Hazard Identification and Risk Assessment	
Planning Requirements	
§201.6(c)(2)(i)	The risk assessment shall include a] description of the type, location and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
§201.6(c)(2)(ii)	The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:
§201.6(c)(2)(ii)(A)	(A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
§201.6(c)(2)(ii)(B)	(B) An estimate of the potential dollar losses to vulnerable structures identified in … this section and a description of the methodology used to prepare the estimate.
§201.6(c)(2)(ii)(C)	(C) Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.
§201.6(c)(2)(iii)	For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.
Planning Elements	
B1. Does the Plan include a description of the type, location, and extent of all-natural hazards that can affect each jurisdiction? 44 CFR 201.6(c)(2)(i) and 44 CFR201.6(c)(2)(iii)	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? 44 CFR 201.6(c)(2)(i)	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? 44 CFR 201.6(c)(2)(ii)	
B4. Does the Plan address NFIP insured structures within each jurisdiction that have been repetitively damaged by floods? 44 CFR 201.6(c)(2)(ii)	

Hazard Identification

The Steering Committee determined that the following hazards could potentially threaten the community. Table 6 establishes the hazard profile against which this plan is designed.

Table 6. Hazard Profile	
Natural Hazards	
Flood	X
Winter Storm	X
Landslide	X
Fire (Wildland/Urban)	X
Earthquake	X
Volcano	X
Wind	X
Erosion	X
ENSO (El Niño / La Niña)	
Expansive Soils	
Drought	
Technological Hazards	
Dam Failure	X
Disruption of Utility and Transportation Systems	X
Hazardous Materials	X
Terrorism/Public Violence	X
Infectious Disease Epidemic	X

Specific Impacts of Identified Hazards

The following section describes Community specific vulnerabilities and impacts from technological and manmade hazards in addition to the natural hazards identified in the 2009 Columbia County MHMP.

The following is derived from the best available data for facility locations and values. In many cases, values were unavailable, and therefore the totals listed below should be considered incomplete and likely less than the actual costs associated with the respective hazards.

Flood

FEMA FIRMs were used to outline the 100-year and 500-year floodplains for Columbia County. The 100-year floodplain delineates an area of high risk, while the 500-year floodplain delineates an area of moderate risk.

There are 903 residential structures (worth $112.6M), 11 non-residential structures (value unknown), three government facilities (worth $6.4M), one emergency response facility (worth $4.5M), one care facility (worth $323K), four community facilities (worth $3.8M), five bridges (worth $6.1M), and four utilities (worth $392K) within the boundaries of the 100-year floodplain.

There are 886 residential structures (worth $110.5M), 11 non-residential structures (value unknown), three government facilities (worth $6.4M), one emergency response facility (worth $4.5M), three community facilities (worth $3.7M), three bridges (worth $3.8M), and one utility (worth $80K) located within the 500-year floodplain.

Winter Storm

The natural hazards resulting from winter storms, such as ice, cold, wind and floods, are often widespread. A single event is capable of impacting all people, critical facilities and infrastructure within the City of St. Helens, and therefore the entire population (12,895), including 4,109 residential structures (worth $512M), 31 non-residential structures (value unknown), four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M), nine educational facilities (worth $2.7M) seven care facilities (worth $9.9M), 29 community facilities (worth $9M), five miles of highway and rail (value unknown), one transportation facility (worth $175K), 22 utilities (worth $77M), five bridges (worth $6M), one transportation facility (worth $178K), and one dam (value unknown) is at risk.

Landslide

The potential impacts from landslides can be widespread. Potential debris flows and landslides can impact transportation and rail routes, utility systems, and water and waste treatment infrastructure along with public, private, and business structures located adjacent to steep slopes, along riverine embankments, or within alluvial fans or natural drainages. Response and recovery efforts will likely vary from minor cleanup to more extensive utility system rebuilding. Utility disruptions are usually local and terrain dependent. Damages may require reestablishing electrical, communication, and gas pipeline connections occurring from specific breakage points. Initial debris clearing from emergency routes and high traffic areas may be required. Water and waste water utilities may need treatment to quickly improve water quality by reducing excessive water turbidity and reestablishing waste disposal capability.

USGS elevation datasets were used to determine the landslide hazard areas within the City of St. Helens. Risk was assigned based on slope angle. A slope angle less than 14 degrees was assigned a low risk, a slope angle between 14 and 32 degrees was assigned a medium risk, and a slope angle greater than 32 degrees was assigned a high risk.

There are 2,402 residential structures (worth $299.5M), 17 non-residential structures (value unknown), two government facilities (worth $4.5M), two emergency response facilities (worth $5M), three educational facilities (worth $694K), one care facility (worth $226K), 11 community facilities (worth $668K), three bridges (worth $3.8M) and eight utilities (worth $46.6M) in the moderate landslide risk area.

There are 1,062 residential structures (worth $132.4M), 11 non-residential structures (value unknown), one government facility (worth $2.7M), one emergency response facility (worth $4.5M), one educational facility (value unknown), one care facility (worth $226K), four community facilities (worth $230K), and three utilities (worth $27.7M) in the high landslide risk area.

Wildland Fires

Wildland fire hazard areas were identified using a model incorporating slope, aspect, and fuel load. South-facing, steep, and heavily vegetated areas were assigned the highest fuel values while areas with little slope and natural vegetation were assigned the lowest fuel values. Risk levels of moderate, high, very high, and extreme were assigned to the entire region based on the results of this modeling.

There are 3,706 residential structures (worth $468.9M), 31 non-residential structures (value unknown), four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M), nine educational facilities (worth $2.7M) seven care facilities (worth $9.9M), 28 community facilities (worth $7M), five bridges (worth $6M), one transportation facility (worth $178K), and 13 utilities (worth $48.7M) located in the moderate fire risk areas.

There are 3,395 residential structures (worth $423.4M), 25 non-residential structures (value unknown), four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M), six educational facilities (worth $2.6M) three care facilities (worth $653K), 23 community facilities (worth $6.5M), five bridges (worth $6M), one transportation facility (worth $178K), and 13 utilities (worth $48.7M) located in the high fire risk areas.

There are 1,420 residential structures (worth $177.1M), 15 non-residential structures (value unknown), one educational facility (worth $500K), one care facility (worth $226K), one community facility (worth $45K), three bridges (worth $3.8M) and one utility (worth $27.3M) located in very high fire risk areas. There were ten residential structures (worth $1.3M) and no critical facilities identified in the extreme fire risk area.

Earthquake

Based on PGA shake maps produced by the USGS, the western portion of Columbia County is likely to experience higher levels of shaking than the eastern portion, as a result of its proximity to the Cascadia Subduction Zone. Ground movement in both areas, however, is likely to cause damage to weak, unreinforced masonry buildings, and to induce small landslides along unstable slopes. As well as landslide, earthquakes can trigger other hazards such as dam failure and disruption of transportation and utility systems.

The eastern portion of Columbia County is likely to experience strong shaking should a subduction zone earthquake occur (9-20 percent of the acceleration of gravity). In contrast, the far western portion of the county is likely to experience very strong shaking (20-25 percent). This rating represents the peak acceleration of the ground caused by the earthquake.

Due to the City of Helens proximity to the eastern portion of the county, all people, critical facilities and infrastructure within the City of St. Helens, and therefore the entire population (12,895), including 4,109 residential structures (worth $512M), 31 non-residential structures (value unknown), four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M), nine educational facilities (worth $2.7M) seven care facilities (worth $9.9M), 29 community facilities (worth $9M), five miles of highway and rail (value unknown), one transportation facility (worth $175K), 22 utilities (worth $77M), five bridges (worth $6M), one transportation facility (worth $178K), and one dam (value unknown) are located in the strong shaking (9-20 percent) area.

Volcano

A volcanic eruption would have a minor impact on City of St. Helens due to the proximity to volcanoes within the Cascade region. The major resources of concern include air quality and waterway sedimentation. During previous eruptions, ash fall has drifted to the east of the volcanoes. (State Interagency Hazard Mitigation Team 2006)

The City of St. Helens will likely only experience damage from volcanic eruption columns and clouds which contain volcanic gases, minerals, and rock. The columns and clouds form rapidly and extend several miles above an eruption. Solid particles within the clouds present a serious aviation threat, can distribute acid rain (sulfur dioxide gas and water), can create risk of suffocation (carbon dioxide is heavier than air and collects in valleys and depressions threatening human and animals), and pose a toxic threat from fluorine which clings to ash particles potentially poisoning grazing livestock and contaminating domestic water supplies.

