



CHAPTER 1

Introduction

1.0 Flooding will Persist, but Disasters and Hazards can be Avoided

This is the third edition of the Thurston County Flood Hazard Mitigation Plan. It is produced to address the adverse impacts of flooding, the most prevalent natural hazard that affects the county. The plan is the result of a 10-Step planning process to identify long- and short-term strategies to reduce or alleviate the loss of life, personal injury, property damage, and environmental impacts that can result from flooding. These strategies include planning, policy changes, programs, projects, and other activities that can mitigate the impacts of floods. The responsibility for flood hazard mitigation lies with many, including private property owners, business, industry, and local, state and federal government. This plan specifically covers unincorporated Thurston County.

What's the difference between preparedness, response, and mitigation?

Using flood as an example...

Preparedness: activities such as planning or staging of supplies or personnel in anticipation of an emergency. Preparedness involves rescue training, maintaining equipment, and procuring supplies - knowing that response efforts will be necessary in the future.

Response: actions taken during an emergency to protect life and property such as sandbagging, performing rescue or evacuation operations, pumping water to protect assets, or providing emergency shelters to displaced residents.

Mitigation: actions that reduce the demand for preparedness and response activities by minimizing the impacts of flooding. Mitigation activities may include elevating or removing structures in areas that periodically experience flooding. Mitigation can also regulate future development in areas that are prone to flooding and thereby prevent future losses.

When hazards affect areas that are undeveloped or uninhabited by people, destruction may occur within the natural environment, but such events are rarely characterized as disasters. When floods adversely affect developed areas, the impacts to the safety and security of people, property, and infrastructure can be great. Such floods often lead to a state of emergency, force evacuations, and result in a Federal Disaster Declaration. Thurston County has received multiple disaster declarations:

- Between 1965 and 2016, Thurston County received 22 federal disaster declarations.
- 16 declarations were attributed to flood-related disasters.
- Only 147 counties or U.S. Census designated places have received 20 or more federal disaster declarations; only four percent of counties or U.S. places share this distinction.
- As of 2016, eight counties in Washington State have experienced 20 or more disaster declarations.
- Thurston County has the 5th highest rate of declarations in the state.

To learn more about the plan's mitigation strategy read:

CHAPTER 3
Mitigation
Strategy: Goals,
Objectives, and
Initiatives

Recovery from prolonged disruptions are costly to communities, the state, and the federal government. Hazard mitigation attempts to break the disaster cycle by identifying and implementing sustained actions that eliminate long-term risks to life and property.

1.1 Flood Hazards in the Pacific Northwest

Washington State's pronounced mountainous terrain and immediacy to the vast Pacific Ocean strongly influences the dynamics of Thurston County's weather and hydrologic cycle. Western Washington frequently experiences intense seasonal precipitation events known as atmospheric rivers. A strong atmospheric river can transport a column of water vapor roughly equivalent to 7.5 to 15 times the average flow of water at the mouth of the Mississippi River and is the source of between 30 and 50 percent of Western Washington's annual precipitation. Thurston County's major rivers and streams can swell from prolonged precipitation events.



Back to back years of higher than normal precipitation or extreme storm events also contributes to groundwater flooding, a less-known but widespread problem in Thurston County. High groundwater flooding is particularly problematic in areas with glacial till deposits, where water tables rise, and standing water accumulates with no outlets to readily drain to.

The future climate of the Puget Sound Region is forecast to experience warmer and wetter winters and a change in the timing of the region's hydrological cycle. Climate change is likely to generate more frequent and intense storms, resulting in more frequent flooding throughout the lowlands. As high tides combine with sea-level rise, lower elevation coastal areas are likely to experience more frequent episodic flooding.

To learn more
about flood
hazards view:

***CHAPTER 2 Risk
Assessment***

1.2 Flood Mitigation Programs

Numerous state and federal programs and regulations promote flood hazard mitigation planning. Notable among these are two programs of the Federal Emergency Management Agency (FEMA): the National Flood Insurance Program (NFIP) and the Community Rating System (CRS). These programs provide benefits in the form of reduced flood insurance costs for communities that meet minimum requirements for floodplain management. Thurston County participates in both the NFIP and the CRS.

COMMON FLOOD TERMS AND ACRONYMS

This plan uses several technical terms and acronyms:

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| NFIP | National Flood Insurance Program |
| FEMA | The Federal Emergency Management Agency, part of the Department of Homeland Security. Thurston County is located in FEMA Region X which covers Alaska, Idaho, Oregon, and Washington. |
| CRS | Community Rating System |
| FIRM | Flood Insurance Rate Map; published by FEMA and provided to communities |
| SFHA | Special Flood Hazard Area; the floodplain delineated on the FIRM as A Zones and V Zones. Thurston County designates other SFHAs not covered by FEMA. |

The county prepared flood hazard mitigation plans in 1999 and in 2012. Given the many changes in land development, new data, and other conditions since then, as well as evolving local, state and federal regulations and programs, the county has updated its flood plan as a current tool for flood preparedness and flood hazard mitigation. Elements and strategies in this plan were selected because they meet various state or federal program requirements as well as the needs of Thurston County and the people who live, work, and spend time here.

