

RESOLUTION 1070

CITY OF LACEY

A RESOLUTION OF THE CITY OF LACEY, WASHINGTON, ADOPTING THE CITY'S
ANNEX TO THE HAZARDS MITIGATION PLAN FOR THE THURSTON REGION.

WHEREAS, The Federal Disaster Mitigation Act of 2000 established requirements that local governments adopt a federally approved mitigation plan in order to be eligible to receive certain forms of federal assistance program grants; and

WHEREAS, The City of Lacey adopted its first Hazard Mitigation Plan in 2003 as part of a multi-jurisdictional hazard mitigation planning process; and

WHEREAS, In 2014 the Thurston Regional Planning Council began a public planning effort to update the regional plan and all the jurisdictions, including Lacey, began the process of updating their individual plans; and

WHEREAS, For the City of Lacey plan, staff focused on adding information related to the growth and development experienced and projected in the City of Lacey, addressing how hazard mitigation planning is incorporated into existing planning documents, and identifying new mitigation initiatives to addresses risks unique to the City of Lacey; and

WHEREAS, Staff also focused on developing an ongoing public outreach strategy so that the public is aware of both the hazard mitigation plan and of general emergency preparedness activities; and

WHEREAS, After reviewing the plan and conducting a public hearing on May 1, 2018, the City of Lacey Planning Commission recommended the plan be forwarded to the Council for adoption; and

WHEREAS, On May 11, 2018 the Washington State Emergency Management Division

approved the plan at the State level and forwarded it to the Federal Emergency Management Agency (FEMA) for final approval; and

WHEREAS, On July 5, 2018, the City of Lacey received notice that the plan had been approved by FEMA.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, as follows:

1. The City of Lacey hereby adopts that certain document entitled "*The City of Lacey's Annex to the Hazards Mitigation Plan for the Thurston Region*," attached hereto as Exhibit A.

PASSED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, this 27th day of September, 2018.

CITY COUNCIL

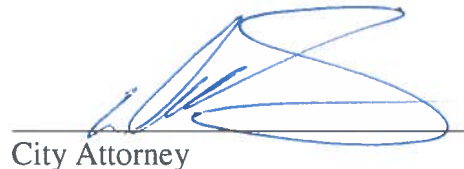
BY: _____


Mayor

Attest:

Approved as to form:


City Clerk


City Attorney

City of Lacey's Annex to the Hazards Mitigation Plan for The Thurston Region

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Community Profile: City of Lacey

City info: (360) 491-3214

www.ci.lacey.wa.us

Population, 2000	31,226
Population, 2010	42,393
Population, 2016	47,540
Avg. Ann. Pop. Growth, 2000-2010	3.1%
Avg. Ann. Pop. Growth, 2010-2016	2.3%
Households, 2010	16,949
Avg. Household Size, 2010	2.44

Age Structure, 2010:

17 and under	10,426	25%
18 - 64	25,998	61%
65 and over	5,969	14%
Median Age	34	-

Race and Ethnicity, 2010:

White	31,446	74%
Black/African American	2,302	5%
American Indian & Alaska Native	490	1%
Asian	3,376	8%
Native Hawaiian & Other Pacific Islander	722	2%
Other Race	1,102	3%
Two or More Races	2,955	7%

Hispanic or Latino (Of Any Race), 2010:

	3,886	9%
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Housing Units, 2016 Estimate:

Single-Family	12,750	63%
Multifamily	6,400	32%
Manufactured Homes	1,000	5%

Average House Sale Price, 2014: \$240,638**Median Household Income¹:**

1999 (Census 2000)	\$43,848
2010-2014 (ACS Estimate)	\$59,885

Households by Income Category, 2010-2014¹:

Less than \$24,999	2,639	15%
\$25,000 to \$49,999	4,240	24%
\$50,000 to \$74,999	4,324	25%
\$75,000 to \$99,999	3,022	17%
\$100,000 or more	3,121	18%

Nisqually Indians used Lacey's prairies and lakes for thousands of years before Euro-American settlers arrived in the late 1840s.



Lacey was first settled in 1848 by David and Elizabeth Chambers. Other families followed, and in 1891, the Tacoma, Olympia, and Grays Harbor Railroad finished laying tracks through the community, then known as Woodland. Woodland was awarded its own post office that same year, but because a Woodland already existed in Washington, the post office took the name of "Lacey." The name likely came from an Olympia real estate speculator O.C. Lacey.

Saint Martin's College opened in 1895, and one of its Benedictine brothers, Father Sebastian Ruth's experimentation with radio transmissions in 1914 led to the beginning of Washington's first radio station (KGY) in 1922.

During the mid-1920s, resorts opened on Hicks, Long, Pattison, and Southwick Lakes, attracting visitors from all over the state. By October 1966, shopping centers were the attraction, and Lacey opened its first, then the third largest in the state. That same year Lacey incorporated to become a city.

Taxable Retail Sales, 2015: \$1,099,882,556**Total Jobs, 2014 Estimate²:** 25,245

Manufacturing	1,205
Construction and Utilities	1,155
Transportation and Warehousing	6,070
Retail	895
Services	9,630
Finance, Insurance, Real Estate	2,095
Government	4,180

Residential Building Permits

Avg. Ann. New Unit Permits 2000-'10	487
Avg. Ann. New Unit Permits 2011-'14	266
Total New Unit Permits 2015	313

Subdivision Activity, 2015:

# Appl.	# Lots
Short Plat	1
Long Plat	5
	316

Explanation: ¹Estimates based on survey data and may have a large margin of error.

²Numbers may not add due to rounding.

Source: TRPC. [Profile 2016](http://www.trpc.org) (www.trpc.org).

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INTRODUCTION

WHAT IS A HAZARD MITIGATION PLAN?

The Federal Emergency Management Agency describes hazard mitigation and hazard mitigation planning as the effort to reduce loss of life and property by reducing the impact of disasters. Local governments engage in hazard mitigation planning to identify risks and vulnerabilities associated with natural disasters and to develop long-term strategies for protecting people and property from future hazard events. Mitigation plans are key to breaking the cycle of disaster damage, reconstruction, and repeated damage.

Developing a hazard mitigation plans enables communities to:

- Increase education and awareness around threats, hazards, and vulnerabilities;
- Build partnerships for risk reduction involving government, organizations, businesses, and the public;
- Identify long-term strategies for risk reduction;
- Identify implementation approaches that focus resources on the greatest risks and vulnerabilities; and
- Communicate priorities to potential sources of funding.

The 2018 update to the Hazard Mitigation Plan (annex) for the city of Lacey is part of the third edition of the Hazards Mitigation Plan for the Thurston Region. The regional plan was developed through a multi-jurisdictional process to create a mitigation strategy aimed at reducing the risks from hazards that may impact the region. The first multi-jurisdictional plan for the Thurston Region, which included annexes for 15 communities and special districts, was adopted in 2003, as a response to new federal mitigation planning requirements set forth under The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) and the Disaster Mitigation Act of 2000. The Stafford Act provides the legal basis for local governments to undertake risk-based approaches to reducing natural hazard risks through mitigation planning. Specifically, the Stafford Act requires local governments to adopt a FEMA-approved hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.

Federal requirements stipulate that communities adopt and continue to update mitigation plans on a regular basis in order to maintain eligibility for the following federal mitigation assistance programs:

- The Hazard Mitigation grant program;
- Pre-Disaster Mitigation project grant; and,
- Flood Mitigation Assistance project grant.

MULTI-JURISDICTIONAL PLAN FOR THE THURSTON REGION

Since adoption of the first hazard mitigation plan, the City of Lacey has participated in a multi-jurisdictional planning process with partner jurisdictions and special districts throughout Thurston County. Led by the Thurston Regional Planning Council, the Regional Hazard

Mitigation Plan provides the regional risk assessment, goals, objectives and mitigation strategies for the region. A multi-jurisdictional plan enables communities within the region to join together to prepare a common strategy for the region. A multi-jurisdictional plan recognizes the dependence jurisdictions within a region have on one another especially during times of disaster and allows further development of regional partnerships. Although the City of Lacey is a participant in the multi-jurisdictional planning process, all partner jurisdictions are also required to review and revise their local plans to reflect changes in development, progress of existing mitigation initiatives, and to identify changes in mitigation priorities. The local planning process also allows the City to assess its local initiatives and strategies, identify strengths and weaknesses in local emergency mitigation planning and identify new strategies and initiatives designed to protect the community and reduce the impacts of natural, and man-made, disasters.

REGIONAL GOALS AND OBJECTIVES

The regional plan identifies 9 broad goals and associated objectives that drive the development of mitigation strategies and initiatives for the partner jurisdictions. The mitigation strategies in this annex refer back to the broad goals and objectives from the Regional plan. For ease of use the goals and objectives from the regional plan are referenced below:

1. Protect life

- A. Design, build, operate and maintain disaster resistant communication systems that provide emergency notifications and instructions.
- B. Decrease the impacts of hazards on at risk individuals or special needs populations.
- C. Address emergency evacuation needs, prioritizing areas of the community where mitigation strategies are ineffective or cost prohibitive.
- D. Train and equip emergency service providers to effectively respond to hazard events.

2. Protect infrastructure

- A. Maintain and upgrade roads, bridges, and other transportation infrastructure and services to withstand the effects of hazards without prolonged operational disruptions.
- B. Maintain and upgrade utility systems and services to withstand the effects of hazards.
- C. Maintain or replace public buildings such as offices, schools, and other facilities to withstand the effects of hazards.
- D. Strengthen or relocated critical facilities or create protective spaces or infrastructure around them so they are not significantly affected by the effects of hazards.

3. Protect Property

- A. Minimize the number of properties that are situated in hazard prone locations.

- B. Protect and preserve vital records, data, information technology systems, and facility contents.
 - C. Safeguard objects or places that have cultural or historic significance.
- 4. Protect the environment**
- A. When possible, use mitigation strategies that preserve ecological functions of natural systems.
 - B. Consider mitigation actions that restore natural systems that provide protective measures to surrounding properties.
 - C. Continue evaluating the effectiveness of Critical Areas Ordinances and development regulations and revised as necessary to ensure development does not occur in areas prone to hazards or changing environmental conditions that threaten public safety.
 - D. Support efforts to increase local jurisdictions abilities to appropriately respond to hazardous material releases.
- 5. Sustain the economy**
- A. Develop and maintain efforts to prepare recovery plans.
 - B. Focus on mitigation strategies that protect medical treatment centers, employment centers, commercial districts, and schools.
 - C. Coordinate with regional, state and federal agencies to identify and prioritize continuity of operations on lifeline transportation corridors and systems.
 - D. Strengthen public-private partnerships to reinforce or establish redundancy for critical supply systems.
 - E. Develop and maintain continuity of operations plans for essential public safety services.
- 6. Build community support**
- A. Coordinate and provide leadership in the hazard mitigation planning process among local, tribal, state, and federal government entities.
 - B. Engage residents, businesses, employers, medical centers, utility companies, subject matter experts, community and faith-based organizations as partners to help identify opportunities to strengthen the region's hazard resilience.
 - C. Update the region's Hazards Mitigation Plan every five years, or sooner if necessary to respond to emerging threats.
- 7. Expand understanding of hazards**
- A. Monitor and evaluate precipitation, groundwater, and stream flow levels, and survey flood high water marks.
 - B. Partner with state and federal agencies, colleges, universities, and non-governmental organizations to participate in modeling programs to map high risk hazard areas.
 - C. Participate in regional or statewide disaster scenario exercises to assess mitigation, preparedness, response and recovery capacities, and apply lessons learned to mitigation activities.
 - D. Develop a better understanding of the location and mitigation needs of vulnerable and special needs populations within the communities.
 - E. Document, share, and act on lessons learned following disaster events.