Buildings streets and roads throughout the city may require minor cleanup with negligible impacts. Temporary utility interruptions are likely, and minor cleanup may be required for electrical and other utility services. Water treatment facilities may require additional attention to address high turbidity water. River traffic along the Columbia River could be disrupted due to sedimentation from a large eruption from Mt. St. Helens or Hood and dredging to restore channel depths may be necessary. Injuries associated with respiratory problems may result. (Goettel 2005)

Due to the nature of the hazard, it is impossible to predict the location or extent of future events with any probability, although it can be assumed that all critical facilities and infrastructure within the City of St. Helens are at risk including the entire population (12,895), including 4,109 residential structures (worth $512M), 31 non-residential structures (value unknown), four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M), nine educational facilities (worth $2.7M) seven care facilities (worth $9.9M), 29 community facilities (worth $9M), five miles of highway and rail (value unknown), one transportation facility (worth $175K), 22 utilities (worth $77M), five bridges (worth $6M), one transportation facility (worth $178K), and one dam (value unknown).

Wind

Many buildings, utilities and transportation systems in open areas, natural grasslands, or agricultural lands are especially vulnerable to wind damage. Impacts associated with wind can include damage to power lines, trees, and structures, and can also cause temporary disruptions of power. Additionally, high winds can cause significant damage to forestlands.

All areas within the City of St. Helens are equally at risk of a windstorm event including the entire population (12,895), including 4,109 residential structures (worth $512M), 31 non-residential structures (value unknown), four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M), nine educational facilities (worth $2.7M) seven care facilities (worth $9.9M), 29 community facilities (worth $9M), five miles of highway and rail (value unknown), one transportation facility (worth $175K), 22 utilities (worth $77M), five bridges (worth $6M), one transportation facility (worth $178K), and one dam (value unknown) is at risk.

Erosion

Riverine erosion rarely causes death or injury. However, erosion causes significant destruction of property, development, and infrastructure. Erosion hazard data is not readily available, however, descriptions of several localized areas were identified during the development of this document and are identified only by location on a map referencing the river or stream reach described. Critical facilities that may be at risk of erosion were identified using a 300 foot-buffer in the areas identified as having historic erosion impacts to conservatively account for building footprints.

The City of St. Helens has 540 residential structures (worth $67.3M), eight non-residential structures (value unknown), two government facilities (worth $4.5M), one emergency response facility (worth $4.5M), three community facilities (worth $2.1M) and one utility (worth $263K) that may be at risk from erosion impacts.

Dam Failure

US Army Corps of Engineers inundation data for the Columbia River and the PacifiCorp inundation data for the Lewis River in the State of Washington were used to determine the impacts from dam failure upriver from Columbia County. There are 853 residential structures (worth $106.4M), 13 non-residential structures (value unknown), two government facilities (value $4.5M), one emergency response facility (value $4.5M), two community facilities (value $1.9M), one bridge (value $1.7M), and four utilities (value $27.8M) located in the inundation area.

Disruption of Utility and Transportation Systems

Transportation system disruption impacts range from effects on life, health, and safety (emergency vehicle mobility, access to hospitals, access to evacuation routes, access to vital supplies if transport is seriously disrupted for a long time) to the economic effects of delays, lost commerce, and lost time. Similarly, disruption of utility systems can affect the county at the level of commerce and recreation as well as at the level of fundamental health and safety. County-wide as well as localized areas of disruption are likely to impact all residents equally. Structural damage from disruption to these systems is not expected; rather the risks are present to residents and those traveling in the area.

Hazardous Material Event

The National Response Center and the EPA's Environmental Facts Multisystem Query were used to locate hazardous waste handling facilities and businesses that generate hazardous waste from their activities. (In Progress) Transportation routes likely to carry hazardous waste were examined, and all facilities within a 0.25 mile radius of those are considered at risk.

There are 1,333 residential structures (worth $166.3M), 16 non-residential structures (value unknown), one government facility (worth $461K), five educational facilities (worth $340K), six care facilities (worth $7.8M), nine community facilities (worth $660K), one highway (value unknown), one railroad (value unknown), three bridges (worth $4M), one transportation facility (worth $178K), and seven utilities (worth $14.7M) considered at risk along transportation routes.

Facilities considered at risk near 0.25 mile-buffered EHS sites include four government facilities (worth $6.8M), three emergency response facilities (worth $6.7M) seven educational facilities (worth $2.2M), six care facilities (worth $7.8M), 26 community facilities (worth $8.5M), five bridges (worth $6.1M), one transportation facility (worth $178K), and eight utilities (worth $15M).

Terrorism

It is difficult to determine the scope of any terrorist threat to the City of St. Helens. Although there seem to be few high-profile targets present, it is impossible to predict future terrorist events. Depending on the extent of the action, the community may suffer economic loss, disruption of utilities, and cleanup relating to explosions and other facility damages. Structural damage, injuries or casualties may occur, however, it is beyond the scope of this analysis to estimate losses.

Infectious Disease Epidemic

The consequences of a pandemic as described in Chapter 5 could be devastating. In the event of a poor-fit vaccine or very limited vaccine supply, the public health measures that would work best include: isolation and quarantine; restricting movement between and within communities; prohibiting public gatherings and group activities; and closing schools.

The county and state have isolation and quarantine laws; cities can also apply quarantines and restrict public movement in a public health emergency. The recently passed public health emergency law in Oregon provides a process for such mechanisms to be implemented.

Impacts associated with infectious disease epidemics in general have the potential to include loss of life and shutdown of critical facilities. Furthermore, an epidemic level of infectious disease in the community could overwhelm local resources, although there are no structural risks or losses associated with this hazard. The entire population of 12,883 is at risk from the effects of an infectious disease epidemic.

Values at Risk

Population Analysis

Population data listed in Table 7 were obtained from the 2010 U.S. Census and Portland State University. It comprises census block level data and estimates from university conducted community research.

Table 7. Population			
2000 Census	2010 Census	% Change	2020 PSU Estimate
10,019	12,883	22%	15,591

Asset Inventory

The Asset Inventory describes the physical values; the residential building stock, public facilities, and infrastructure within each community that may be affected by hazard events and includes population, residential and nonresidential buildings, critical facilities, and infrastructure. These values are described in Tables 8 and 9 and portray the City's critical infrastructure numbers and values, and their potential vulnerability by hazard type.

(Name of Jurisdiction/District here) seeks to protect its population by supporting Columbia County and Oregon State initiatives, ordinances, building codes, and development regulations. One of the most important initiatives is to prohibit or not allow future development of buildings, infrastructure and critical facilities in identified high hazard areas. Any essential infrastructure component will undergo stringent review to ensure potential hazard risk will be mitigated.

