Multi-Jurisdiction Natural Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

2019 Plan Update
Public Review Draft, June 2019

TETRA TECH

Chelan County Multi-Jurisdiction Natural Hazard Mitigation Plan

Volume 2—Planning Partner Annexes

June 2019

PREPARED FOR

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INTRODUCTION

BACKGROUND

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. All participating jurisdictions must meet the requirements of Chapter 44 of the Code of Federal Regulations (44 CFR):

> "Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan." (Section 201.6(a)(4)).

For the *Chelan County Multi-Jurisdiction Natural Hazard Mitigation Plan*, a planning partnership was formed to leverage resources and to meet requirements of the federal Disaster Mitigation Act for as many eligible local governments as possible. The Disaster Mitigation Act defines a local government as follows:

> "Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity."

Two types of planning partners participated in this process for the *Chelan County Multi-Jurisdiction Natural Hazard Mitigation Plan*, with distinct needs and capabilities:

- Incorporated municipalities (five cities and Chelan County)
- Special purpose districts (nine districts throughout the county).

Each participating planning partner prepared a jurisdiction-specific annex to this plan. These annexes, as well as information on the process by which they were created, are contained in this volume.

THE PLANNING PARTNERSHIP

Initial Solicitation and Letters of Intent

The planning team solicited the participation of all eligible municipalities and special purpose districts at the outset of this project. A kickoff meeting was held on June 12, 2018 to identify potential stakeholders and planning partners for this process. The purpose of the meeting was to introduce the planning process to jurisdictions in the County that could have a stake in the outcome of the planning effort. All eligible local governments in the planning area were invited to attend. The goals of the meeting were as follows:

- Provide an overview of the Disaster Mitigation Act.
- Review the 2011 Chelan County Hazard Mitigation Plan and planning partnership
- Outline the work plan for this hazard mitigation plan.

- Describe the benefits of multi-jurisdictional planning.
- Outline planning partner expectations.
- Solicit planning partners.
- Solicit volunteers/recommendations for the steering committee.

Local governments wishing to join the planning effort were asked to provide the planning team with a "letter of intent to participate" that agreed to the planning partner expectations (see Appendix A) and designated a point of contact for their jurisdiction. In all, the planning team received formal commitment from 14 planning partners in addition to the County.

A map showing the location of participating special purpose districts is provided at the end of this introduction. Maps included in the individual annexes of participating cities show risk assessment results for each of those entities. Countywide risk assessment maps for the entire planning area defined for this plan are provided in the risk assessment chapters of Volume 1 of the hazard mitigation plan.

Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were provided and discussed at the kickoff meeting (see Appendix A for details):

- Complete a "letter of intent to participate."
- Designate a lead point of contact for this effort.
- Support and participate in the selection and function of the Steering Committee.
- Provide support required to implement the public involvement strategy.
- Participate in the process through opportunities such as:
    - Steering Committee meetings
    - Public meetings or open houses
    - Workshops and planning partner specific training sessions
    - Public review and comment periods prior to adoption.
- Attend the mandatory jurisdictional annex workshop.
- Complete the jurisdictional annex.
- Perform a "consistency review" of all technical studies, plans and ordinances specific to hazards.
- Review the risk assessment and identify hazards and vulnerabilities specific to the jurisdiction.
- Review and determine if the mitigation recommendations chosen in Volume 1 will meet the needs of the jurisdiction.
- Create an action plan that identifies each project, who will oversee the task, how it will be financed, and when it is estimated to occur.
- Formally adopt the hazard mitigation plan.

By adopting this plan, each planning partner also agrees to the plan implementation and maintenance protocol established in Volume 1. Failure to meet these criteria may result in a partner being dropped from the partnership by the Steering Committee, and thus losing eligibility under the scope of this plan.

Linkage Procedures

Eligible local jurisdictions that did not participate in development of this multi-jurisdictional plan may comply with Disaster Mitigation Act requirements by linking to this plan following procedures outlined in Appendix B.

ANNEX-PREPARATION PROCESS

Templates

Templates were created to help the planning partners prepare their jurisdiction-specific annexes. Separate templates were created for the three types of jurisdictions participating in this plan. The templates were created so that all criteria of Section 201.6 of 44 CFR would be, based on the partners' capabilities and mode of operation. Separate templates were available for partners updating a previous hazard mitigation plan and those developing a first-time hazard mitigation plan. The templates were set up to lead all partner through steps to generate Disaster Mitigation Act-required elements specific to their jurisdictions. The templates and their instructions are included in Appendix C of this volume.