8. Implement effective mitigation strategies

- A. Focus mitigation efforts on the region's greatest risks and vulnerabilities.
- B. Integrate adopted mitigation strategies into other planning documents such as response plans, comprehensive plans, strategic plans, Critical Areas Ordinances, Capital Facility Plans, zoning code, and development regulations.
- C. Apply for federal mitigation assistance grants and leverage other funding sources to finance mitigation projects.

9. Increase public awareness

- A. Develop and sustain ongoing communication campaigns with residents, customers, businesses, and other stakeholders about the known risks of hazard events and the actions that community members or organizations can take to prevent or minimize losses.
- B. Conduct broad outreach activities to engage all sectors of the community in the hazards mitigation planning process.

In addition to setting the regional goals and objectives, the Regional Plan also breaks mitigation strategies into seven broad categories. Each of the mitigation initiatives identified in the Regional plan and in the City Annex fulfills one or more of the mitigation categories. The categories are broken down as follows:

1. Public outreach and information:

This involves information delivered in a variety of formats intended to inform and educate community members, elected officials, and property owners about the hazards and potential ways to mitigate them. Examples of means of information delivery include; websites, outreach projects, fair and expos, and education programs.

2. Plan coordination and implementation:

Activities that support a jurisdictions hazards mitigation planning process and implementation strategy within their organization and in conjunction with neighboring jurisdictions and relevant stakeholders.

3. Data Collection and Mapping:

Actions that relate to the process of gathering and analyzing new data and then mapping or utilizing the information in such a manner that it improves communities' ability to make informed decisions about increasing their disaster resilience.

4. Development regulations:

Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. Actions include public activities that to reduce hazard losses. Some examples include planning and zoning, building codes and stormwater management regulations.

5. Hazard preparedness:

Advance actions that protect people and property during and immediately after a disaster or hazard event. Examples could include developing warning systems, emergency response services and stockpiling supplies and materials.

6. Hazard damage reduction:

This includes actions that involve the modification of existing buildings and structures to protect them from a hazard, or that remove them from a hazard area. Some examples include, structural retrofits, installation of storm shutters, and shatter resistant glass.

7. Critical facilities replacement/retrofit:

These are activities that target protecting or replacing critical or essential facilities. **(3rd Edition Hazards Mitigation Plan for the Thurston Region - 2017).**

PLAN DEVELOPMENT PROCESS

To update the local Annex, an interdepartmental City team conducted an internal plan review and evaluated the previous mitigation strategies. Staff then updated the 2018 Annex according to current City mitigation priorities and capabilities. The following section identifies the members of the plan development team and the process that was followed in development of this update to the hazard mitigation plan.

PLAN DEVELOPMENT TEAM

The following staff served as the City of Lacey's hazards mitigation planning development team:

Representative	Title
Tracy Anderson	Senior Liftstation Maintenance Technician
Peter Brooks	Water Resources Manager
Brad Burdick	Operations Manager
Terry Cargil	Water/Wastewater Maintenance Supervisor
Andrew Cheney	Systems/Application Specialist
Bracy DiLeonardo	Human Resources Analyst
Wade Duffy	Building Official
Scott Egger	Public Works Director
Jeff Johnstone	Civil Engineer
Tom Palmateer	Management Analyst
Tim Reisher	Transportation Maintenance Supervisor
Stefan Schlecht	Senior Maintenance Technician
Joe Upton	Police Commander
Sarah Schelling	Senior Planner

PLAN DEVELOPMENT ACTIVITIES

The following activities supported the development of the City of Lacey's local hazard mitigation planning process:

Date	Location	Activity	Subject
September 16, 2014	Email	Documentation	Signed and provided Statement of Intent to Participate in plan update.

September 24, 2014	Tumwater, Peter G. Schmidt Elementary School	Emergency Preparedness Expo	Expo used as a way to engage community members and to solicit feedback on mitigation plan during development.
February 18, 2015	City Hall	Meeting	Met with Hazard Mitigation Plan Development Team to discuss revisions to plan and status of existing mitigation initiatives.
April 1, 2015	City Hall	Meeting	Provided a copy of the existing initiatives to development team for review.
November 16, 2015	Thurston ECC	Workgroup Meetings	Began participating in monthly workgroup meetings.
April 8, 2016	Email/Phone	Writing/Researching	Followed up with email to discuss status of initiatives impacting division with Water/Wastewater Supervisor.
April 14, 2016	Email/Phone	Writing/Researching	Talked with Transportation Supervisor to update status of initiatives impacting division.
May 18, 2016	Phone	Writing/Researching	Talked with Information Services staff to determine status of identification and mapping of public and private properties in 100-year floodplain initiative.
July 11, 2016	Email	Writing/Researching	Sent request to Public Works Director and Public Works Management Analyst to review and prioritize revised initiatives.
March 22, 2017	Email/Phone	Writing/Researching	Worked with Associate Planner to update NFIP and incorporate into revised annex.
April 11, 2017	Email	Writing	Provided copy of draft revised plan to development team for review.

May 9, 2017	TRPC	Meeting	Met with TRPC, Olympia, and Tumwater to discuss multi-jurisdictional open house.
June 5 – 16, 2017	Email/Social Media	Promote June 14 open house	Solicit public comments and held joint open house meeting with Olympia and Tumwater at TRPC.
March 20, 2018	Lacey City Hall	Planning Commission Work session/briefing	Provided an update on the hazard mitigation plan and process to date. Reviewed the basics of hazard mitigation planning and had a brief discussion on Lacey specific mitigation issues. Discussed next steps in the planning process which includes a Planning Commission work session to review and discuss the full plan and a public hearing on the final draft of the plan before the Planning Commission for recommendation to the City Council for adoption.
March 26, 2018	Emergency services committee	Meeting	Plan review update with the City Manager
April 17, 2018	Lacey City Hall	Planning Commission Meeting	Reviewed draft of the Hazard Mitigation Plan with the Planning Commission at public meeting.
May 1, 2018	Lacey City Hall	Planning Commission public hearing	Held a public hearing on the draft of the Hazard Mitigation Plan at the regular meeting of the Planning Commission.

Land Use Committee Review May 22, 2018	City Hall	Meeting	Briefed Land Use Committee on the Hazard Mitigation Plan prior to final approval by FEMA.
Pending June 14, 2018	City Hall	Regular City Council Meeting for adoption of the hazard mitigation plan	

PUBLIC PARTICIPATION IN THE PLANNING PROCESS

The following section describes the opportunities for public involvement in the planning process and also provides the strategy for continuing to engage the public in building community resiliency.

OPPORTUNITIES FOR PARTICIPATION

The plan update process has occurred over a number of years with opportunities for public involvement provided at key steps throughout. The first opportunity for public comment regarding the Lacey Annex to the Regional Mitigation Plan was during the December 2014 Emergency Preparedness Expo held in Tumwater at the Peter G. Schmidt Elementary School. This expo was used as a way to engage community members and to solicit feedback on the mitigation plan during its development. Approximately 300 citizens attended the expo. The intent was to obtain comment and to provide an opportunity for the public to be involved and to get updates on the planning process as it progressed. Although no comments were received by Lacey residents at the Expo, staff was on hand to answer questions related to Lacey's hazard mitigation initiatives and the planning process.

The City also solicited public input on the Annex and mitigation initiatives by participating in a multi-jurisdictional open house on June 14, 2017 at the Thurston Regional Planning Council. Again, no direct comments regarding Lacey's plan were received at the open house, however the open house was widely advertised to the public and staff were available to provide input and to answer questions. The Lacey Annex has been posted on the City website and will be available on an on-going basis to provide opportunity for public comment, as well as to increase general awareness of hazards and emergency preparedness. Additional notification will occur through the constant contact email list maintained by the City and via social media as the plan is moved through the approval process.

Although the plan is not currently incorporated as an element to the City of Lacey Comprehensive Plan, the intent is that the plan will be incorporated as an element during the next update Comprehensive Plan update process. As such, the 2018 update will be reviewed by the City of Lacey Planning Commission; they will hold a public hearing and ultimately make a recommendation to the Lacey City Council. The Planning Commission process provides an additional avenue for public comment and involvement in the review process. Following the Planning Commission review, the Lacey City Council will review and approve the plan for adoption. During the Planning Commission and Council review process the City used social media, Facebook and twitter, to advertise the process and to invite residents to participate.

ONGOING PUBLIC PARTICIPATION

In an effort to increase public involvement in the mitigation planning process and to continue the conversation with the community regarding hazard mitigation and emergency preparedness, new mitigation initiatives are included in the plan designed to specifically increase public involvement and hazard awareness. For example; there is a strategy that staff will prepare materials related to the Hazard Mitigation Plan and general emergency preparedness information for distribution at events such as the BI-Annual HOA academy meetings. A mitigation strategy has been identified to develop a 'Pop-Up' hazard mitigation/emergency preparedness display that can be used at regular community events to expand awareness of the hazard mitigation plan and can provide emergency preparedness resources to community members. Some of the events could include, the HOA Academy meetings, the Lacey Spring Fun Fair, the South Sound BBQ Festival, Children's Day event at Huntamer Park and the Thurston County Emergency Preparedness Expo. Other events can be included throughout the year with the intent to provide information to a broad segment of the community.

UPDATES TO THE MITIGATION PLAN

The City Manager will be the on-going point of contact for monitoring, evaluating and updating the Plan. In the City of Lacey, the Human Resources Department, responsible for risk management activities, is the point-of-contact and shares the chair duties for the Emergency Services Committee. The HR representative and Police Commander serves as the Lacey representative on the Thurston County Emergency Management Council. To update the mitigation plan, the City will continue to participate with Thurston County and Thurston Regional Planning Council for the regular five-year update to the plan. Lacey has participated in updates in this manner with the Regional partners since the plan was first adopted.

In order to monitor the progress of implementation of the mitigation strategies, an annual presentation by the Emergency Services Committee on the status of the plan's mitigation initiatives and activities to promote hazard mitigation planning will be made to the General Government subcommittee of the City Council. This will serve as a means to keep the decision makers aware of the plan and its implementation status. This will also place the decision makers in a position of readiness to update the plan as needed. The agendas and notices for these meetings are posted on the City website.

INTEGRATION IN PLANS, POLICIES, AND PLANNING MECHANISMS

Mitigation and preparedness planning is addressed broadly throughout many planning documents adopted by the City. In 2016, the City of Lacey completed a three year update process of the Land Use Element of The Comprehensive Plan for the City of Lacey. The intent of the Comprehensive Land Use Plan is to present a clear vision for Lacey's future over the next 20-year period and incorporates a series of elements to provide a consistent policy direction relating to growth and development, transportation, housing parks, open space and environmentally sensitive and critical areas. While there are general policies throughout the plan that relate to hazard mitigation planning, the Environmental Element of the Lacey Comprehensive Plan provides the main policy guidance for regulations related to hazard mitigation. The following goals and policies are from the Environmental Element which was most recently revised in 2016:

Comprehensive Land Use Plan – Environmental Element

Resource Lands and Critical Areas;

- Goal 1: Development shall protect, conserve and complement natural resources and environmentally sensitive areas and promote sustainability.
 - Policy A: Development shall be consistent with the Environmental Element, the provisions contained in the Lacey Municipal Code and sustainability goals and objectives contained in the Comprehensive Plan.

Forest Lands

- Goal 2: Achieve and maintain a vibrant, healthy, and diverse urban forest in Lacey and Lacey's urban growth area consisting of both native and non-native landscape components to improve canopy cover and the aesthetic and physical benefits of trees while protecting infrastructure from tree damage

Critical Areas

- Goal 1: Incorporate a systems perspective into policy, regulatory, and service decisions, recognizing the interrelationship of people, nature and the economy
 - Policy C: Continue to preserve and protect significant environmental features including unique wetlands, hillsides, and habitat areas to support wildlife and protect surface and groundwater resources.