Table 8. Residential Buildings	
Total Building Count	Total Value of Buildings ($)
4,109	512,392,300

Table 9. City of St. Helens Critical Facilities and Infrastructure			
Facility Type	Name / Number	Address	Value[1]
Government	St. Helens City Hall	265 Strand St	$2,750,000
	St. Helens Parks Dept.	477 18th St S	$1,860,160
	City Shops (Public Works)	984 Oregon Street	$461,229
	VAGT Building	257-277 Strand Street	1,750,000
Emergency Response	Columbia River Fire & Rescue	270 Columbia Blvd	$563,680
	St. Helens Police Department	150 S 13th St	$1,648,847
	Emergency Operations Center	230 The Strand	$4,468,000
Educational	McBride Elementary School	2774 Columbia Blvd	$32,300
	Lewis & Clark Intermediate School	111 S 9th St	Unknown
	St. Helens Middle School	354 N 15th St	Unknown

Table 9. City of St. Helens Critical Facilities and Infrastructure			
Facility Type	Name / Number	Address	Value[1]
	St. Helens High School	2375 Gable Rd	Unknown
	Columbia County Education Campus	474 16th N 16th Street	Unknown
	St. Helens Arthur Academy (Mastery Learning Institute)	33035 Pittsburgh Road	$500,000
	St. Helens School District Office	475 16th N 16th Street	$146,300
	Columbia Learning Center	375 S 18th Street	$1,860,160
	Portland Community College, St. Helens Center	1510 St. Helens St.	$194,000
Care Facilities	Legacy Imaging & Radiology Services	475 S Columbia River Hwy	$7,185,890
	Legacy Urgent Care Clinic	475 S Columbia River Hwy	Unknown
	Columbia Community Mental Health	58646 McNulty Way	Unknown
	Legacy Labs St. Helens	500 N Columbia River Hwy	Unknown
	Public Health Foundation of Columbia County	2370 Gable Rd	$104,000
	Columbia Veterinary Clinic	35645 Firlok Park Blvd	Unknown
	St. Helens Senior Center	375 S 15th St	$2,103,070
Community	St. Helens City Library	375 S 18th St	$3,139,384
	McCormick Park	475 S 18th St & Portland Road	$1,537,187
	Campbell Park	Vernonia & Allendale Dr	$427,303
	Columbia View Park	Strand St & Columbia River	$287,813
	Civic Pride Park	111 S 9th St	$11,883
	Godfrey Park	N 4th St	$33,802
	Heinie Heumann Park	S 15th St & Tualatin St	$11,667
	6th Street Park	6th St & West St	$66,730
	Columbia Botanical Garden	N 6th St	Unknown
	Sand Island Marine Park	.75 mi from 265 Strand St	$1,866,393
	Nob Hill Nature Park	6th St & Plymouth St.	Unknown
	Walnut Tree Park		

Table 9. City of St. Helens Critical Facilities and Infrastructure			
Facility Type	Name / Number	Address	Value[1]
	Grey Cliffs Park	Wyeth St. & Columbia River	Unknown
	Ascension Lutheran Church	1911 Columbia Blvd	Unknown
	Buccini Hall	165 S 145h St	Unknown
	Bethel Fellowship	104 N Vernonia Rd	$127,600
	Calvary Chapel	213 S 1st St	Unknown
	Calvary Lutheran	58251 S Division Rd	$191,340
	Christ Episcopal Church	35350 E Division Rd	$292,700
	Church of Christ	295 S 18th St	Unknown
	Church of the Nazarene	2360 Gable Rd	Unknown
	First Christian Church	185 S 12th St	Unknown
	First Evangelical Church of St. Helens	225 3rd St N	$135,840
	First Evangelical Lutheran Church	360 Wyeth St	Unknown
	First Missionary Baptist Church	2625 Gable Rd	Unknown
	First United Methodist Church	560 Columbia Blvd	$192,080
	Plymouth Presbyterian Church	2615 Sykes Rd	Unknown
	St Frederic Catholic Church	175 13th St S	$390,800
	St. Helens Community Bible Church	35031 Millard Rd	$79,700
	Sunset Park Community Church	174 Sunset Blvd	$86,200
	The Church of Jesus Christ of Latter-Day Saints	2755 Sykes Rd	Unknown
	Yankton Baptist Church	33579 Pittsburgh Rd	$45,400
State and Federal Highways	US Hwy 30		Approx 5 miles long
Railroads	Portland & Western Railroad		Approx. 5 miles long
Bridges	Milton Creek Bike and Pedestrian Bridge	GPD Coordinates 45deg51min1.47 secN 122deg48min52.41secW	$546,000

Table 9. City of St. Helens Critical Facilities and Infrastructure			
Facility Type	Name / Number	Address	Value[1]
	Old Portland Road Bridge	18th St and Old Portland Rd	$1,500,000
	McNulty Way Bridge	58645 McNulty Way	$1,754,691
	Tree Farm North Bridge	Salmonberry - 1 mile from 309C	$82,507
	Milton Way Bridge	Milton Way	$982,230
	Columbia Blvd Bridge	155 S Columbia River Hwy/Columbia Blvd	$1,300,000
Transportation Facilities	Port of Columbia County	530 Milton Way	$178,700
	CC Rider Transit Center	1155 Deer Island Road	Unknown
	St. Helens Public Docks	275 The Strand	Unknown
Utilities	Columbia River PUD	64001 Columbia River Hwy, Deer Island	$166,400
	Waste Water Treatment Plant	451 Plymouth St	$27,266,567
	Columbia County Talk Radio KOHI AM 1600	36200 Pittsburgh Rd	Unknown
	Water Reservoir - Old and New	Pittsburgh Rd & Battle Mountain Rd	$4,112,483
	Water Reservoir - West Hill	West Hill & Pittsburgh Rd	$2,000,000
	Boise Cascade Landfill	1300 Kaster Rd. 45.8476 N / -122.803 W	Unknown
	Department of Public Works	984 Oregon St	$1,878,104
	Pump Station #12	N 1st St & Lemont St	$198,265
	Pump Station #11	Parkwood Dr	$132,768
	Pump Station #9 (Yachts Landing)	River St & marina	$77,342
	Pump Station #8 (Clark St)	Clark St & Milton Wy	$47,486
	Pump Station #7 (McNulty Creek)	Old Portland Rd & Reed Dr	$225,607
	Pump Station #6	S 10th St	$62,430
	Pump Station #5 (Elks)	Belton Rd	$177,590
	Pump Station #4 (True Value)	Hwy 30 & Firlock	$80,140
	Pump Station #3 (Kozy)	4th & Columbia Blvd	$106,170
	Pump Station #2 (River)	River & St. Helens St	$264,748
	Pump Station #1(Klondike)	S 1st St & Cowlitz	$163,899
	Pump Station	Oregon St	258605

Table 9. City of St. Helens Critical Facilities and Infrastructure			
Facility Type	Name / Number	Address	Value[1]
	Fuel Tanks	984 Oregon St	32,295
	Waste Water Treatment Plant	451 Plymouth St	$27,266,567
	Water Filtration Facility	1215 4th St - Columbia City	$12,526,345
Dams	Salmonberry	Salmonberry Lake	No Value
	Dalton Lake Recreation Area	Dalton Lake Dam	No Value

Sources: FEMA HAZUS-MH, City of St. Helens
[1]Estimated and/or insured structural value for critical facilities and estimated values for critical infrastructure.
NA = Not Available.

National Flood Insurance Policy

National Flood Insurance Program data were obtained from the State Department of Land Conservation and Development. This data is significant for the vulnerability assessment as it identifies the impact of flooding, one of the most often repeated natural hazards for the county. This data is displayed in Table 10.

Table 10. National Flood Insurance Program								
City of	**Total Premiums ($)**	**Policies A-Zone**	**Total Policies**	**Total Coverage ($)**	**Average Premium ($)**	**Total Claims Since 1978**	**Total Paid Since 1978 ($)**	**Rep Loss Properties[1]**
St. Helens	34,826	27	68	13,357,800	512.15	17	195,846	1

Source: FEMA SQANet.
[1]Content and building claims.

Vulnerability Analysis

A vulnerability analysis predicts the extent of exposure, and the impacts that may result from a hazard event of a given intensity in each area. The analysis provides quantitative data that may be used to identify and prioritize potential mitigation measures by allowing communities to focus attention on areas with the greatest risk of damage. A vulnerability analysis is divided into five steps including asset inventory, methodology, data limitations, exposure analysis for current assets, and areas of future development.

The following is derived from the best available data for facility locations and values. In many cases, values were unavailable, and therefore the totals listed below should be considered incomplete and likely less than the actual costs associated with the respective hazards

The vulnerability analysis development process is thoroughly discussed in the Columbia County Basic Plan, Section 6, which generated the following Hazard Exposure Analysis Overviews in Tables 11, 12, and 13.