Tool Kit

Each planning partner was provided with a tool kit to assist in completing the annex template and developing an action plan. The tool kits contained the following:

- The 2010 Chelan County Hazard Mitigation Plan
- A catalog of mitigation best practices and adaptive capacity
- The guiding principle, goals and objectives developed for the update to the plan
- Information on the FEMA Hazard Mitigation Assistance grant program
- Information on past hazard events that have impacted the planning area
- County-wide and jurisdiction-specific maps for hazards of concern
- The risk assessment results developed for this plan
- Information on climate change and expected impacts in the planning area
- Jurisdiction-specific annex templates, with instructions for completing them
- FEMA guidance on plan integration
- The results of a public survey conducted as part of the public involvement strategy
- A copy of the presentation that was given at the workshop sessions.

Workshop

All partners were required to participate in a technical assistance workshop, where key elements of the template were discussed, and the templates were subsequently completed by a designated point of contact for each partner and a member of the planning team. The workshop, held during the January 10, 2019 steering committee meeting and attended by at least one representative from each planning partner, addressed the following topics:

- Overview of Phases 1 and 2 of the jurisdictional annex process
- The templates and the tool kit
- Natural events history
- Jurisdiction-specific issues
- Risk ranking
- Status of prior actions
- Developing your action plan
- Cost/benefit review
- Prioritization protocol
- Next steps.

MITIGATION ACTION PLAN DEVELOPMENT

Risk Ranking

In the risk-ranking exercise, each planning partner was asked to review the ranked risk specifically for its jurisdiction, based on the impact on its population and/or facilities. Municipalities based this ranking on probability of occurrence and the potential impact on people, property and the economy. Special purpose districts based this ranking on probability of occurrence and the potential impact on their constituency, their vital facilities and the facilities' functionality after an event. The methodology followed that used for the countywide risk ranking presented in Volume 1. The objectives of this exercise were to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes and to help prioritize types of mitigation actions that should be considered. Hazards that were ranked as "high" and "medium" for each jurisdiction as a result of this exercise were considered to be priorities for identifying mitigation actions, although jurisdictions also identified actions to mitigate "low" ranked hazards, as appropriate.

Information Reviewed to Develop Action Plan

The tool kits were used during the workshops and in follow-up work conducted by the planning partners. A large portion of the workshop focused on how the tool kit should be used to develop the mitigation action plan. Planning partners were specifically asked to review the following to assist in the identification of actions:

- **The Jurisdiction's Capability Assessment—**Reviewed to identify capabilities that the jurisdiction does not currently have but should consider pursuing or capabilities that should be revisited and updated to include best available information; also reviewed to determine how existing capabilities can be leveraged to increase or improve hazard mitigation in the jurisdiction.
- **The Jurisdiction's National Flood Insurance Program Compliance Table**—Reviewed to identify opportunities to increase floodplain management capabilities.
- **The Jurisdiction's Review of Its Adaptive Capacity for Climate Change**—Reviewed to identify ways to leverage or continue to improve existing capacities and to improve understanding of other capacities.
- **The Jurisdiction's Identified Opportunities for Future Integration**—Reviewed to identify specific integration actions to be included in the mitigation strategy.
- **Jurisdiction-Specific Vulnerabilities—**Reviewed to identify actions that will help reduce known vulnerabilities.
- **The Mitigation Best Practices Catalog**—Reviewed to identify actions that the jurisdiction should consider including in its action plan.
- **Public Input**—Reviewed to identify potential actions and community priorities.

Prioritization

44 CFR requires actions identified in the action plan to be prioritized (Sections 201.6(c)(3)(iii)). The planning team and steering committee developed a methodology for prioritizing the action plans that meets the needs of the partnership and the requirements of 44 CFR. All identified actions were prioritized in two categories—implementation and grant pursuit—as defined by the following criteria:

- Implementation priority
  - **High Priority**—An action that meets multiple objectives, has benefits that exceed costs, and has a secured source of funding. Action can be completed in the short term (1 to 5 years).
  - **Medium Priority**—An action that meets multiple objectives, has benefits that exceed costs, and is eligible for funding though no funding has yet been secured for it. Action can be completed in the

short term (1 to 5 years), once funding is secured. Medium-priority actions become high-priority actions once funding is secured.
  - **Low Priority**—An action that will mitigate the risk of a hazard, has benefits that do not exceed the costs or are difficult to quantify, has no secured source of funding, and is not eligible for any known grant funding. Action can be completed in the long term (1 to 10 years). Low-priority actions are generally "wish-list" actions. They may be eligible for grant funding from programs that have not yet been identified.