Flood Hazard Protection

- Goal 1: Protect Lacey's citizens and property from flood hazards
 - Policy A: Utilize and amend, when necessary, Lacey's flood hazard protection measures to minimize flood hazard impacts to life and property
 - Policy B: Continue to participate in the National Flood Insurance Program to minimize risk of flood hazard
 - Policy C: Utilize drainage and erosion control standards to respond and mitigate drainage problems

Geologically Sensitive Areas

- Goal 1: Protect the health and safety of the community and property to avoid the adverse impacts of erosion, landslide, and other geologic hazards
 - Policy A: Mitigate geological hazards by proper engineering design and modified construction techniques when risk to health and safety are deemed acceptable. When

technology cannot reduce risk to acceptable levels, development in geologically sensitive areas shall be avoided.

- Policy B: Review and refine development regulations and mapping resources for geological sensitive areas as additional resource information becomes available

Economic Element of the Comprehensive Plan

In addition to the Environmental Element, the City of Lacey Economic Development Element of the Comprehensive Plan has also incorporated resiliency goals and policies recognizing the importance of mitigation and preparedness planning as a means to ensure a thriving economy. If businesses are forced to close by disaster events impacts can spread throughout the local economy. The City strives to provide resources to local businesses to ensure that they are successful, including during the aftermath of a disaster.

Goal 2. Lacey is business ready – The economic needs of Lacey’s citizens are met because Lacey is prepared to meet the needs of all of its business customers.

Policy F: In the event of a disaster, natural or man-made, Lacey will take positive steps, as soon as possible, to do everything it can to help businesses reopen.

The Shoreline Master Program

The Shoreline Master Program for the City of Lacey provides goals, policies and the regulatory framework for regulation of development within areas defined as waters of the state per RCW 90.58.020. The shoreline regulations apply to development within 200 feet of the ordinary high water mark of the shoreline. One of the fundamental goals of the Shoreline Master Program includes the prevention and minimization of flood damage. To that end, regulations within the Shoreline Master Program provide prescriptive building setbacks from the ordinary high watermark. In the City of Lacey, the setbacks help to ensure that building takes place outside of the regulatory flood plain as shown on the Flood Insurance Rate Maps prepared for the Community as part of the City’s participation in the National Flood Insurance Program (NFIP).

Integration in Plans, Policies, and Planning Mechanisms

Elements of the City’s Comprehensive Plan and the annual budget for the City of Lacey are both used to implement mitigation initiatives specified by this annex. After adoption of the Hazards Mitigation Plan (HMP), the first step will be to seek funding for smaller projects or actions (mitigation initiative) in the annual budget process. The Capital Facilities Plan is an additional tool that can potentially be used to plan for mitigation implementation. The Capital Facilities Plan is updated every year; applicable mitigation initiatives can be included in the Capital Facilities Plan. Several mitigation initiatives identified in the 2003 and 2010 Plans were identified during the comp plan process and approved for funding during the annual budget process. This will continue to be the method used to accomplish the mitigation initiatives where capital funds are required. For example, the following mitigation initiative was completed in 2014 as part of the comp plan and budget process:

L-EH 4: Replace the shut off valve at the Union Mills Reservoir that will enable the water storage facility to be isolated in the case of a water line break or other damage.

During the next planning cycle, the Hazard Mitigation Plan will be included as an element to the City of Lacey Comprehensive Plan to further ensure applicable strategies are integrated into regular planning processes. Several mitigation strategies are also complimentary to objectives for a Comprehensive Emergency Management Plan (CEMP). The City of Lacey will be undertaking a major update to the CEMP

in 2018 and 2019 and will incorporate the applicable strategies into that plan in order to ensure that those strategies are accomplished.

RISK ASSESSMENTS

Introduction

This Annex describes how the City of Lacey's risks vary from the entire planning area. Chapters 4.0 through 4.6 of the core plan address the Disaster Mitigation Act risk assessment planning requirements. The Risk Assessment summarizes the hazards and the risks that pose the greatest threat to Thurston County. The Risk Assessment includes hazard profiles that describe the hazards, their causes, sources, severity, effects and impacts, probability of occurrence, historical occurrences, geographic extent or delineation, and the portion of the population, assets, and essential facilities potentially exposed to the hazard. The information is presented for general audiences and includes figures, maps, and tables.

Hazards Impact on Community:

The City of Lacey's population has increased from 42,393 at the time of the 2010 Census to an estimated 47,540 in 2016. As the city grows, it is important that this growth occurs in appropriate areas located outside of areas of potential natural hazards. Natural hazards that could occur in the City of Lacey would be related to flood events, landslides, and earthquakes, as well as winter storm and wind events.

The City of Lacey Comprehensive Land Use Plan and associated land use and zoning map guide growth and development in the City of Lacey. Growth has generally followed the land use plan with residential development primary locating on the edges of the City limits with two large planned communities located at the north and south edges of the City; multi-family development has also occurred within the City but is less concentrated to one area and is generally dispersed throughout all planning areas. The City has seen an expansion of light industrial development located north of Interstate 5 in the Hawks Prairie area of the City, with several large warehouse and distribution centers opening in Lacey. Those include the Trader Joe's and Harbor Wholesale grocery distribution centers and more recently the 700,000 square foot Medline Facility. Light industrial activity continues in the north east area of the city with additional warehouse and light industrial activities coming on-line in the next few years. Commercial development has focused around existing commercial centers. There is however potential for new commercial development in greenfield areas within the City limits.

The land use plan directs growth to areas that will be served by City utilities including water and sewer service as well as provides access to transportation and other urban infrastructure. By locating growth in concentrated areas, response during disaster events becomes more straight-forward for first responders and provides for faster response times than were growth to occur throughout a large geographic area with a more rural identity. The City of Lacey also adopts and enforces the most current International Building Codes, and does so on a three-year code cycle per requirements of the State of Washington. This process helps to ensure that all new construction meets the most current requirements for seismic safety and better ensures that Lacey building stock will be constructed to withstand the impacts of earthquakes and related liquefaction. Redevelopment similarly must meet current codes or be retrofitted to meet current code standards.

Further, the Environmental Protection and Resource Conservation Element of the City of Lacey Comprehensive Plan provides the policy framework that guides implementation measures for protecting and improving Lacey's natural environment. The topics discussed in this element include: Critical Areas, Geologically Sensitive Areas, Flood Hazard Areas, Habitat Conservation Areas, and the Shoreline Master Program. This Element of the Comprehensive Plan sets the policy framework for the development

regulations which control land uses within critical and hazard areas within the City. Development within the City is generally directed through regulation to occur outside of sensitive areas including wetlands, flood hazard areas and landslide hazard areas. The City has regulations related to natural hazards in our Critical Areas Ordinance Lacey Municipal Code 14.33; Lacey Municipal Code 14.34: Flood Hazard Prevention and Lacey Municipal Code 14.37, the Geologically Sensitive Areas Protection in addition to regulations within LMC 14.32 Tree and Vegetation Protection and Preservation Ordinance.

Development in areas of special flood hazards is addressed in LMC 14.34.082 and .084. Generally, these rules prohibit development in the flood hazard area including FEMA floodways and FEMA floodplains with the exception of recreational opportunities and infrastructure projects where no feasible alternative exists. Any development that does occur in these areas must meet the development standards of Chapter 14.34 which meet or exceed the requirements of the State of Washington RCW 86.16 and Title 44 Section 60.3 of the Code of Federal Regulations for Flood Plain Management Criteria.

Development in geologically hazardous areas (landslide and seismic) is addressed in LMC 14.37. Per the lacey municipal code Geologically Sensitive Areas are defined as follows:

An area that because of its susceptibility to erosion, sliding, earthquake or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns. Geologically sensitive areas do not include artificially created hazard areas.

The regulations in LMC 14.37 place restrictions on development in geologically sensitive zones as well as provide additional building setback requirements related to the degree of slope present. The Development in areas with potential geologic hazards requires additional geotechnical analysis by a qualified professional to certify that if a landslide or earthquake occurred structures would not be compromised, inhabitants would remain safe and abutting property owners would not incur damage from failed structures. . The regulations restrict any development within ravine sidewalls, on bluffs or within their buffers, and hillsides with slope greater than 40%, Development on areas determined to be 'Developable Geologically Sensitive Area' are restricted in the amount of disturbance permitted based on slope present and shall further provide additional technical information to show that the development will be protected in the event of an earthquake, landslide or other geological event.

Vulnerable populations;

Part of a comprehensive risk assessment is an assessment not only of hazards and their impacts on locations but also an assessment of other factors that play a role in community resiliency following disaster. Examining and understanding socioeconomic factors and subpopulations that are unique to a community can help to inform decisions regarding mitigation programs and strategies that will improve the communities' ability to prepare for disaster and to respond after disaster events.

Following a recent flood map update, FEMA Region X prepared a Risk Report for Thurston County, including the incorporated cities as well as the unincorporated areas of Thurston County. The report examines the risk related to natural hazards in the region with the goal to inform communities of their risk and further enable them to act to reduce risk through hazard mitigation planning. The Risk Report identified two unique and vulnerable populations within the City.

In Lacey, approximately 15.3% of the population is over the age of 65. There are several senior and assisted living facilities located within the City limits; additional senior and assisted living facilities are located outside of City limits, but within the Urban Growth Boundary of the City of Lacey. The City is

home to Panorama, a continuing care retirement community that is home to more than 1200 people in the heart of the City of Lacey. Panorama is home to not only active adults, but also to seniors at all stages of mobility and degrees of health. In addition to Panorama, the active adult community of Jubilee is located in northeast Lacey. Jubilee is an active adult community with more than 700 single-family homes. In southeast Lacey, there are three assisted living and memory care facilities. As of December 2017 two additional senior living facilities and one memory care facility, were either under construction or near permit approval within the City of Lacey.

In addition to the senior communities within the City, according to the Thurston County Risk Report, Lacey is home to the largest percentage of households that speak languages other than English at home. Approximately 5.5% of the population speak Spanish at home, and 9.2% of the population speak Asian or other Pacific languages.

Hazard Analysis Definitions

The *Hazards Mitigation Plan for the Thurston Region* uses a subjective risk measurement process based on Thurston County's Hazard Inventory and Vulnerability Assessment or HIVA. This methodology rates elements of each hazard's risk characteristics using the descriptors high, moderate, and low. These descriptors are applied to the hazards' probability of occurrence, vulnerability, and overall risk. The following is an overview of this risk measurement model.

Risk Rating: A description (high, moderate, or low) of the subjective estimate of the combination of any given hazard's probability of occurrence and the region's vulnerability to the hazard.

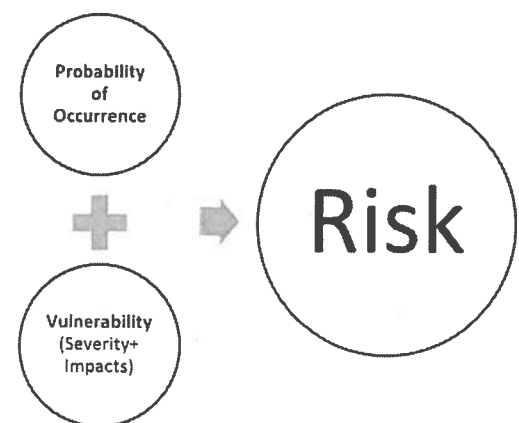
- High – There is strong potential for a disaster of major proportions.
- Moderate – There is medium potential for a disaster of less than major proportions.
- Low – There is little potential for a disaster.

Probability of Occurrence: A description (high, moderate, or low) of the probability of a hazard impacting Thurston County within the next 25 years.

- High – There is great likelihood that a hazardous event will occur within the next 25 years.
- Moderate – There is medium likelihood that a hazardous event will occur within the next 25 years.
- Low – There is little likelihood that a hazardous event will occur within the next 25 years.