This plan identifies resources, information, and strategies for reducing risk from flood hazards. It will help guide and coordinate mitigation activities. The plan was developed to meet these objectives:

- Meet the needs of Thurston County as well as state and federal requirements
- Meet planning requirements under the CRS program to allow Thurston County to maintain its CRS rating.
- Coordinate existing plans and programs so that high-priority initiatives and projects to mitigate possible disaster impacts are funded and implemented

- Create a linkage between the flood hazard mitigation plan and established plans of Thurston County so that they can work together to achieve successful mitigation

All residents and businesses of Thurston County are the ultimate beneficiaries of this plan. Participation in development of the plan by key stakeholders helped ensure that outcomes will be mutually beneficial. The plan's goals and recommendations can lay groundwork for the development and implementation of local mitigation activities and partnerships.

1.3 Community Rating System (CRS) Participation Benefits

The priority for this plan is to benefit residents, businesses, the environment, and the economy of Thurston County by providing protection against the hazards posed by potential flooding. In addition, the county developed the plan to follow as closely as feasible the guidelines for flood planning by FEMA for the CRS Program and by Washington State for the Flood Control Assistance Account Program (FCAAP).

CRS is a national program developed by FEMA to establish creditable criteria for community activities and programs that go beyond the minimum requirements for participation in FEMA's National Flood Insurance Program. CRS has 19 credited activities. Among these is the development of a comprehensive floodplain management plan. In addition to developing a flood plan, Thurston County annually certifies to the Insurance Services Office (ISO), a FEMA designee, that validates that flood mitigation programs are still in place. Verification site visits occur every 3 to 5 years and are a comprehensive review, by the ISO, of the county's various flood management efforts within each of the following activities:

- Mapping and flood data
- Managing new development to minimize future flood damage
- Reducing flood losses to existing development
- Improving emergency preparedness and response
- Implementing public information activities

Credit is awarded to CRS communities based on their demonstrated level of effort. A rating of 1 through 10 is assigned to a community based on its overall credit calculation and its achievement of certain prerequisites with 1 being the best and 10 meeting the basic CRS enrollment requirements. For class ratings 9 through 1, a five percent accumulative discount is applied to flood insurance premium holders within the community for each class achieved. In October 2016, Thurston County documented sufficient credit and met the minimum prerequisites to achieve a Class 2 rating. There are only six Class 2 or better communities in the nation, three of which are King, Pierce, and Thurston County.

Thurston County's Class 2 rating entitles flood insurance policy holders in the FEMA 100-year Special Flood Hazard Areas (SFHA) a 40 percent discount on their premiums and a 10 percent discount applicable to all other flood policies. As of 2016, Thurston County's enrollment in CRS has resulted in the following flood insurance savings:

- Total Savings in FEMA Special Flood Hazard Area: \$132,599
- Total Savings for all Thurston County: \$140,244
- Average Annual Policy Savings in Special Flood Hazard Area: \$495.00



1.4 Community Rating System Steps for Comprehensive Floodplain Management Planning

Developing a comprehensive floodplain management plan is among the activities that a community must complete to earn CRS credits toward reduced flood insurance rates. To earn such credit, the community's plan must include at least one item from each of 10 steps specified in the 2017 National Flood Insurance Program Community Rating System's Coordinator's Manual (see Appendix B for details):

- Phase I – Planning Process:
 - Step 1, Organize
 - Step 2, Involve the public
 - Step 3, Coordinate
- Phase II – Risk Assessment:
 - Step 4, Assess the hazard
 - Step 5, Assess the problem
- Phase III – Mitigation Strategy:
 - Step 6, Set goals
 - Step 7, Review possible activities
 - Step 8, Draft an action plan
- Phase IV – Plan maintenance:
 - Step 9, Adopt the plan
 - Step 10, Implement, evaluate and revise

For more information about these planning steps, see:

***CHAPTER 4 Plan
Development Process***

1.5 Plan Organization

This flood hazard mitigation plan is organized into 7 Chapters:

- Chapter 1 Introduction
- Chapter 2 Flood Risk Assessment
- Chapter 3 Mitigation Strategy: Goals, Objectives, and Initiatives
- Chapter 4 Plan Process and Development
- Chapter 5 Plan Implementation and Maintenance
- Chapter 6 Community Profile
- Chapter 7 Capability Assessment

The appendices provided at the end of the plan include information or explanations to support the main content of the plan:

- Appendix A Glossary
- Appendix B CRS Planning Requirements
- Appendix C Public Outreach Information
- Appendix D Annual Progress Report Template