Table 11. City of St. Helens Potential Hazard Exposure Analysis Overview

Population and Buildings

			Population	Buildings			
				Residential		Non-Residential	
Hazard Type	Hazard Area	Methodology	Number	Number	Value ($)[1]	Number	Value ($)[1]
Flood	Moderate	500-year floodplain	--	886	110,484,200	11	unknown
	High	100-year floodplain	--	903	112,604,100	11	unknown
Winter Storm		descriptive	12,883	4,109	512,392,300	31	unknown
Landslide	Moderate	>14-32 degrees	--	2,402	299,529,400	17	unknown
	High	>32-56 degrees	--	1,062	132,431,400	11	unknown
Wildland Fire	Moderate	Moderate fuel rank	--	3,760	468,872,000	31	unknown
	High	High fuel rank	--	3,395	423,356,500	25	unknown
	Very High	Very high fuel rank	--	1,420	177,074,000	15	unknown
	Extreme	Extreme fuel rank	--	10	1,247,000	0	unknown
Earthquake	Strong	9-20% (g)	--	3,772	470,368,400	31	unknown
	Very strong	20-40% (g)	--	0	--	0	unknown
	Severe	>40-60% (g)	--	0	--	0	unknown
Volcano		descriptive	12,883	4,109	512,392,300	31	unknown
Wind		descriptive	12,883	4,109	512,392,300	31	unknown
Erosion		within 300' of potential areas of erosion	--	540	67,338,000	8	unknown
Dam Failure	High	Inundation area	--	853	106,369,100	13	unknown

Table 11. City of St. Helens Potential Hazard Exposure Analysis Overview

Population and Buildings

			Population	Buildings			
				Residential		Non-Residential	
Disruption of Utility and Transportation Systems		descriptive	12,883	--	--	31	unknown
Hazardous Material Event	1/4-mile buffered transportation routes	1/4-mile buffered transportation routes	--	1,333	166,225,100	16	unknown
	1/4-mile buffered EHS sites	1/4-mile buffered EHS sites*	--	--	--	--	unknown
Terrorism		descriptive	--	--	--	--	unknown
Infectious Disease Epidemic		descriptive	12,883				

[1] Average insured structural value of all residential buildings (including single-family dwellings, mobile homes, etc., is $124,700 per structure).
Note-population by parcel was not available at the time this document was prepared. Once this data is available, a useful analysis of population and residential structures by hazard can easily be completed. *0.25-mile buffered EHS sites were unable to be determined due to the use of census block data.

Table 12 City of St. Helens Potential Hazard Exposure Analysis Overview

Critical Facilities

			Government		Emergency Response		Educational		Care		Community	
Hazard Type	Hazard Area	Methodology	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]
Flood	Moderate	500-year floodplain	3	6.4M	1	4.5M	--	--	--	--	3	3.7M
	High	100-year floodplain	3	6.4M	1	4.5M	--	--	1	323K	4	3.8M
Winter Storm		descriptive	4	6.8M	3	6.7M	9	2.7M	7	9.9M	29	9M
Landslide	Moderate	>14-32 degrees	2	4.5M	2	5M	3	694K	1	226K	11	668K
	High	>32-56 degrees	1	2.7M	1	4.5M	1	unknown	1	226K	4	230K
Wildland Fire	Moderate	Moderate fuel rank	4	6.8M	3	6.7M	9	2.7M	7	9.9M	28	7M
	High	High fuel rank	4	6.8M	3	6.7M	6	2.6M	3	653K	23	6.5M

Table 12 City of St. Helens Potential Hazard Exposure Analysis Overview

Critical Facilities

			Government		Emergency Response		Educational		Care		Community	
Hazard Type	Hazard Area	Methodology	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]
	Very High	Very high fuel rank	--	--	--	--	1	500K	1	226K	1	45K
	Extreme	Extreme fuel rank	--	--	--	--	--	--	--	--	--	--
Earthquake	Strong	9-20% (g)	4	6.8M	3	6.7M	9	2.7M	7	9.9M	29	9M
	Very strong	20-40% (g)	--	--	--	--	--	--	--	--	--	--
	Severe	>40-60% (g)	--	--	--	--	--	--	--	--	--	--
Volcano		descriptive	4	6.8M	3	6.7M	9	2.7M	7	9.9M	29	9M
Wind		descriptive	4	6.8M	3	6.7M	9	2.7M	7	9.9M	29	9M
Erosion		within 300' of potential areas of erosion	2	4.5M	1	4.5M	--	--	--	--	3	2.1M
Dam Failure	High	Inundation area	2	4.5M	1	4.5M	--	--	--	--	2	1.9M
Disruption of Utility and Transportation Systems		descriptive	4	6.8M	3	6.7M	9	2.7M	7	10M	29	9M
Hazardous Material Event	1/4-mile buffered transportation routes	1/4-mile buffered transportation routes	1	461K	--	--	5	340K	6	7.8M	9	660K
	1/4-mile buffered EHS sites	1/4-mile buffered EHS sites	4	6.8M	3	6.7M	7	2.2M	6	7.8M	26	8.5M
Terrorism		descriptive	4	6.8M	3	6.7M	9	2.7M	7	10M	29	9M

Table 13. City of St. Helens Potential Hazard Exposure Analysis Overview

Critical Infrastructure

			Highways		Railroads		Bridges		Transportation Facilities		Utilities		Dams	
Hazard Type	Hazard Area	Methodology	Miles	Value ($)[1]	Miles	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]
Flood	Moderate	500-year floodplain	--	--	--	--	3	3.8M	--	--	1	80K	--	--
	High	100-year floodplain	--	--	--	--	5	6.1M	--	--	4	392K	--	--
Winter Storm		descriptive	5	unknown	5	unknown	6	6M	1	178K	22	77M	1	unknown
Landslide	Moderate	>14-32 degrees	--	--	--	--	3	3.8M	--	--	8	46.6M	--	--
	High	>32-56 degrees	--	--	--	--	--	--	--	--	--	--	--	--
Wildland Fire	Moderate	Moderate fuel rank	--	--	--	--	5	6M	1	178K	13	48.7M	--	--
	High	High fuel rank	--	--	--	--	5	6M	1	178K	13	48.7M	--	--
	Very High	Very high fuel rank	--	--	--	--	3	3.8M	--	--	1	27.3M	--	--
	Extreme	Extreme fuel rank	--	--	--	--	--	--	--	--	--	--	--	--
Earthquake	Strong	9-20% (g)	--	--	--	--	5	6M	1	178K	13	48.7M	--	--
	Very strong	20-40% (g)	--	--	--	--	--	--	--	--	--	--	--	--
	Severe	>40-60% (g)	--	--	--	--	--	--	--	--	--	--	--	--
Volcano		descriptive	5	unknown	5	unknown	6	6M	1	178K	22	77M	1	unknown
Wind		descriptive	5	unknown	5	unknown	6	6M	1	178K	22	77M	1	unknown
Erosion		within 300' of potential areas of erosion	--	--	--	--	--	--	--	--	--	--	--	--
Dam Failure	High	Inundation area	--	--	--	--	1	1.7M	--	--	4	27.8M	--	--

Table 13. City of St. Helens Potential Hazard Exposure Analysis Overview

Critical Infrastructure

			Highways		Railroads		Bridges		Transportation Facilities		Utilities		Dams	
Hazard Type	Hazard Area	Methodology	Miles	Value ($)[1]	Miles	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]	No.	Value ($)[1]
Disruption of Utility and Transportation Systems		descriptive	5	unknown	5	unknown	6	6M	1	178K	22	77M	1	unknown
Hazardous Material Event	1/4-mile buffered transportation routes	1/4-mile buffered transportation routes	1	unknown	1	unknown	3	4M	1	178K	7	14.7M	--	--
	1/4-mile buffered EHS sites	1/4-mile buffered EHS sites					5	6.1M	1	178K	8	15M	--	--
Terrorism		descriptive	5	unknown	5	unknown	6	6M	1	178K	22	77M	1	unknown
Infectious Disease Epidemic		descriptive	5	unknown	5	unknown	6	6M	1	178K	22	77M	1	unknown

Mitigation Strategy

The following section defines mitigation action identification and analysis as stipulated in DMA 2000 and its implementing regulations.

DMA 2000 Requirements: Mitigation Strategy	
Planning Requirements	
§201.6(c)(3)	The plan shall include the following:] A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.
§201.6(c)(3)(i)	The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
§201.6(c)(3)(ii)	The hazard mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.
§201.6(c)(3)(iii)	The hazard mitigation strategy shall include an] action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
§201.6(c)(3)(iv)	For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.
§201.6(c)(4)(ii)	The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.
Planning Elements	
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR 201.6(c)(3)	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR 201.6(c)(3)(ii)	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? 44 CFR 201.6(c)(3)(i)	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? 44 CFR 201.6(c)(3)(ii) and 44 CFR 201.6(c)(3)(iv)	

C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? 44 CFR 201.6(c)(3)(iii) and 44 CFR (c)(3)(iv)

C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? 44 CFR 201.6(c)(4)(ii)

Identify Mitigation Goals

City of St. Helens reviewed the Columbia County goals and determined they meet the City's needs and subsequently adopted the Goals in Table 14 for the current planning period.