Vulnerability: A description (high, moderate, or low) of the potential impact a hazard could have on Thurston County. Vulnerability can be expressed as combination of the severity of a hazard's effect and its consequential impacts to the community. It considers the population, property, commerce, infrastructure, and services at risk relative to the entire county.

- **High** – The total population, property, commerce,



infrastructure, and services of the county are uniformly exposed to the effects of a hazard of potentially great magnitude. In a worst case scenario, there could be a disaster of major to catastrophic proportions.

- **Moderate** – The total population, property, commerce, infrastructure, and services of the county are exposed to the effects of a hazard of moderate influence; or the total population, property, commerce, infrastructure, and services of the county are exposed to the effects of a hazard of moderate influence, but not all to the same degree; or an important segment of population, property, commerce, infrastructure and services of the county are exposed to the effects of a hazard. In a worst case scenario, a disaster could be moderate to major, but not catastrophic proportions.
- **Low** – A limited area or segment of population, property, commerce, infrastructure, or service is exposed to the effects of a hazard. In a worst case scenario, there could be a disaster of minor to moderate proportions.

Hazard Profiles

The core plan includes detailed profiles of hazards that pose the greatest risk to the Thurston County. Because the core plan treats the entire county as the planning area, the core plan's risk assessment is the definitive risk assessment for Thurston County. Each hazard profile fulfills all the following criteria:

1. There is a high probability of the natural hazard occurring in Thurston County within the next 25 years.
2. There is the potential for significant damage to buildings and infrastructure.
3. There is the potential for loss of life.

The following hazards meet one or more of the above criteria. Every hazard profile was evaluated and updated during the plan update process.

Summary Assessment - City of Lacey's Risks

Based on the regional risk assessment and the local risk assessment in the subsequent section, the following hazards pose the greatest threat to the City of Lacey.

Hazard	Probability of Occurrence	Vulnerability	Risk
Earthquake	High	High	High
Storm	High	High	High
Flood	Moderate	Low	Low
Landslide	Moderate	Low	Low
Wildland Fire	Low	Low	Low
Volcanic Event	Low	Moderate	Moderate

Earthquake

Severity

The issue of earthquake severity for the City of Lacey is not much different than the rest of Thurston which is described in great detail in Chapter 4: Risk Assessment. Since earthquake severity is dependent upon the course of the quake, ground moisture content, depth, and duration, the amount of damage will depend if the quake is crustal, subduction, or deep in the Juan de Fuca plate. The most recent and proximate earthquakes were deep (the 1949, 1965, and 2001 earthquakes all emanated from this zone). The 2001 Nisqually earthquake's focus was located about 32 miles deep below its epicenter on Anderson Island and measured 6.8 on the Richter Scale.

Impacts

Depending on the type and depth of the earthquake, ground moisture content, and duration of the shaking, impacts would probably include failed buildings, bridges, fallen trees, fallen utility poles and other structures which could trap or bury people causing injury and death. Damage to infrastructure such as roads, bridges, rail lines, runways, and almost all types of utilities is certain. Infrastructure failures can result in short and long-term loss of public and private sector services and business. Costs of repairs could be unprecedented and delay the restoration of services.

In a major crustal earthquake of magnitude 6.7 or greater, the City of Lacey is likely to face communication, electricity, motor fuel, natural gas, water, and sewer disruptions. Structural fires are a secondary hazard from earthquake destruction. Individuals and households may be displaced due to damaged homes. A subsequent economic downturn would likely result from major transportation disruptions and loss of revenue from suspended business and services.

Fortunately, due to modern building codes and construction practices, the City of Lacey is not vulnerable to some of the impacts that threaten older communities in the Puget Sound Region. These communities have unreinforced masonry structures such as buildings, walls, chimneys, and facades that are vulnerable to crumbling from ground shaking. The City of Lacey also has fewer areas with soft soils that are subject to liquefaction.

Fire fighters, police, public works, and other safety and emergency personnel can quickly become extended with response and recovery operations. Transportation disruptions will hinder emergency response to remote or hard to reach areas, potentially for a long period of time. Building and structural inspections will become priorities for public works and development services personnel which will disrupt their other day to day operations. Following is a list of freeway overpasses and railroad trestles that would severely limit the City's response efforts if they were damaged or destroyed:

- Chehalis Western Bike Trail
- Sleater-Kinney
- College Street
- I-5 over Martin Way
- Carpenter Road
- Martin Road

Railroad Over Passes:

Rainier Road south of Yelm Highway
 Yelm Highway at Train Tracks
 Mullen Road at Afflerbaugh overpass

Based on TRPC surveys of steep slopes and liquefaction hazards in the City's 10,778 acres, 36% of the land mass and 54.4% of the population are in "low to moderate" to "high" liquefaction susceptibility hazard areas. The same survey estimates that 54.8% of the residential dwellings are located in the same hazard areas.

Probability of Occurrence

History suggests a high probability of occurrence of another damaging earthquake sometime in the next 25 years. The overall probability of occurrence of a damaging earthquake is high.

Historical Occurrences and Impacts Specific to the City of Lacey

At 10:54 am on February 28, 2001 a magnitude 6.8 earthquake produced strong ground shaking across Washington State. The epicenter was located near Anderson Island north of the Nisqually River Delta. The focus was located nearly 33 miles underground. Thurston County was among the hardest hit counties in the State, with most damages reported in the Olympia and Tumwater areas. Even though it is closer to the epicenter, the City of Lacey did not incur as much reportable damage; however, the asphalt on Afflerbaugh Drive and the parking lot at Animal Services cracked which required repair. Damage to private properties included a few chimneys that fell down and trees that fell over onto houses and/or power lines.

Summary Assessment

History suggests a high probability of occurrence of a damaging earthquake sometime in the next 25 years. The Nisqually quake is a reminder of the region's vulnerability and as such, the Thurston region has a high risk rating for earthquake hazards.

Summary Risk Assessment for Earthquake for the City of Lacey

Hazard	Probability of Occurrence	Vulnerability	Risk
Earthquake	High	High	High

Storm

Severity

Severe weather events are the most frequent source of natural disasters for the City of Lacey. Between 1965 and 2016, 18 of 22 Presidential Disaster Declarations involving Thurston County were attributed to damage resulting from winter storms. While the most damaging historical weather events in Thurston County were a result of flooding, this type of hazard is almost non-existent within the City; therefore, severe storms rank highest on the list of hazards to be mitigated.

High winds, heavy rain, heavy snow, freezing rain, tornados, hail and lightning all impact the City of Lacey. Each element poses a threat at varying degrees. The severity of each is summarized below:

1. High Winds/Windstorms: Between 1948 and 2016, 117 unique windstorm events with hourly wind speeds over 30 mph and 14 windstorm events with wind speeds over 40 mph have buffeted Thurston County, the most powerful being the Columbus Day storm in 1962.
2. Heavy Rain: The City of Lacey is moderately vulnerable to localized stormwater flooding as a result of heavy rains between November and February.
3. Freezing Rain: The overall region is susceptible to the effects of an ice storm of the magnitude experienced in December 1996. The December 2008 winter storm delivered freezing rain, but accumulations of ice were less than one-tenth of an inch.
4. Heavy Snow: While the average annual snowfall for the county is only 17 inches between mid-November and mid-March. Record accumulated snowfall was during December 1968 to January 1969 with a total of 81.5 inches. Between 1948 and 2015, weather stations in Thurston County recorded 39 daily snowfall events with depths of 6 inches or greater.
5. Tornado: No deaths or injuries have resulted from tornados in Thurston County.
6. Hail: Most hail storms in the City produce small non-destructive hail.
7. Lightning: Records indicate that lightning storms are most likely to occur in the City from April through September, and are of a short-lived localized nature.

Impacts

High winds, heavy rain, heavy snow, freezing rain, tornados, hail and lightning all impact the City of Lacey. Each element poses a threat to impact the City in varying degrees, as summarized below.

1. High Winds/Windstorms: The City of Lacey is vulnerable to high winds due to climatic conditions. The greatest impact is from falling trees and limbs that can cause widespread power outages and debris management issues. There have historically been few injuries and/or fatalities, but roadways have been blocked, which limits the access of emergency services, and citizens get stranded without power or telephone for days at a time. Damage to both private and public facilities has caused economic hardship and environmental resources have been damaged.
2. Heavy Rain: The City of Lacey is mostly urban and therefore heavy rains are most impactful when storm drainage systems and associated infiltration ponds become overwhelmed. This is most common in the Fall when leaves and debris clog storm drain grates which can lead to backed up water over roadways and into private properties. Due to the storm water utility fund, City maintenance staff has generally been able to keep the stormwater conveyance system clear and capital improvements have resolved many of the problematic areas prone to

localized flooding. Therefore, there have been fewer injuries, a minimal amount of private properties damaged, and fewer environmental resources damaged as a result.

3. **Freezing Rain:** Freezing rain can produce debilitating effects in the City of Lacey. As was learned in the 1996 event, utility lines, tree branches, road signs, and traffic signals were brought down or snapped. Roads and other transportation corridors were covered in a sheet of ice, causing emergency services to have limited response capability. Telecommunications and power lines were out for up to a week and local stocks of food and water were beginning to become scarce. The January 2012 winter storm resulted in an emergency declaration due to considerable debris removal and power outages similar to the 1996 event.
4. **Heavy Snow:** Blizzard conditions can cause powerline, tree limbs, and structures to fail due to the weight of snowload; safe transportation can grind to a halt (reducing or eliminating response capabilities) and create widespread power outages. These resulting conditions can also produce consumer shortages due to the inability of freight carriers to deliver goods. Heavy snowfall is mostly impactful when the City's limited snow removal equipment can't keep roads open for public access and emergency services. This was evidenced during the December, 2008 snow events that caused roads to be impassable to inexperienced drivers for many days before City crews and snow plows could get them open.
5. **Tornado:** The effects of a tornado can be extremely destructive during a short period of time in a very localized setting.
6. **Hail:** The effects of hail can be destructive during a short period of time in a very localized setting.
7. **Lightning:** While there are no documented lightning fatalities in Thurston County, multiple lightning events have resulted in some injuries and damage in various locations. Lightning can also cause fires.

Probability of Occurrence

Storms are frequent in Thurston County and history suggests a high probability of wind, rain, ice, snow, and any combination occurring.

Historical Occurrences and Impacts Specific to City of Lacey

The effects of severe storms to the City of Lacey have generally been somewhat less than other parts of the county due to the geographic location of the City away from major rivers and flood plains. The most recent and most damaging events have been a result of wind, rain, and snow storms (May 4, 2017, January 14-23, 2012, December 2008, and December 14, 2006). Within the Thurston County, Lacey was impacted the greatest by the May 4 wet microburst; a localized column of sinking air within a thunderstorm accompanied by significant precipitation and high winds.

During these events, the primary concerns were keeping roadways clear for utility crews, emergency service vehicles, and the general public. The City of Lacey has implemented emergency power supplies (generators) to its facilities in order to minimize the effects of power outages for supplying water pumping sewer for their customers. Pre-event staffing, emergency pre-planning, and preparation have helped mitigate the impacts of storms.

Summary Assessment

The high reoccurrence rate of pacific northwest storms, the record of historical damage and the

repetitive response and recovery costs (regionally and county wide) associated with these destructive events make the City of Lacey highly vulnerable to storm events. The overall risk rating for severe storms is "high".

Summary Risk Assessment for Storm for City of Lacey

Hazard	Probability of Occurrence	Vulnerability	Risk
Storm	High	High	High

Flood

Severity

The City of Lacey is mostly at risk of "urban" flooding, which results when stormwater runoff exceeds the capacity of natural or infrastructural drainage systems. There is also a history of elevated lake levels that impact a limited number of private dwellings adjacent to Hick's Lake. Although many hydrologic factors come into play, the lake level is primarily regulated by an outlet pipe that runs through private property - which also makes this localized flooding risk an "infrastructure" problem. Riverine, groundwater, and tidal flooding has not historically been a significant problem in the City of Lacey. The severity of localized "urban" flooding is minimal because City utility crews can usually respond to correct the condition on a temporary basis, and then capital improvements can be made to permanently correct the problem.

In 2008 the City annexed an area along Rainier Road that was a historical flooding problem in the County. The flooding is a result of a drainage ditch along the Burlington Northern Santa Fe Railroad grade that becomes overwhelmed under certain rainfall conditions and flows onto Rainier Road, a major North-South transportation corridor for Thurston County residents. In the winter of 2008, three private properties were impacted when the local creek flooded city streets, which then drained into their yards. Modifications to adjacent draining ditches and embankments have since been made to protect the three private properties from flooding.

Impacts

The risk for floods in the City of Lacey is minor with little or no health safety impact, few properties destroyed and/or damaged, and minimal environmental resources damaged. Based on TRPC surveys of flooding hazards in the City's 10,778 acres, 11.2% of the land mass and 5.6% of the population is in a flood hazard area. The same survey estimates that 5.7% of the residential dwellings are located in hazard zones. All but one of the City's buildings and infrastructure (wells, liftstations, parks, and roads) are located outside of historical or potential flooding hazard zones. Historically, the known impacts of localized urban storm water or groundwater flooding have been seen at homes with basements flooded, inundated septic-drain field systems, and flooded underground utility vaults.

Probability of Occurrence

Although urban flooding is difficult to predict, the frequency of occurrence is diminishing due to capital improvements and storm water utility maintenance practices. Since the early 1990's, all of the City's untreated storm water outfalls to surface water bodies have been retrofitted with holding ponds and infiltration galleries. The streets and storm water divisions of the Public Works Operations Division also are proactive in keeping catch basins and conveyance pipes clean and free of blockages. All of these management efforts keep the probability of occurrence of localized urban flooding low. Threats to these efforts include a growing population and related storm water infrastructure, and future annexations of problematic areas that are currently outside the City's incorporated limits.

Historical Occurrences and Impacts Specific to the City of Lacey

Flooding events have not presented a significant impact to the City and the delivery of its services to the community. Most flood related services are of an emergency nature, clearing leaf debris off of catch

basin grates, pumping water out of overwhelmed storm water ponds, and providing assistance in pumping out flooded basements. Major impacts related to flooding have not been experienced in the City of Lacey to either City buildings or residential structures; there have been few flood claims filed in the City and there are no repetitive loss properties within City limits.

Summary Assessment

While the history of Thurston County clearly demonstrates a high probability of future occurrence, the severity and impact to the City of Lacey are “low”.

Summary Risk Assessment for Flood for City of Lacey

Hazard	Probability of Occurrence	Vulnerability	Risk
Flood	Moderate	Low	Low

Landslide

Severity

Landslides are movement of rock, soil, or other debris, down a slope. The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Factors such as erosion, unstable slopes, earthquakes, volcanic eruptions, vibrations, increase of load, hydrologic factors, human activity, removal of lateral and underlying support, increase of lateral pressures and regional tilting will affect the severity of a landslide.

Impacts

Based on TRPC surveys of landslide hazards in the City, only 1.2% of the population is in a landslide hazard area. The same survey estimates that 1.2% of the residential dwellings are located in hazard zones. Historically, the known impacts of landslides in the City have been minimal.

Probability of Occurrence

Based on historical precedent, the incidences of landslides are concurrent with winter storms, flooding and earthquakes. The majority of landslides in the region are triggered by heavy precipitation. While significant landslides have occurred in nearby areas (Carlyon Beach, Hunter Point), there have been no recent notable landslides causing injuries or damage to personal property in the City. Based on geologic information, the probability for occurrence is "moderate".

Historical Occurrences and Impacts Specific to the City of Lacey

Landslide events have not presented a significant impact to the City or the delivery of its services to the community.

Summary Assessment

In the City, landslides tend to occur in isolated, sparsely developed areas with minimal impact on individual structures, transportation networks and power/communications infrastructures; this would indicate a "low" risk rating.

Summary Risk Assessment for Landslide for the City of Lacey

Hazard	Probability of Occurrence	Vulnerability	Risk
Landslide	Moderate	Low	Low

Wildland Fire

Severity

According to the Hazard Mitigation Plan for the Thurston Region, "A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires can begin unnoticed and spread quickly. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires. In Thurston County, wildfires are most likely to occur during the local dry season, mid-May through mid-October, or anytime during prolonged dry periods causing drought or near-drought conditions.

Impacts

The biggest impact of wildland fire to the City is damage to private residences, commercial properties, and industrial buildings in the wildland/urban interface. Based on TRPC surveys of wildland fire hazards in the City, only 2 acres of the City's 10,778 acres and 0% of the population is in a wildfire hazard area. The same survey estimates that 0% of the residential dwellings are located in hazard zones.

Probability of Occurrence

With an average of 63 wildfires per year in Thurston County, between 1972 and 2015, 81.5 percent of wildland fires burned less than one acre and 11.5 percent burned one to two acres. The record of wildland fires in Thurston County suggest that most fires will continue to be five acres or less; the region can expect at least one fire exceeding 100 acres over the next 25 years. A warmer and drier future climate may create more suitable conditions for more frequent or larger wildfires. Although there is a "high" probability of reoccurrence in the county, because of the urban nature of the City, the probability is "low" for wildland fires.

Historical Occurrences and Impacts Specific to City of Lacey

In the recent past, only a few brush fires in open space tracts and dried up stormwater ponds have created wildland fire hazards to the City of Lacey. Based on this and the urban nature of the City, vulnerability and overall risk is estimated to be "low".

Summary Assessment

In the City, wildland fires may occur in the remaining isolated, sparsely developed areas or are of a nature where they are quickly reported and suppressed with minimal impact on life safety, individual structures, transportation networks, and power/communications infrastructures. All told, this would indicate a "low" overall risk rating.

Summary Risk Assessment for Wildland Fire for the City of Lacey

Hazard	Probability of Occurrence	Vulnerability	Risk
Wildland Fire	Low	Low	Low

Volcanic Hazards

Severity

An eruption of Mount Rainier, an intermittently active local volcano, could create mud and debris flows called "lahars." Lahars originate on volcano flanks and can surge tens or even hundreds of miles downstream from a volcano. Historically, lahars have been one of the most destructive volcanic hazards.

Impacts

Ash fall of a 1/4 inch or more would reduce motorist visibility and disrupt nearly every mode of transportation due to both reductions of visibility and contamination for air-breathing engines. The ash would also affect persons with respiratory problems. Large accumulations of wet ash could cause load bearing problems for structures, trees and utility lines, causing collapses and power/communications outages. The ability of the City to respond to emergency incidents, keep roadways passable, and provide water and sewer services to its citizens could be complicated or reduced. Clean-up and recovery would likely be the greatest cost to both the public and private sector. Other concerns include the risk of fire if the ash were hot enough to initiate burning, limitations on air and other means of transportation and subsequent supply shortages, and the impact on surface water supplies, such as McAllister Springs.

The City of Lacey has a well that provides water services to part of the lahar hazard area in the Nisqually River valley. Although the customers are not Lacey citizens and the area is not in the City's urban growth area, the City would strive to protect the water source and provide water to its customers.

Probability of Occurrence

The US Geological Survey reports that Mount Rainier has only produced moderate quantities of ash in past eruptions; Mount St. Helens 1980 eruption deposited only a scant layer of ash in Thurston County. Because the prevailing winds blow from the south & west, it is likely most ash from a Cascade Range eruption be blown east away from Thurston County, with little (less than .02%) chance of winds blowing it into the county. Therefore, there is a "low" probability of occurrence in the county and to the City of Lacey.

Historical Occurrences and Impacts Specific to the City of Lacey

No known historical precedence in the City of Lacey.

Summary Assessment

Under certain conditions, tephra could fall within the City, but the effects would not pose immediate life threatening conditions. The clean-up and recovery costs could be significant as well as the impact to regional transportation and supply chains, emergency services, and public health. Therefore, the City is "moderately" vulnerable to volcanic activity.

Summary Risk Assessment for Volcanic Events for City of Lacey

Hazard	Probability of Occurrence	Vulnerability	Risk
Volcanic	Low	Moderate	Moderate

MITIGATION INITIATIVES

REVIEW PROCESS

The following paragraphs describe the process that was used by City of Lacey staff to develop, evaluate, and prioritize the mitigation initiatives in the update to the Hazards Mitigation Plan. The first step was to review the 2009 plan and mitigation initiatives and determine which ones had been completed or were no longer relevant. This task, along with modifying existing initiatives was accomplished by input provided by the City's Hazard Mitigation Plan Development Team.

These initiatives were reviewed, revised, or eliminated through meetings, emails, and discussed with affected departments using the benefit cost review forms provided by TRPC staff. Once all the affected departments provided input, the existing initiatives were reviewed and prioritized.

In March 2018, the Emergency Management Committee convened to discuss and identify new initiatives that could be included in the plan. The discussion focused on increasing public awareness of hazard mitigation planning and identified methods to increase public engagement in the hazard mitigation planning process. New initiatives were developed to address the City of Lacey's specific vulnerabilities; those over aged 65 and non-English speaking populations. The committee also addressed the City's growing need for a specific Emergency Management Coordinator position at the City. With increasing mitigation initiatives and priorities as well as state and federal planning requirements regarding hazard preparedness, there is a growing need to have a staff member who is capable of preparing plans and instituting the mitigation initiatives identified in this plan. Additionally, the following criteria were considered in reviewing the plan initiatives:

1. Is it a life/safety issue?
2. What is the effect on private or public property?
3. What is the economic impact?
4. What staff resources are required?

Other factors considered include financial constraint, the number of people the initiative would benefit, whether a project was already part of an annual work plan, and the emergent or critical nature of the project.

The order of implementation may vary from the identified priority due to changing hazard conditions or the criteria of available City funds and grants. The City will pursue funding for projects that stand the greatest chance of competing for limited state and federal mitigation grant programs. The City will also review the strategies and put in place measures to accomplish those strategies which do not have negative impact on budgets and which will provide general hazard awareness and benefit to the community with the goal of increasing community resiliency.

INITIATIVES

The mitigation initiatives are the City of Lacey's specific actions for mitigating losses and protecting life and property. They consist of initiatives that carried over from the previous plan update process, as well as new initiatives aimed at increasing preparedness amongst Lacey's Citizens and staff readiness for response. Lacey's adopted initiatives were reviewed and updated by the development team new initiatives were also identified and considered for inclusion in the updated mitigation plan.