Table 14. City of St. Helens Mitigation Goals

Goal Number	Goal Description
1	Reduce the Threat to Life Safety Enhance life safety by minimizing the potential for deaths and injuries in future disaster events.
2	Protect Critical Facilities and Enhance Emergency and Essential Services • Implement activities or projects to protect critical facilities and infrastructure. • Seek opportunities to enhance, protect, and integrate emergency and essential services. • Strengthen emergency operations plans and procedures by increasing collaboration and coordination among public agencies, non-profit organizations, businesses, and industry.
3	Reduce the Threat to Property • Seek opportunities to protect, enhance and integrate emergency and essential services. • Strengthen emergency operations plans and procedures by increasing collaboration and coordination among public agencies, non-profit organizations, businesses, industries and the citizens of City of St. Helens.
4	Create a Disaster Resistant and Disaster-Resilient Economy • Develop and implement activities to protect economic well-being and vitality while reducing economic hardship in post disaster situations. • Reduce insurance losses and repetitive claims for chronic hazard events. • Work with State and Federal Partners to reduce short-term and long-term recovery and reconstruction costs. • Work with local and County organizations, such as Columbia Emergency Planning Association (CEPA) and Local Emergency Planning Commission (LEPC). • Expedite pre-disaster and post-disaster grants and program funding.
5	Increase Public Awareness, Education, Outreach, and Partnerships • Coordinate and collaborate, where possible, risk reduction outreach efforts with the Oregon Partners for Disaster Resistance & Resilience and other public and private organizations. • Develop and implement risk reduction education programs to increase awareness among citizens, local, county, and regional agencies, non-profit organizations, businesses, and industry. • Promote insurance coverage for catastrophic hazards • Strengthen communication and coordinate participation in and between public agencies, citizens, nonprofit organizations, businesses, and industry.

Evaluate and Prioritize Mitigation Actions

Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Table 15 lists the mitigation actions developed during this mitigation planning process or offered during whole community planning activities. It is not intended that this plan will attempt

to act on all of these action items, but the list will be maintained in order to provide documentation for future planning efforts.