Priority	ID Number	Category	Action	Status
1	L_EH 2	Critical Facilities Replacement/Retrofit	Pursue seismic upgrades to water facilities that do not meet current seismic codes.	Existing
2	L-EH 1	Critical Facilities Replacement/Retrofit	Continue funding the water line replacement program to ensure water supply lines are constantly being upgraded.	Existing
3	L-MH 7	Hazard Preparedness	Purchase and install backup generators to provide power to the remaining sewer lift stations that do not currently have permanently mounted standby generators.	Existing
4	L-EH 3	Hazard Damage Reduction	Reduce hazards inside of City facilities to prevent property damage and enhance ability to recover and respond after an earthquake.	Existing
5	L-FH 2	Public Information	Include information in public outreach materials and presentations that flood insurance is typically NOT included in homeowner's insurance policies and that it is incumbent on the consumer to request this coverage over and above the standard policy limits.	Existing
6	L-MH 9	Hazard Preparedness	Develop a system for secure off-site, "real time" storage of data from City computers and networks.	Existing
7	L-MH - 10	Hazard Preparedness	Increase public awareness of hazard mitigation and preparedness by creating a "Pop-Up" Emergency Preparedness display for use at City events throughout the year. As part of this initiative include specific materials geared toward identified vulnerable populations	New

8	L-MH- 17	Public Outreach and information, hazard preparedness, hazard damage reduction, plan coordination and implementation	Explore the possibility of creating a Hazard Mitigation/Emergency Preparedness Coordinator for the City; alternatively identify an existing position that can be modified to include the full breadth of the emergency management and hazard mitigation responsibilities	NEW
9	L-MH- 11	Hazard Preparedness	Conduct an annual review of staff EOC roles and responsibilities. Ensure that all critical ICS roles are addressed and filled with appropriate staff member. Ensure that staff are aware of their role on the EOC team and that appropriate resources available for training.	New
10	L-MH- 12	Hazard Preparedness	Enhance the ICS and Emergency preparedness training program for City Staff. Begin with critical staff and managers with the goal to provide annual training to all city staff within 5 years of program implementation. Include training on the ATC-20 for applicable staff members.	New
11	L-MH- 13	Hazard Preparedness	Formalize a city emergency response team prepared for deployment following an event to perform risk assessments of public and private structures throughout the City. Ensure coordination with the adopted emergency response plan; update the plan as necessary to ensure that it is current with existing staff.	New
12	L-MH- 14	Hazard Preparedness/Public Information	Adopt and proclaim an annual Preparedness Month in the city of Lacey. Use the month as an avenue to provide outreach and education to community members.	NEW
13	L-MH- 15	Hazard Preparedness/Public Information	Expand partnerships with the local business community including the Lacey South Sound Chamber of Commerce, the Economic Development Council, the Thurston County Chamber, and the Small Business Association to provide mitigation resources to local business in an effort to increase economic resiliency.	NEW

14	L-MH- 16	Hazard preparedness, plan coordination and implementation, data collection and mapping	Create a hazard map inventory, identifying areas in city subject to flood, landslide, liquefaction and other geologic hazards; overlay existing building stock to target mitigation efforts. Include in the inventory maps that identify clusters of vulnerable populations.	NEW
15	L-EH-4	Hazard Damage Reduction, Development Regulations	Continue to consider to adopt and enforce the most recent of the International Code Series (Building, Fire, Plumbing etc.); ensure redevelopment and reconstruction are to current codes	NEW
16	L-EH- 5	Hazard Damage Reduction/Public Information	Develop a catalog of materials/information on non-structural retrofit activities. Provide information in public locations throughout the city. Publish on the website and advertise information on social media.	NEW
17	L-EH- 6	Hazard preparedness, public outreach and information	Develop and implement a training program on residential structural and non-structural retrofit activities geared towards home owners, and home owner associations. Partner with appropriate vendors to coordinate trainings.	New
18	L-MH- 18	Hazard Preparedness	Expand the list capable and well-suited volunteers for a response cadre that could be deployed following an event. This could include HAMM Radio operators, structural engineers, and architects.	New
19	L-MH- 19	Hazard Preparedness, Data Collection and Mapping	Develop and expand partnerships with local businesses and resources to foster natural hazard mitigation and to inventory community assets that could be used during a disaster and for response during a significant event.	New

Hazard Category Codes are as follows: EH=Earthquake Hazard; FH=Flood Hazard; LH=Landslide Hazard; MH=Multi Hazard;SH=StormHazard;WH=WildlandFireHazard;andVH=VolcanicHazard.

Priority: 1 of 19

Status: Existing

L-EH 2: Pursue seismic upgrades to water facilities that do not meet current seismic codes.

Hazard Addressed: Earthquake Hazard

Category: Critical Facilities Replacement/Retrofit

Rationale: Ensures that Lacey's water storage capability will not be severely impacted during a seismic event. Inspection and potential retrofits may be needed at the Union Mills Reservoir, Judd Hill Reservoir, Steilacoom Reservoir, and Nisqually Reservoir with seismic anchors.

Relates to Plan Goal(s) and Objectives: 2B, 2D

Implementer: City of Lacey water utility

Estimated Cost: Unknown

Time Period: – 2016 - 2023

Funding Source: Lacey water utility matched with potential grant funding.

Source and Date: Water Comp Plan (2013)

Adopted Plan Number: Water - 17

Reference Page: Page 8-22

Initiative and Implementation Status: A seismic evaluation of the City water reservoirs was completed in 2015. Per recommendations made in the evaluation, the operating water level in the Judd Hill Reservoir has been lowered to reduce the risk of overturning during a seismic event. Additionally, design of seismic retrofit measures for the Union Mills Reservoir will begin in 2016 with construction of the upgrades scheduled for 2017.

Priority: 2 of 19

Status: Existing

L-EH 1: Continue funding the water line replacement program to ensure water supply lines are constantly being upgraded.

Hazard Addressed: Earthquake Hazard

Category: Critical Facilities Replacement/Retrofit

Rationale: Ensures that the City infrastructure for water delivery is continuously being replaced and built to current seismic codes. Enables flexible joints or other seismic upgrades to be included as part of the water system upgrades, where necessary.

Relates to Plan Goal(s) and Objectives: 2B, 2D

Implementer: City of Lacey water utility.

Estimated Cost: \$1,000,000 annually

Time Period: Annually, 2018 - 2023

Funding Source: Water Utility fund

Source and Date: Water Comp Plan (2013)

Adopted Plan Number: Water 20

Reference Page: Refers to the identifiers of the initiative within the adopted document.

Initiative and Implementation Status: This program is budgeted every year by the Lacey City Council and it is anticipated that it will continue to be funded. This is an existing initiative that gets completed each year, but is carried over to the next planning cycle.

Priority: 3 of 19

Status: Existing

L-MH 7: Purchase and install backup generators to provide power to the remaining sewer lift stations that do not currently have permanently mounted standby generators.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: Most water facilities have been constructed or retrofitted with emergency standby generators to provide power to the pumps and controls during power outages. There are some remaining sewer lift stations that have not been retrofitted with generators.

Relates to Plan Goal(s) and Objectives: 2B

Implementer: Public Works

Estimated Cost: \$2,300,000

Time Period: 2018 - 2023

Funding Source: Wastewater Comp Plan (2015)

Source and Date: 2015 WW Comprehensive Plan Update and Annual Budgets

Adopted Plan Number: N/A

Reference Page: Page numbers will change with every adopted budget

Initiative and Implementation Status: This is an ongoing project. There are currently 14 sewer lift stations that do not have permanent standby generators.

Priority: 4 of 19

Status: Existing

L-EH 3: Reduce hazards inside of City facilities to prevent property damage and enhance ability to recover and respond after an earthquake.

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction

Rationale: This initiative includes activities such as strapping down computers, CRT's, bookcases, shelving units, and other office and operating supplies and equipment. This will minimize the amount of property damage, increase ability to respond and recover, and reduce the risk of personal injury from falling and projectile objects.

Relates to Plan Goal(s) and Objectives: 3B

Implementer: City of Lacey Emergency Management

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: 2003 Natural Hazards Mitigation Plan

Adopted Plan Number: L-EH 3

Reference Page: V-51

Initiative and Implementation Status: Ongoing potential project that has not been initiated yet.

Priority: 5 of 19

Status: Existing

L-FH 2: Include information in public outreach materials and presentations that flood insurance is typically NOT included in homeowner's insurance policies and that it is incumbent on the consumer to request this coverage over and above the standard policy limits.

Hazard Addressed: Flood Hazard

Category: Public Information

Rationale: This will enable Lacey residents to better understand the limits of their insurance policies and can then lead to an informed decision regarding the purchase of flood insurance depending on each individual's circumstance.

Relates to Plan Goal(s) and Objectives: 9A

Implementer: City of Lacey

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: 2003 Natural Hazards Mitigation Plan

Adopted Plan Number: L-FH 2

Reference Page: V-55

Initiative and Implementation Status: Although the risk of riverine, palustrine, and coastal flooding is remote in the City of Lacey, some homeowners may live near a lake or wetland and may want to consider purchasing additional flood insurance. Including this information in our public outreach materials will enable homeowners to make a more informed decision on whether or not flood insurance is necessary for their home's location.

Priority: 6 of 19

Status: Existing

L-MH 9: Develop a system for secure off-site, “real-time” storage of data from City computers and networks.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: The system would mimic the City's current network structure and files would be backed up instantly as they are created or modified. The backup servers would be located in a hardened secure site that could be accessed remotely or in person by Information Services staff. Having the backups will enable the City to recover more quickly and efficiently after a major disaster.

Relates to Plan Goal(s) and Objectives: 3B

Implementer: City of Lacey Information Services Department

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Potential project that has not been initiated due to the significant costs associated with creating a real-time storage.

Priority: 7 of 19**Status:** New

L-MH- 10: Increase public awareness of hazard mitigation and preparedness by creating a “Pop-Up” Emergency Preparedness display for use at City events throughout the year. As part of this initiative include specific materials geared toward identified vulnerable populations

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: This initiative is intended to increase awareness hazard mitigation throughout the community. By making information available throughout the year at the variety of events that the City holds and/or participates in will reach a broad segment of the community and increase general awareness of mitigation and preparedness activities. In addition to increasing hazard awareness throughout the community, the City of Lacey has the largest population of individuals over age 65 and of non-English speakers within Thurston County, both considered vulnerable populations. This initiative would include specific materials and methods aimed at increasing preparedness and hazard awareness in the vulnerable populations.

Relates to Plan Goal(s) and Objectives: 6B, 9A&B

Implementer: Hazard Mitigation Coordinator/Administrative Services/Public Affairs/City of Lacey Community and Economic Development and Public Works Departments

Estimated Cost: Unknown, incorporate activities into existing public outreach tasks to minimize related expenditures.

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Project has not yet been initiated.

Priority: 8 of 19

Status: New

L-MH 17: Explore the possibility of creating a Hazard Mitigation/Emergency Preparedness Coordinator for the City; alternatively identify an existing position that can be modified to include the full breadth of the emergency management and hazard mitigation responsibilities.

Hazard Addressed: Multi Hazard

Category: Public Outreach and Information, hazard preparedness, hazard damage reduction, plan coordination and implementation.

Rationale: Implementation of the hazard mitigation activities and initiatives will require additional staff time. State and federal planning requirements related to emergency management have increased making it difficult for existing staff to complete requirements within the designated timeframes.

Relates to Plan Goal(s) and Objectives: Will aid in the implementation of the mitigation initiatives throughout the plan

Implementer: Human Resources

Estimated Cost: \$110,000 (includes salary, benefits, computer, supplies,...)

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Initiative and Implementation Status: Discussion regarding this position is on-going

Priority: 9 of 19**Status:** NEW

L-MH- 11: Conduct an annual review of review of staff EOC roles and responsibilities. Ensure that all critical ICS roles are addressed and filled with the appropriate staff members. Ensure that staff are aware of their role on the EOC team and that appropriate resources are available for training. Ensure coordination with the Comprehensive Emergency Response Plan.

Hazard Addressed: Multi Hazard**Category:** Hazard Preparedness

Rationale: This strategy is designed to address staff readiness for response following an event. A regular review of staff roles will address any staff turnover and ensure that all critical staff roles are filled and ready for response.

Relates to Plan Goal(s) and Objectives: 1D, 7D**Implementer:** Emergency Management Coordinator**Estimated Cost:** Unknown**Time Period:** 2018 - 2023**Funding Source:** City of Lacey General Fund budget**Source and Date:** N/A**Adopted Plan Number:** N/A**Reference Page:** N/A

Initiative and Implementation Status: This is a new initiative and has not been implemented. This initiative should be included as a task in the Comprehensive Emergency Preparedness Plan which is scheduled to be updated in summer 2018.

Priority: 10 of 19

Status: NEW

L-MH- 12: Begin an ICS and Emergency preparedness training program for City Staff. Begin with critical staff and managers with the goal to provide annual training to all city staff within 5 years of program implementation. Include training on the ATC-20 for appropriate staff members.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: This strategy is designed to address staff readiness for response following an event. Training for all staff will ensure that all are prepared for an event and understand the incident command system and the role that each plays.