Table 15. City of St. Helens Mitigation Actions Considered

Hazard	Status	Comment	Description
Natural Hazards			
Multi-Hazard (MH)			
MH	Complete		Develop and incorporate building ordinances commensurate with building codes to reflect survivability from wind, seismic, fire, and other hazards to ensure occupant safety.
MH	Complete		Review ordinances and develop outreach programs to assure mobile homes and manufactured buildings are protected from severe wind and flood hazards. (Anchoring, elevation, and other methods as applicable)
MH	Complete		Review ordinances and develop outreach programs to assure fuel oil and propane tanks are properly anchored and hazardous materials are properly stored and protected from known natural hazards such as seismic or flooding events.
MH	*Ongoing*	Ordinances already exist	Cross reference and incorporate mitigation planning provisions into all community planning processes such as comprehensive, capital improvement, land use, transportation plans, etc to demonstrate multi-benefit considerations and facilitate using multiple funding source consideration.
MH	Complete		Develop and incorporate mitigation provisions and recommendations into zoning ordinances and community development processes to maintain the floodway and protect critical infrastructure and private residences from other hazard areas.
MH	*Ongoing*	Some units purchased for some locations.	Purchase and install generators with main power distribution disconnect switches for identified and prioritized critical facilities susceptible to short term power disruption. (i.e. first responder and medical facilities, schools, correctional facilities, and water and sewage pump stations, etc.)
MH	Consider	A few rods in place We get very few strikes	Install lightning rods and lightening grade surge protection devices on critical electronic components such as warning systems, communications equipment, and computers for critical facilities.
MH	Ongoing	Continual updating of EAP	Develop, produce, and distribute information materials concerning mitigation, preparedness, and safety procedures for all natural hazards.
MH	Consider	We will review issues and address with	Explore the need for, develop, and implement hazard zoning ordinances for high-risk hazard area land-use.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
		ordinances where applicable	
MH	Consider	Where signs will help or protect the public	Based on known high-risk hazard areas, identify hazard-specific signage needs and purchase and install hazard warning signs near these areas to notify and educate the public of potential hazards.
MH	*Ongoing*	We are working on identified repeat flooding areas to correct	Identify and list repetitively flooded structures and infrastructures, analyze the threat to these facilities, and prioritize mitigation actions to acquire, relocate, elevate, and/or flood proof to protect the threatened population.
MH	Complete	Ordinances exist	Install storm shutters, hurricane clips, bracing systems etc. to meet or exceed applicable building codes while reducing disaster damages.
MH	Ongoing	Ordinances Exist	Perform hydrologic and hydraulic engineering, and drainage studies and analyses. Use information obtained for feasibility determination and project design. This information should be a key component, directly related to a proposed project.
MH	Consider	We will review for applicability	Develop vegetation projects to restore clear cut and riverine erosion damage and to increase landslide susceptible slope stability.
MH	Consider	We will do this as money and opportunity allows	Retrofit structures to protect them from seismic, floods, high winds, earthquakes, or other natural hazards.
MH	Complete	We have rules to control this and presently do not have public buildings in harm's way	Acquire, demolish, or relocate structures from hazard prone area. Property deeds shall be restricted for open space uses in perpetuity to keep people from rebuilding in hazard areas.
MH	Consider	As bridges are replaced this will normally be accomplished	Harden utility headers located along river embankments to mitigate potential flood, debris, and erosion damages.
MH	Complete	Public Works and City	Establish a formal role for the jurisdictional Hazard Mitigation Planning Committees to develop a sustainable process to implement, monitor, and evaluate citywide mitigation actions.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
		Council will do this	
MH	*Ongoing*	Ongoing process	Identify and pursue funding opportunities to implement mitigation actions.
MH	Ongoing	We have such a mechanism in HSEMC & LEPC	Develop public and private sector partnerships to foster hazard mitigation activities.
MH	*Ongoing*	Partly exists already	Integrate the Mitigation Plan findings into planning and regulatory documents and programs and into enhanced emergency planning.
Flood			
Flood	*Ongoing*	GIS already has flood maps and buildings. Partially complete	Develop and maintain GIS mapped critical facility inventory for all structures located within 100-year and 500-year floodplains.
Flood	Complete	Most buildings mapped	Develop and maintain GIS mapped inventory, and develop prioritized list of residential and commercial buildings within 100-year and 500-year floodplains.
Flood	Consider	Can be done as funds allow	Develop and maintain GIS mapped inventory of repetitive loss properties to include the types and numbers of properties.
Flood	Ongoing	Engineering is working on this.	Develop and implement mitigation actions for repetitive loss properties.
Flood	Complete	Locations already identified	Develop and maintain an inventory of locations subject to frequent storm water flooding based on most current USACOE flood data.
Flood	Ongoing	Awaiting state input	Request DOGAMI debris flow and lahar data be included in FIRM updates. Use the updated FIRMS for land use and mitigation planning.
Flood	Ongoing	Work is being done to mitigate or consider such	Determine and implement most cost beneficial and feasible mitigation actions for locations with repetitive flooding and significant damages or road closures.
Flood	Consider	We will work on this as time and funds allow	Develop an outreach program to educate public concerning NFIP participation benefits, floodplain development, land use regulation, and NFIP flood insurance availability to facilitate continued compliance with the NFIP.
Flood	Complete	Done	Develop, implement, and enforce floodplain management ordinances.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Flood	Ongoing	I & I Project	Develop outreach program to educate residents concerning flood proofed well and sewer/septic installation.
Flood	Ongoing	Have installed in two locations within city	Install new streamflow and rainfall measuring gauges.
Flood	Ongoing	Rules exist as do programs to accomplish	Develop, or revise, adopt, and enforce storm water ordinances and regulations to manage run-off from new development, including buffers and retention basins.
Flood	Consider	We will accomplish where applicable	Construct earthen berms to divert flood flows into bridge or culvert openings. The earth fill should be erosion-resistant and the berms should be covered with erosion-resistant fabric, armoring materials, or vegetation.
Flood	Ongoing	We will accomplish where applicable and as funds are available	Increase culvert size to increase its drainage efficiency.
Flood	Ongoing	Where applicable	Construct debris basins to retain debris in order to prevent downstream drainage structure clogging.
Flood	Complete	Done where applicable	Install debris cribs over culvert inlets to prevent inflow of coarse bed-load and light floating debris.
Flood	Consider	Where applicable and when funds available	Construct debris deflectors to deflect the major portion of debris away from culvert entrances and bridge piers. They are normally "V" shaped.
Flood	Consider	Where applicable and when funds available	Install debris fins upstream of a culvert to align debris so that the debris will pass through a drainage opening without clogging the inlet. They are sometimes used on bridge piers to deflect drifting materials.
Flood	Ongoing	Done on new development and will review for older areas	Create detention storage basins, ponds, reservoirs etc. to allow water to temporarily accumulate to reduce pressure on culverts and low water crossings. Water ultimately returning to its watercourse at a reduced flow rate.
Flood	Consider	Where applicable and when funds available	Install triangular or circular flow deflectors on or immediately upstream from bridge footings to deflect water flow and reduce flow velocities preventing footing scour.
Flood	Consider	Where applicable and	Construct a high water overflow crossing to carry flood flows from over bank areas.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
		when funds available	
Flood	Consider	Where applicable and when funds available	Create relief drainage ditch opening using a culvert, bridge, or multiple culverts; to relieve rapid water accumulation during high water flow events. .
Flood	Consider	Where applicable and when funds available	Modify existing culverts by developing a ring compression, by flattening, or beveling the end of a circular culvert to match the angle of the embankment. May need to install flanges to stiffen the beveled section of the culvert.
Flood	Consider	Where applicable and when funds available	Construct spur dikes along the embankments to direct flood flows into a bridge opening or away from a continuous impact site.
Flood	Ongoing	Where applicable and when funds available	Construct concrete wing walls at culvert or bridge entrances and outlets to direct water flow into their openings
Flood	Complete	Done	Provide flood protection to mitigate damage and contamination of wastewater treatment systems.
Flood	Consider	Where applicable and when funds available	Develop and implement flood risk reduction program and outreach efforts considering upstream storage, channel improvements, and flood walls or levee construction.
Winter Storms			
Winter Storms	Ongoing	Need to develop a program	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.
Winter Storms	Complete	We will add back up power as funding allows.	Develop critical facility list needing emergency back-up power systems, prioritize, seek funding and implement mitigation actions.
Winter Storms	Ongoing	We will review as to applicability	Develop and implement tree clearing mitigation programs to keep trees from threatening lives, property, and public infrastructure from severe weather events.
Winter Storms	Complete	Rules exists for this	Develop, implement, and maintain partnership program with electrical utilities to use underground utility placement methods where possible to reduce or eliminate power outages from severe winter storms. Consider developing incentive programs.
Winter Storms	Ongoing	Partly done with power provider	Develop personal use and educational outreach training for a “safe tree harvesting” program. Implement along utility and road corridors, preventing potential winter storm damage.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Winter Storms	Complete	City has linkage and contacts	Purchase NOAA Weather radios and develop a web portal linking residents to various weather information sites. (NWS, FEMA, The Weather Channel).
Winter Storms	Ongoing	Partially Complete City has some equip for measuring	Install new streamflow and precipitation measuring gauges and develop monitoring and early warning program.
Winter Storms	Consider	We will review with School District	Develop outreach program with school district contests having students develop, display, and explain mitigation projects or initiatives.
Winter Storms	Consider	We will review with applicable agencies	Develop early warning test program partnering with NOAA, City Police, Fire Departments, and Volunteer Fire Department to coordinate tests.
Winter Storms	Complete	Rules exist	Implement and enforce the most current Uniform International, and State, Building Codes to ensure structures can withstand winter storm hazards such as high winds, rain, water and snow.
Winter Storms	Consider	Power company issue (Community Partner)	Increase power line wire size and incorporate quick disconnects (break away devices) to reduce ice load power line severe wind or winter ice storm event failure.
Winter Storms	Consider	Where applicable and when funds available	Review critical facilities and government building energy efficiency, winter readiness, and electrical protection capability. Identify, prioritize, and implement infrastructure upgrade or rehabilitation project prioritization and development.
Landslide			
Landslide	Complete	Done by State	Develop comprehensive geological landslide and rockslide prone area maps.
Landslide	Complete	Rules exist	Develop, implement and enforce property development landslide risk assessment procedures to identify potential facility vulnerability.
Wildland Fire			
Wildland Fire	Ongoing	Partially Complete In process and should be done by Dec 2009	Identify critical facilities and vulnerable populations based on mapped high hazard areas.
Wildland Fire	Consider	Where applicable and	Identify evacuation routes away from high hazard areas and develop outreach program to educate the public concerning warnings and evacuation procedures.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
		when funds available	
Wildland Fire	Complete	Fire District has done	Develop Community Wildland Fire Protection Plans for all at-risk communities.
Wildland Fire	Ongoing	By Fire District	Provide real-time internet access and interagency cooperation to decrease wildland fire warning times.
Wildland Fire	Complete	By fire district	Hold "Ready, Set, Go" workshop to educate residents and contractors concerning fire resistant landscaping.
Wildland Fire	Consider	Need property rules	Promote "Ready, Set, Go" building siting, design, and construction materials.
Wildland Fire	Complete	Done	Develop "Ready, Set, Go" Public Service Announcements (PSA).
Wildland Fire	Consider	Provided by Fire District	Provide wildland fire information in an easily distributed format for all residents.
Wildland Fire	Ongoing	Scheduled per Fire Code	Schedule and perform government facility "fire drills" per Fire Code
Wildland Fire	Complete	Fire district is leading this	Conduct residential audits for wildland and building fire hazard identification then develop an outreach program to covey the findings.
Wildland Fire	Complete	Rules exist	Develop, adopt, and enforce burn ordinances that require burn permits, restricts campfires, and controls outdoor burning.
Wildland Fire	Consider	Where applicable and when funds available	Develop outreach program to educate and encourage fire-safe construction practices for existing and new construction in high risk areas.
Wildland Fire	Consider	Fire District is conduct this	Develop outreach program to educate and encourage home landscape cleanup (defensible space) and define debris disposal programs.
Wildland Fire	Consider	Where applicable and when funds available	Identify, develop, and implement, and enforce mitigation actions such as fuel breaks and reduction zones for potential wildland fire hazard areas.
Earthquake			
Earthquake	Consider	Where applicable and when funds available	Supplement State Seismic Needs Analysis data (schools, fire, law enforcement). Complete inventory of public and commercial buildings that may be particularly vulnerable to earthquake damage.
Earthquake	Consider	Where applicable and when funds available	Identify high seismic hazard areas; develop a wood-frame residential building inventory and an outreach program to educate population concerning facilities particularly vulnerable to earthquake damage, such as pre-1940s homes and homes with cripple wall foundations.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Earthquake	Ongoing	Available at City Hall	Disseminate FEMA pamphlets to educate and encourage homeowners concerning seismic structural and non-structural retrofit benefits.
Earthquake	Consider	As funds allow	Retrofit important public facilities with significant seismic vulnerabilities, such as unreinforced masonry construction.
Earthquake	Complete	Done by State	Retrofit bridges that are not seismically adequate for lifeline transportation routes.
Earthquake	Complete	Done	Update existing (or adopt the most current) Uniform Building Code
Earthquake	Complete	Done	Implement and enforce the Uniform, International, and State Building Codes.
Earthquake	Complete	Done	Inspect and/or certify all new construction.
Earthquake	Consider	We will consider as advised and as funded	Develop public outreach program to train earthquake safety; perform drop-cover-hold drills at schools and public facilities.
Earthquake	Ongoing	As personnel and funding allows	Develop outreach program to educate population concerning household, business, and public facility mitigation measures. For example, staff public information tables at fairs, safety events, and festivals.
Earthquake	Ongoing	As personnel and funding allows	Develop outreach program to educate residents concerning benefits of increased seismic resistance and modern building code compliance during rehabilitation or major repairs for residences or businesses.
Earthquake	Consider	Some are earthquake and others not and will have to wait for funding	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current Building Codes.
Earthquake	Complete	Inventory made but priorities not set	Identify and prioritize a list of critical facilities with unreinforced masonry problems including non-structural projects such as brick chimney bracing or replacement, water heater bracing, and anchoring, etc.
Earthquake	Ongoing	We will review and fund as allowed	Evaluate critical public facility seismic performance for fire stations, public works buildings, potable water systems, wastewater systems, electric power systems, and bridges within the jurisdiction.
Earthquake	Consider	Possibly done with other outreaches	Develop outreach program for educating private facilities concerning alternative or emergency power source acquisition to enable them to deliver food, fuel, and medical services during disaster emergency response and recovery efforts.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Earthquake	Completed	LEPC	Encourage utility companies to evaluate and harden vulnerable infrastructure elements for sustainability.
Earthquake	Completed	LEPC	Develop partnerships to mitigate hazards that result in jurisdictional facility lifeline or emergency transportation route closures.
Volcano			
Volcano	Ongoing	Tree developed already	Update public emergency notification procedures and develop an outreach program for ash fall events.
Volcano	Completed	We have such rules	Update emergency response planning and develop client focused outreach program for ash fall events affecting river, air, and highway transportation, and industrial facilities and operations.
Volcano	Consider	Where applicable and when funds available	Evaluate ash impact on storm water drainage system and develop mitigation actions.
Wind			
Wind	Complete	Existing rules	Review ordinances and develop outreach programs to assure mobile homes and manufactured buildings are protected from severe wind and flood hazards. (Anchoring, elevation, siting, and other methods as applicable)
Wind	Ongoing	New development is to underground	Identify and prioritize critical facilities' overhead utilities that could be placed underground to reduce power disruption from wind storm / tree blow down damage.
Wind	Complete	Done	Revise requirements to place utilities underground to reduce power disruption from wind storm / tree blow down damage when upgrading or during new development.
Wind	Consider	Power company will review	Increase power line wire size and incorporate quick disconnects (break away devices) to reduce ice load power line failure during severe wind or winter ice storm events.
Wind	Consider	Where applicable and when funds available	Develop prioritized location list to construct safe rooms to provide tornado and severe wind shelters for public and private use. Projects must meet requirements in FEMA 320 and FEMA 361.
Erosion			
Erosion	Ongoing	Being done for at least one project	Apply for grants/funds to implement riverbank protection methods.
Erosion	Consider	We will look to see if it applies	Develop and provide information to all residents on riverbank erosion and methods to prevent it in an easily distributed format