Relates to Plan Goal(s) and Objectives: 1D, 7D

Implementer: Emergency Management Coordinator/Public Affairs

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: This is a new initiative and has not been implemented yet. This is a new initiative and has not been implemented. This initiative should be included as a task in the Comprehensive Emergency Preparedness Plan which is scheduled to be updated in summer 2018.

Priority: 11 of 19**Status:** NEW

L-MH 13: Formalize a city emergency response team prepared for deployment following an event to perform risk assessments of public and private structures throughout the City. Ensure coordination with the adopted emergency response plan; update the plan as necessary to ensure that it is current with existing staff.

Hazard Addressed: Multi Hazard**Category:** Hazard Preparedness

This strategy is designed to address staff readiness for response following an event. Training for all staff will ensure that all are prepared for an event and understand the incident command system and the role that each plays.

Relates to Plan Goal(s) and Objectives: 1D, 7D**Implementer:** Emergency Management Coordinator/Public Affairs/Building Department**Estimated Cost:** Unknown**Time Period:** 2018 - 2023**Funding Source:** City of Lacey General Fund budget**Source and Date:** N/A**Adopted Plan Number:** N/A**Reference Page:** N/A

Initiative and Implementation Status: This is a new initiative and has not been implemented yet. This is a new initiative and has not been implemented. This initiative should be included as a task in the Comprehensive Emergency Preparedness Plan which is scheduled to be updated in summer 2018.

Priority: 12 of 19

Status: NEW

L-MH 14: Adopt and proclaim an annual Preparedness Month in the city of Lacey. Use the month as an avenue to provide outreach and education to community members.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: This strategy is designed specifically to increase public awareness of hazard mitigation and emergency preparedness activities. It is proposed that the City adopt October as Lacey Preparedness Month to build on preparedness efforts already underway with partner agencies like Thurston County or the Washington Emergency Management Division.

Relates to Plan Goal(s) and Objectives: 6B, 9A, 9B

Implementer: City of Lacey Information Services Department, Emergency Preparedness Coordinator

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: This is a new initiative and has not been initiated yet, however it could be initiated as soon as the end of calendar year 2018. Staff recommends the proclamation during the month of October, to coincide with the statewide emergency preparedness drill "Shakeout", as well as the start of flood and wind storm season in the Pacific Northwest.

Priority: 13 of 19

Status: New

L-MH 15: Expand partnerships with the local business community including the Lacey South Sound Chamber of Commerce, the Economic Development Council, the Thurston County Chamber, and the Small Business Association to provide mitigation resources to local business in an effort to increase economic resiliency.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: Economic resiliency is not only a goal in the Hazard Mitigation Plan, it is also a goal of the Economic Development Element of the Comprehensive Land Use Plan. The goal is to provide resources to the business community to ensure that they can resume operations quickly following an event and increase community economic resiliency.

Relates to Plan Goal(s) and Objectives: 5A, 5B, 6B, 9A

Implementer: Community and Economic Development Department – Economic Development Coordinator

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: New initiative has not yet been initiated.

Priority: 14 of 19

Status: NEW

L-MH 16: Create a hazard map inventory which includes areas in the City subject to flooding, landslide, liquefaction and other geologic hazards; overlay existing building stock to target mitigation efforts. Include in the inventory maps that identify clusters of vulnerable populations.

Hazard Addressed: Multi Hazard

Category: Hazard preparedness, plan coordination and implementation, data collection and mapping

Rationale: A map inventory will help to inform the development of regulations related hazard mitigation. The overlay of buildings in the hazard areas will also aid during response by identifying areas that may be most impacted and where to target response efforts. Mapping clusters of vulnerable populations will also allow the city to target response efforts with appropriate resources.

Relates to Plan Goal(s) and Objectives: 9A, 1B, 3A, 7D, 8A

Implementer: Information Services Department, GIS Administrator; Emergency Preparedness Coordinator; Community and Economic Development Department.

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Not yet initiated, however the City has GIS resources that will make this initiative achievable in the short term.

Priority: 15 of 19

Status: NEW

L-EH 4: Continue to consider to adopt and enforce the most recent of the International Code Series (Building, Fire, Plumbing etc.); ensure redevelopment and reconstruction are to current codes.

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction, Development Regulations

Rationale: By requiring buildings to be constructed to the most recent of the International Code Series the City can ensure that all new construction, and redevelopment and reconstruction, are structurally sound.

Relates to Plan Goal(s) and Objectives: 1A, 1B,

Implementer: Community and Economic Development Department – Building Division

Estimated Cost: No additional cost

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: This is an ongoing action completed by the City of Lacey Building Department. Permits are reviewed to ensure that plans meet the most current versions of the adopted building code. As the International Series of Codes are updated the City responds by adopting the most recent versions in kind.

Priority: 16 of 19

Status: NEW

L-EH- 5: Develop a catalog of materials/information on structural and non-structural retrofit activities. Make available in various locations throughout City Hall and on the website. Publish on the website and advertise information on social media.

Hazard Addressed: Multi Hazard

Category: Hazard Damage Reduction/Public Information

Rationale: This will provide information to residents about steps they can take at home to protect their property and lives while in their residence. This can include non-structural retrofit information related to strapping shelves to walls and securing televisions and other large heavy objects; as well as guidance related to structural retrofit activities like installing earthquake ties to foundations.

Relates to Plan Goal(s) and Objectives:

Implementer: Emergency Preparedness Coordinator, Building Department, Public Affairs.

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Not yet initiated.

Priority: 17 of 19

Status: New

L-EH - 6: Develop and implement a training program for residential structural and non-structural retrofit activities geared towards home owners, and home owner associations. Partner with appropriate vendors to coordinate trainings.

Hazard Addressed: Multi Hazard

Category: Hazard preparedness, public outreach and information

Rationale: This initiative is designed to provide homeowners with information necessary to take steps to secure their homes and protect their property. By partnering with appropriate vendors, the City can ensure that homeowners have the knowledge required and tools available to complete structural and non-structural home improvements.

Relates to Plan Goal(s) and Objectives: 9A, 9B

Implementer: Emergency Preparedness Coordinator/Administrative Services/Public Affairs/Community and Economic Development – Building Division

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Project has not yet been initiated.

Priority: 18 of 19

Status: New

L-MH 18: Expand the list of capable and well-suited volunteers for a response cadre that can be deployed following an event to augment city staff. This could include amateur radio operators, structural engineers, and architects.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: This initiative is intended to increase response capability following an event by soliciting qualified professionals and community members who could conduct damage assessments following a disaster. The City can work with already established CERT teams or work with HOA's and other neighborhood organizations to increase participation in the CERT program.

Relates to Plan Goal(s) and Objectives: 1D, 1C, 6B

Implementer: Hazard Mitigation Coordinator/Administrative Services/Public Affairs

Estimated Cost: Unknown at this time.

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Project has not yet been initiated.

Priority: 19 of 19**Status:** New

L-MH 19: Develop and expand partnerships with local businesses and resources to foster natural hazard mitigation and to inventory community assets that could be used during a disaster and for response during a significant event.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: Ensures coordination between public and private sector organizations to share information and resources during the response and recovery phase of any incident.

Relates to Plan Goal(s) and Objectives: 6B, 5B, 5D

Implementer: Community and Economic Development Department – Economic Development Coordinator

Estimated Cost: Unknown

Time Period: 2018 - 2023

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: This is a modified strategy that seeks to expand on the goal to create partnerships with public and private organizations. The City has a relatively new Economic Development Coordinator who is actively working to create partnerships with the local business community, this could foster further discussion regarding natural hazards planning. Although not officially initiated, some preliminary discussions have occurred between the City and a few local businesses regarding continuity of business plans and coordination between tenants of a strip mall for response and recovery, but no formalized program has been developed. It is anticipated that the Economic Development Coordinator could expand this discussion and help to establish a program.

Completed or Removed Mitigation Initiatives

Initiatives that were completed in the last five years are included in this plan to provide evidence of progress made. These initiatives are no longer relevant and no longer part of the City of Lacey adopted mitigation strategy. These initiatives are not ranked as they are no longer relevant.

ID Number	Category	Action	Status
L-EH 4	Hazard Damage Reduction	Replace the shut off valve at the Union Mills Reservoir that will enable the water storage facility to be isolated in case of a water line break or other damage.	Completed
L-MH 8	Hazard Damage Reduction	Retrofit the City's alarm system for wastewater lift station facilities and convert them from older, analog technology to modern digital components.	Completed
L-FH 5	Hazard Preparedness	Evaluate the flood prone area of Rainier Road SE near the BNSF railroad trestle and determine solutions to prevent future flooding events.	Completed
L-MH 5	Hazard Damage Reduction	Develop a policy to allow HOA's to hire private contractors to remove snow from residential streets.	Completed
L-MH 10	Hazard Damage Reduction	Evaluate and purchase an internet based communications system that will enable City resources to be called-out in response to disasters or emergencies as well as send out announcements and warnings to the public.	Completed
L-FH 4	Hazard Damage Reduction	Establish a program whereby sand and sandbags are stored by the City and made available to the public in anticipation of minor flooding during the winter. The bags would be made available to the general public if their property was in danger of being flooded.	Removed
L-MH 6	Public Information	Purchase a portable radio station that will enable the City to broadcast information to a very localized and specific geographical area, such as road closures, water outages, and other utility information.	Removed

L-FH 1	Hazard Damage Reduction	Identify and map public private properties in the 100-year floodplain.	Modified
L-MH 3	Hazard Preparedness	Develop public and private partnerships to foster natural hazard mitigation.	Modified

Hazard Category Codes are as follows: EH=Earthquake Hazard; FH=Flood Hazard; LH=Landslide Hazard; MH=Multi Hazard; SH=Storm Hazard; WH=Wildland Fire Hazard; and VH=Volcanic Hazard.

Priority: N/A

Status: Completed

L-EH 4: Replace the shut off valve at the Union Mills Reservoir that will enable the water storage facility to be isolated in the case of a water line break or other damage.

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction

Rationale: Enables city forces to shut off the water supply line leading from reservoir into the City system. Currently the valve is malfunctioning and cannot be turned off. Inability to turn off the water source could lead to property damage to surrounding homes, businesses, and infrastructure.

Relates to Plan Goal(s) and Objectives: 7B

Implementer: City of Lacey Emergency Management and Public Works Operations

Estimated Cost: \$450,000

Time Period: 2010 - 2014

Funding Source: City of Lacey Utility funds and/or grant funds.

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: In late 2014 the City completed the Union Mills Altitude Valve Replacement project. This project included the replacement of the reservoir's altitude valve as well as the malfunctioning butterfly valve with a gate valve. With the completion of this project the Union Mills Reservoir can now be isolated in the case of a disaster, reducing the risk to downstream property and infrastructure damage.

Priority: N/A

Status: Completed

L-MH 8: Retrofit the City's alarm system for wastewater lift station facilities and convert them from older, analog technology to modern digital components.

Hazard Addressed: Multi Hazard

Category: Hazard Damage Reduction

Rationale: Enables city forces to be alerted when liftstations are at or near capacity so they can respond in an organized and timely fashion. Prioritized response would lead to prevention of property damage, environmental contamination, and related expenses.

Relates to Plan Goal(s) and Objectives: 7B

Implementer: City of Lacey Emergency Management and Public Works Operations

Estimated Cost: \$300,000

Time Period: 2010 - 2014

Funding Source: City of Lacey Utility funds and/or grant funds.

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: A select group of City personnel identified for this repair project attended training at the Underwriters Laboratory (UL) to receive training on becoming certified UL 508A - Standard for Industrial Control Panels. After receiving the UL certification, the process began to start building the digital control panel to replace the analog technology. There were a total of 36 sites to update, which were completed over a three-year time frame.

1. 2010 – a total of 11 sites were completed
2. 2011 – a total of 12 sites completed
3. 2012 – a total of 13 site completed

Priority: N/A

Status: Completed

L-FH 5: Evaluate the flood prone area of Rainier Road SE near the BNSF railroad trestle and determine solutions to prevent future flooding events.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: Potential solutions may include property buyout, culvert replacement, curb and gutter installation, and road grade changes. The area is problematic due to the fixed elevation of the BNSF railroad grade. Three properties along Rainier Rd SE are at risk of flooding. This area was annexed into the City in 2008.

Relates to Plan Goal(s) and Objectives: 7A

Implementer: City of Lacey Emergency Management and Public Works Engineering

Estimated Cost: \$500,000 - \$1,000,000

Time Period: 2010 - 2014

Funding Source: City of Lacey General Fund budget and/or grant funds

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: In 2009 the developer of the property located north of the Railroad and West of Rainier Road took action to prevent flooding of the three properties referenced above. The developer constructed a berm along Rainier road to prevent street flooding from entering the property. They also provided additional channelization at the south end of their property.

Upstream and downstream culverts and channels are located outside of Lacey City limits in Thurston County.

Priority: N/A

Status: Completed

L-MH 5: Develop policy regarding private contractors removing snow on public streets.

Hazard Addressed: Multi Hazard

Category: Hazard Damage Reduction

Rationale: During a snowstorm when streets are blocked city crews are fully consumed plowing snow and placing sand and deicer on arterials. During this time city resources are not available to provide snow plowing and ice control on lower priority residential streets. With a policy in place, local homeowners associations may contract to perform lower priority road snow clearing activities.

Relates to Plan Goal(s) and Objectives: 1B, 3G

Implementer: City of Lacey Emergency Management and Public Works Operations Division

Estimated Cost: Unknown

Time Period: 2010 - 2014

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status:

SNOW REMOVAL:

In 2010 Lacey developed the HOA Snow Plowing Policy. This policy was developed to allow HOA's to hire a licensed and bonded contractor to clear city streets within their HOA. The policy requires the contractor to follow specific rules and requires the HOA to have a contact to respond to questions related to work performed by their contractor.

EMERGENCY DEBRIS REMOVAL:

Lacey's Debris Management Plan is in final form. Lacey's plan will be incorporated into Thurston County's Regional plan which is currently in the process of being updated. The regional plan will be submitted to FEMA once it is complete.

Priority: N/A

Status: Completed

L-MH 10: Evaluate and purchase an internet based communications system that will enable City resources to be called-out in response to disasters or emergencies as well as send out announcements and warnings to the public.

Hazard Addressed: Multi Hazard

Category: Hazard Damage Reduction

Rationale: In addition to being used as a call out system for City staff, it would also be used to send out pre-recorded messages to large blocks of residents in specific geographic areas. These messages can be sent to a variety of devices as dictated by the end users. Announcements such as shelter in place, water service interruptions, and disaster assistance instructions can be sent out based on the situation at hand.

Relates to Plan Goal(s) and Objectives: 3A

Implementer: City of Lacey Information Services Department

Estimated Cost: \$10,000/year

Time Period: 2010 - 2014

Funding Source: City of Lacey Water Utility

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Emergency communication services for Lacey are provided by AlertSense through a regional contract with Thurston County. This service began in 2016. AlertSense provides communication via phone, text, and social media. Messages can be map based.

Priority: N/A**Status:** Removed

L-FH 4: Establish a program whereby sand and sandbags are stored by the City and made available to the public in anticipation of minor flooding during the winter. The bags would be made available to the general public if their property was in danger of being flooded.

Hazard Addressed: Flood Hazard**Category:** Hazard Damage Reduction

Rationale: During minor flooding events, property damage can be minimized by the placement of sandbags by the public. Since it is often initially unclear who is responsible for causing the flooding, it is in the City's best interest to provide citizens a resource to mitigate the damage. That way, if it is determined to be the City's responsibility the damage would not be as severe. The bags could also be used as a back-up for City storm water crews if they run out of their own bags during large rain events.

Relates to Plan Goal(s) and Objectives: 4D, 8A**Implementer:** City of Lacey Emergency Management and Public Works Operations Division**Estimated Cost:** \$2,000**Time Period:** 2010 - 2014**Funding Source:** City of Lacey General Fund budget**Source and Date:** N/A**Adopted Plan Number:** N/A**Reference Page:** N/A

Initiative and Implementation Status: The City currently maintains a supply of bags and sand for response to flooding that occurs within City limits.

Priority: N/A

Status: Removed

L-MH 6: Purchase a portable radio station that will enable the City to broadcast information to a very localized and specific geographical area, such as road closures, water outages, and other utility information.

Hazard Addressed: Multi Hazard

Category: Public Information

Rationale: During disasters, the ability to communicate to the public is vital. With the assistance of a portable FM radio station transmitter, City officials could announce road closures, utility restoration status, emergency shelter locations, and aid centers. Citizens would only need to know the frequency of the broadcasts and then they could tune in for more information.

Relates to Plan Goal(s) and Objectives: 5B

Implementer: City of Lacey Emergency Management and Public Works Operations Division

Estimated Cost: \$25,000

Time Period: 2010 - 2014

Funding Source: City of Lacey General Fund budget

Source and Date: N/A

Adopted Plan Number: N/A

Reference Page: N/A

Initiative and Implementation Status: Removed from initiatives due to the recent purchase of the notification system, AlertSense. In addition, social media and smart phones are a viable alternative to disseminate information to city staff and the public.

Priority: N/A

Status: Modified

L-FH 1: Identify and map public and private properties in the 100-year floodplain.

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction

Rationale: Knowing what properties lay in the 100-year floodplain will enable City officials to plan for and enact a response to flooding events in Lacey.

Relates to Plan Goal(s) and Objectives: 7B

Implementer: City of Lacey Emergency Management, Information Services, and Community Development Departments

Estimated Cost: \$1,000

Time Period: 2016 - 2020

Funding Source: City of Lacey General Fund budget

Source and Date: 2003 Natural Hazards Mitigation Plan

Adopted Plan Number: L-FH 1

Reference Page: V-53

Initiative and Implementation Status: This initiative has been combined with new initiative number 13 which includes more comprehensive hazard mapping mitigation strategy. Ongoing potential project that has not been initiated yet. This task will be easier to accomplish due to the hiring of a GIS mapping technician in the Information Services Department.

Priority: N/A

Status: Modified

L-MH 3: Develop public and private partnerships to foster natural hazard mitigation program coordination and collaboration.

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Rationale: Ensures coordination between public and private sector organizations to share information and resources during the response and recovery phase of any incident.

Relates to Plan Goal(s) and Objectives: 5D, 6B

Implementer: City of Lacey Emergency Management

Estimated Cost: Unknown

Time Period: 2016 - 2020

Funding Source: City of Lacey General Fund budget

Source and Date: 2003 Natural Hazards Mitigation Plan

Adopted Plan Number: L-EH 3

Reference Page: V-63

Initiative and Implementation Status: Some preliminary discussions have occurred between the City and a few local businesses regarding continuity of business plans and coordination between tenants of a strip mall for response and recovery, but no formalized process or program has been developed yet.

This initiative has been modified and combined with a new strategy for business and industry partnerships.

SUMMARY OF LOCAL FLOOD HAZARD AND PARTICIPATION IN THE NATIONAL FLOOD INSURANCE PROGRAM BY THE CITY OF LACEY

The City of Lacey has actively participated in the National Flood Insurance Program (NFIP) since 1980. The City's Flood Hazard Prevention Ordinance was originally adopted by the City Council on July 10, 1980. The current ordinance reflects the most recent revisions that were adopted by the City Council on March 2, 2017. Only minor changes were made at that time after major revisions were adopted in October 2012. The 2012 revisions were adopted in response to a review and community assistance visit by the Department of Ecology and the Federal Emergency Management Agency who identified changes needed to maintain compliance with the NFIP. The City of Lacey Flood Insurance Rate Maps was most recently revised on September 2, 2016 as part of a FEMA map update. Flood hazard data from these maps has been incorporated into the City's GIS database.

The City's flood hazard is limited to areas immediately surrounding lakes as well as areas on either side Woodland Creek within City limits. Citywide there are 47 total flood policies. The City's flood losses are substantially limited; there have only been 3 insurance claims since the City joined the NFIP in 1980, resulting in approximately \$8,800 in insurance payouts. As of June 2018 there are no repetitive loss structures located within the corporate limits of the City of Lacey.

Flood Plans, Ordinances, and Regulations

The City's flood ordinance is found in LMC 14.34 "Flood Hazard Prevention." This ordinance meets or exceeds all of the minimum standards required by the National Flood Insurance Program. The flood hazard prevention ordinance pertains to building and construction standards required for development within the designated floodplains. While the flood hazard prevention ordinance provides standards for structures within the floodplain, generally speaking new construction is not permitted within regulatory floodplains per the flood ordinance adopted on October 11, 2012. Additionally, the City's other critical areas ordinances limit to a large degree any development that may be proposed to occur in the designated floodplain. The floodplains identified on the Flood Insurance Rate Maps provided by FEMA for the City of Lacey generally correspond with wetlands and or wetland buffers, stream habitat buffers, sensitive areas regulated by the Shoreline Master Program or other critical areas located within the City. Lacey Municipal Code 14.28 'Wetlands Protection', LMC 14.33 'Habitat Conservation Areas Protected' and the City of Lacey Shoreline Master Program restrict development from occurring within wetlands and their buffers, and within the critical habitat areas of streams; these additional codes have essentially limited any development that has occurred in the City of Lacey within the FEMA designated floodplains. The City also had procedures for review of any development proposed to take place within the floodplain. Any development that is proposed is reviewed for compliance during the building permit process by the City of Lacey Building Official and the Floodplain Administrator/Landuse Planner.

With the limited flood hazards within the City of Lacey and with the wetlands protection, habitat conservation areas ordinances and the Shoreline Master Program, the City is able to direct development away from the mapped floodplains; and with the flood hazard prevention ordinance in place, the City is able to protect any development that cannot be directed outside of the flood hazard areas. With these regulations and review procedures in place, the City of Lacey maintains compliance with the requirements of the National Flood Insurance Program.

NATIONAL FLOOD INSURANCE PROGRAM WORKSHEET 4.3

STAFF RESOURCES SECTION:

Is the Community FPA or NFIP Coordinator certified? No the City Floodplain Administrator is not a certified floodplain manager, however the administrator does have AICP certification.

Is Floodplain Management an auxiliary function? Because the City's flood hazard is sufficiently limited, there is not the need for a full time floodplain administrator who focuses solely on floodplain management issues. The City planning department administers the Flood Hazard Prevention Ordinance, with one Planner who has federal experience working with the National Flood Insurance Program. This planner is assigned as the floodplain administrator as needs arise or as permit issues come up, however all planning staff can answer questions and address issues related to the flood hazard prevention ordinance and flood plain development.

Explanation of NFIP Administration Services:

Staff will help applicants determine whether properties are located within a regulated floodplain; will also provide assistance to customers who may have property located within the floodplain; staff provides building permit review; flood map layers have been integrated into the City GIS mapping system, so staff can provide maps to the public regarding flood hazards and property limitations.

What are the barriers to running an effective NFIP program in the community? There are no barriers to running an effective NFIP program. With the limited flood hazard there is not a need for a comprehensive program to address flood related hazards.

COMPLIANCE HISTORY SECTION

Is the Community in good standing with the NFIP? Yes. The ordinance has been reviewed and approved by the Department of Ecology and there are no outstanding violations or compliance issues.

Are there any outstanding compliance issues? No. There are no outstanding compliance issues.

When was the most recent Community Assistance Visit? The most recent Community Assistance Visit was in October 2015. The Department of Ecology provided a closeout letter dated April 20, 2016 successfully closing out the CAV.