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Erosion	Ongoing	Resolved as needed	Install riprap, or pilings to harden or "armor' a stream bank where severe erosion occurs.
Erosion	Ongoing	Resolved as needed	Install bank protection such as rock, concrete, asphalt, vegetation, or other armoring or protective materials to provide river bank protection.
Erosion	Ongoing	We will review where applicable	Harden culvert entrance bottoms with asphalt, concrete, rock, to reduce erosion or scour.
Erosion	Ongoing	Where applicable and when funds available	Install walls at the end of a drainage structure to prevent embankment erosion at its entrance or outlet. (end walls).
Erosion	Ongoing	We will review for applicability	Install flared outlets or end sections at culvert entrances and outlets to match the embankment slope to reduce erosion and scour at the entrance and exit points during high flow.
Erosion	Consider	We will review for applicability	Install flow diverters a short distance into a water body, tied into the bank, to protect from erosion at their end. Designed to redirect water flow away from embankments.
Erosion	Ongoing	We will review for applicability	Install channel lining using pipe, rock, concrete, or asphalt to reduce scouring embankments and ditch bottom erosion.
Erosion	Ongoing	Rules in place	Install bank revetment protection to prevent erosion.
ENSO (El Niño/La Niña)			
ENSO (El Niño/La Niña)	Consider	Will use public forums and news articles	Educate public regarding weather patterns associated with El Niño / La Niña.
Expansive Soils			
Expansive Soils	Complete	Rules exist	Require building design, engineering, and construction processes that address expansive soil conditions at potentially affected building sites.
Expansive Soils	Consider	We will review for applicability	Plant trees a distance equal to their mature height away from a structure built on expansive soils. Minimum distance from foundation is 15 feet.
Expansive Soils	Complete	Rules exist	Require road design, engineering, and construction processes that address expansive soil conditions. Water absorption prevention, impermeable membrane, soil compaction, and drainage methods need to be considered once geologic studies determine soil composition.
Disruption of Utility and Transportation Systems (DUTS)			
Disruption of Utility and Transportation	Consider	News articles and public forum	Develop outreach program to educate and encourage residents to maintain several days of emergency supplies for power outages or road closures.

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Systems (DUTS)			
DUTS	Complete	Plan developed	Review and update emergency response plans for utility disruptions.
DUTS	Complete	Plan developed	Review and update emergency response plans for transportation route disruptions.
DUTS	Ongoing	Will accomplish as time and funds permit	Identify and prioritize all "jurisdiction owned" & "non-jurisdiction owned" critical facilities that have backup power and emergency operations plans.
DUTS	Ongoing	Will accomplish as time and funds permit	Purchase backup power systems for all identified critical facilities.
HAZMAT			
HAZMAT	Complete	Plan developed	Enhance emergency planning, emergency response training, and equipment acquisition to address hazardous materials incidents for emergency and first responders and public works staff.
HAZMAT	Complete	Trained to handle substances that the City controls	Train Public Works staff to identify extremely hazardous substances (EHS) and to follow EMS protocols.
HAZMAT	Ongoing	County plan	Develop outreach program to educate the public regarding chemical hazards, safe handling, storage, and disposal procedures.
HAZMAT	Completed	Addressed in EOP	Research, develop, and implement methods to protect waterways from hazardous materials events.
HAZMAT	Complete	Fire District has it	Prepare a site-specific summary of hazardous materials used, stored, and commonly transported in the jurisdictional area. The summary should include mapped facility locations with a hazardous materials inventory, emergency response protocols, and mitigation actions.
Terrorism			
Terrorism	Completed	Addressed in EOP	Enhance emergency planning, organization, equipment, exercise, and emergency response training to address all potential terrorist incidents.
Terrorism	Complete	City critical facilities secured to level we see as necessary	Upgrade physical security, detection, and response capability for critical facilities using information obtained from hazard assessments and risk analysis. Include water systems and any high-profile facilities such as major timber industry facilities and sites with large quantities of hazardous substances (HS) and extremely hazardous substances (EHS).

Table 15. City of St. Helens Mitigation Actions Considered			
Hazard	Status	Comment	Description
Infectious Disease Epidemic (IDE)	Ongoing	Plan exists	Enhance emergency planning, organization, equipment, exercise, and emergency response training to address all potential terrorist incidents.
IDE	Ongoing	Participating in exercises	Enhance emergency planning, organization, equipment, exercise, and emergency response training to address all potential terrorist incidents.

Mitigation Action Plan

The Steering Committee has evaluated and prioritized each of the considered mitigation actions to determine which would be included in the Mitigation Action Plan. The Committee then determined the responsible agency and potential funding sources. The Mitigation Action Plan represents mitigation projects and programs to be implemented through the cooperation of multiple entities.

Upon review, the Steering Committee assigned a high priority ranking to actions that best fulfill the goals of the HMP and are appropriate and feasible for the City and responsible entities to implement during the 5-year lifespan of this version of the HMP. As such, the Steering Committee determined that only the mitigation actions that received a high priority ranking would be included in the City's Mitigation Action Plan. Table 16 depicts the City's mitigation actions grouped by hazard and in descending priority order within each hazard.

Table 16 City of St. Helens Mitigation Action Plan Matrix					
Hazard	Description	Managing Department / Agency	Timeframe	Potential Funding Source(s)	Benefit-Costs / Technical Feasibility
Natural Hazards					
Multi-Hazard (MH)					
MH	Educate staff and public about possible hazard events	HZMP committee	2 yrs.	General	BC: TBD TF: Yes
MH	Install lighting rods to protect City's communications and electronic gear	HZMP committee	2-5 yrs.	General /enterprise	BC: TBD TF: Yes

Table 16 City of St. Helens Mitigation Action Plan Matrix					
Hazard	Description	Managing Department / Agency	Timeframe	Potential Funding Source(s)	Benefit-Costs / Technical Feasibility
MH	Install hazard warning signs where applicable	HZMP committee	2-5 yrs.	General /enterprise	BC: TBD TF: Yes
MH	Purchase and install generators	PW	2-5 yrs.	Enterprise/ General	BC: TBD TF: Yes
MH	Cross reference and incorporate resiliency planning provisions into all community planning processes and master planning efforts	Eng/Plan	1-5yrs.	General	BC: TBD TF:Yes
MH	Educate all on safety issues of hazards/mitigation procedures	HZMP	1-2 yrs.	General	BC: TBD TF: Yes
MH	Create or improve ordinances	HZMP/Admin	2-3 yrs.	General	BC: TBD TF: Yes
MH	Formalize HZMP comm. roles	Admin/PW	1-2 yrs.	Gen/Other	BC: TBD TF: Yes
MH	Integrate the Mitigation Plan into Emer Plans	Emer Mgmt Comm	1-2 yrs.	General	BC: TBD TF: Yes
Flood					
Flood	GIS updates on flood areas and hazards	Plan/GIS	2-3 yrs.	General/ Enterprise	BC: TBD TF: Yes
Flood	Develop GIS maps on repeat hazard damages	Plan/GIs	2-3 yrs.	Enterprise	BC: TBD TF: Yes
Flood	Develop plan to mitigate repeat flooding issues	Eng/PW	1-2 yrs.	Enterprise	BC: TBD TF: Yes
Flood	Request DOGAMI debris flow data	Eng/Plan	1 yr.	General	BC: TBD TF: Yes
Flood`	Develop program to educate public on floods	Eng/Plan	1 yr.	General	BC: TBD TF: Yes
Flood	Develop mitigation programs for flooding	Eng/PW	1-10 yrs.	Enterprise	BC: TBD TF: Yes
Winter Storms					
WS	Improve plans and exercise	Admin/safety	1-2 yrs.	General	BC: TBD TF: Yes
WS	Develop early warning system/program	Eng/PW	1-2 yrs.	Enterprise	BC: TBD TF: Yes
Wildfires					

Table 16 City of St. Helens Mitigation Action Plan Matrix					
Hazard	Description	Managing Department / Agency	Timeframe	Potential Funding Source(s)	Benefit-Costs / Technical Feasibility
WF	Develop an education program on wildfire issues	Eng/PW/Fire Dept.	1 yr.	General	BC: TBD TF: Yes
Earthquake					
Earthquake	Survey and retrofit buildings as required	HZMP/Building	2-10 yrs.	General	BC: TBD TF: Yes
Earthquake	Develop public ed program	Admin	1-3 yrs.	General	BC: TBD TF: Yes
Earthquake	Develop plans to handle when it happens	Emer Mgmt Comm	1 yr.	General	BC: TBD TF: Yes
Volcano					
Volcano	Include in emergency management plan	Emer/HZMP	1-3 yrs.	General	BC: TBD TF: Yes
Volcano	Evaluate impact on infrastructure	Eng/PW	2-4 yrs.	Enterprise	BC: TBD TF: Yes
ENSO (El Niño/La Niña)					
ENSO	Educate public on this subject	PW/Admin	1-3 yrs.	General	BC: TBD TF: Yes
Manmade and Technological Hazards					
Disruption of Utilities and Transportation Systems (DUTS)					
DUTS	Continue outreach program to educate and encourage residents to maintain several days of emergency supplies for power outages or road closures.	City Admin	Ongoing	General Fund	BC: TBD TF: Yes
Hazardous Materials					
Hazmat	Research, develop and implement methods to protect waterways from hazardous materials	Eng/Fire Dept.	2-4 yrs.	Enterprise	BC: TBD TF: Yes
Terrorism					
Terrorism	Enhance emergency plans	Emer Mgmt Comm	1 yr.	General	BC: TBD TF: Yes

Plan Adoption and Maintenance

The following section provides documentation of the formal adoption of this annex by the governing board of the district or the city council/county commission of the jurisdiction. It also identifies the standing committee that will be responsible for future reviews between update periods.

DMA 2000 Requirements: Plan Review, Evaluation, Implementation, and Adoption	
Planning Requirements	
§201.6(d)(3)	A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit if for approval within 5 years in order to continue to be eligible for mitigation project grant funding.
§201.6(c)(5)	The plan shall include…] Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.
Planning Elements	
D1. Was the plan revised to reflect changes in development? *44 CFR201.6(d)(3)*	
D2. Was the plan revised to reflect progress in local mitigation efforts? *44 CFR 201.6(d)(3)*	
D3. Was the plan revised to reflect changes in priorities? *44 CFR 201.6(d)(3)*	
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? *44 CFR 201.6(c)(5)*	
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? *44 CFR 201.6(c)(5)*	

Resolution of Adoption

City of St. Helens

RESOLUTION NO. xxxx

A RESOLUTION ADOPTING A HAZARD MITIGATION PLAN UPDATE FOR THE CITY OF ST. HELENS AND SUPERSEDING RESOLUTION NO. 1677

Whereas, City of St. Helens, Oregon has experienced repetitive disasters that have damaged commercial, residential and public properties, displaced citizens and businesses, and presented general public health and safety concerns; and

Whereas, the City of St. Helens, Oregon has prepared a *Multi-Jurisdictional Hazard Mitigation Plan* that outlines the City of St. Helens, Oregon options to reduce overall damage and impact from natural hazards; and

Whereas, the *Multi-Jurisdictional Hazard Mitigation Plan* has been reviewed by community residents, business owners, and federal, state and local agencies, and has been revised to reflect their concerns;

NOW, THEREFORE, BE IT RESOLVED that:

1. The *Multi-Jurisdictional Hazard Mitigation Plan* is hereby adopted as an official plan of City of St. Helens, Oregon.

2. A hazard mitigation planning group is hereby established as a permanent advisory body. The Hazard Mitigation Planning Team Leader shall designate its members, subject to the approval of the County and the participating jurisdictions. They shall serve one-year terms. The group's duties shall be as designated in the *Multi-Jurisdictional Hazard Mitigation Plan*.

3. The Hazard Mitigation Planning Coordinator is charged with supervising the implementation of the Plan's recommendations within the funding limitations as provided by City of St. Helens, Oregon or other sources.

4. The Hazard Mitigation Planning Coordinator shall give priority attention to the goals identified in Table 14 of the City of St. Helens, Oregon Appendix, and the

actions listed in Table 15 of the City of St. Helens, Oregon Appendix to the *Multi-Jurisdictional Hazard Mitigation Plan* and:

5. The Hazard Mitigation Planning Coordinator shall convene the hazard mitigation planning group annually. The planning group shall monitor implementation of the plan and shall submit a written progress report to the City Council of City of St. Helens, Oregon in accordance with the following format:
   a. A review of the original plan.
   b. A review of any disasters or emergencies that occurred during the previous calendar year.
   c. A review of the actions taken, including what was accomplished during the previous year.
   d. A discussion of any implementation problems.
   e. Recommendations for new projects or revised action items. Such recommendations shall be subject to approval by the City Council of City of St. Helens, Oregon.

APPROVED AND ADOPTED this 1st day of May, 2019.

Ayes: Locke, Carlson, Topaz, Morten, Scholl

Nays: None

/s/
Rick Scholl, Mayor

ATTEST:

/s/
Kathy Payne, City Recorder

Standing Review Committee

The following table identifies the members of the Standing committee that will meet quarterly to review the HMP annex and provide a running update.

Table 17. City of St. Helens Standing Hazard Mitigation Committee	
Name	Agency/Department/Affiliation
John Walsh	City Administrator
Sue Nelson	Public Works Engineering Director
Dave Elder	Public Works Supervisor
Jacob Graichen	City Planner/Flood Plain Administrator
Michael De Roia	Building Official
Shaun Brown	Columbia County Emergency Management