- Grant pursuit priority

  - **High Priority**—An action that meets identified grant eligibility requirements, has high benefits, and is listed as high or medium implementation priority; local funding options are unavailable or available local funds could be used instead for actions that are not eligible for grant funding.
  - **Medium Priority**—An action that meets identified grant eligibility requirements, has medium or low benefits, and is listed as medium or low implementation priority; local funding options are unavailable.
  - **Low Priority**—An action that has not been identified as meeting any grant eligibility requirements.

These priority definitions are dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source but be changed to high priority once a funding source has been identified. The 2010 plan used the same method of prioritization for implementation priority as was used in this plan update. The grant pursuit priority is a newly added prioritization schedule. The prioritization schedule for this plan will be reviewed and updated as needed annually through the plan maintenance strategy.

Benefit/Cost Review

44 CFR requires the prioritization of the action plan to emphasize a benefit/cost analysis of the proposed actions. Because some actions may not be implemented for up to 10 years, benefit/cost analysis was qualitative and not of the detail required by FEMA for project grant eligibility under the Hazard Mitigation Assistance grant program. A review of the apparent benefits versus the apparent cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to benefits and costs as follows:

- Benefit ratings:

  - **High—**The action will have an immediate impact on the reduction of risk exposure to life and property.
  - **Medium**—The action will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
  - **Low—**Long-term benefits of the action are difficult to quantify in the short-term.

- Cost ratings:

  - **High—**Existing funding levels are not adequate to cover the costs of the proposed action; implementation would require an increase in revenue through an alternative source (for example, bonds, grants, and fee increases).
  - **Medium—**The action could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the action would have to be spread over multiple years.
  - **Low—**The action could be funded under the existing budget. The action is part of or can be part of an existing, ongoing program.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

For many of the strategies identified in this action plan, funding might be sought under FEMA's Hazard Mitigation Assistance program. This program requires detailed benefit/cost analysis as part of the application process. These analyses will be performed on projects at the time of application preparation. The FEMA benefit-cost model will be used to perform this review. For projects not seeking financial assistance from grant programs that require this sort of analysis, the Partners reserve the right to define "benefits" according to parameters that meet their needs and the goals and objectives of this plan.

Analysis of Mitigation Actions

All planning partners reviewed their recommended actions to classify each action based on the hazard it addresses and the type of mitigation it involves. Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Climate Resilient**—Actions that incorporate methods to mitigate and/or adapt to the impacts of climate change. Includes aquifer storage and recovery activities, incorporating future-conditions projections in project design or planning, or actions that specifically address jurisdiction-specific climate change risks, such as sea level rise or urban heat island effect.
- **Community Capacity Building**—Actions that increase or enhance local capabilities to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. Includes staff training, memorandums of understanding, development of plans and studies, and monitoring programs.

These categories include categories identified in the Community Rating System (CRS) 2017 *CRS Coordinators Manual* (OMB No. 1660-0022, Figure 510-4). The CRS categories expand on the four categories in FEMA's 2013 *Local Mitigation Handbook*. They provide a more comprehensive range of options, thus increasing integration opportunities.

COMPATIBILITY WITH PREVIOUS APPROVED PLANS

The six municipal partners who participated in this plan were previously covered under the *2011 Chelan County Multi-Jurisdiction Natural Hazard Mitigation Plan Update*, which has expired. The special-purpose-district partners had no previous coverage. Table 1 lists all the partners and the role this multi-jurisdictional plan will play in achieving compliance.

Table 1. Prior Plan and Planning Partner Status

	Covered by 2011 Plan?	FEMA Approval Date	Letter of Intent Date	Attended Workshop?	Completed Template?	Covered by this Hazard Mitigation Plan?
Chelan County	Yes	3/15/2013	N/A [a]	Yes	Yes	Yes
City of Cashmere	Yes	3/15/2013	10/13/2018	Yes	Yes	Yes
City of Chelan	Yes	3/15/2013	7/26/2018	Yes	Yes	Yes
City of Entiat	Yes	3/15/2013	11/16/2018	Yes	Yes	Yes
City of Leavenworth	Yes	3/15/2013	8/18/2018	Yes	Yes	Yes
City of Wenatchee	Yes	3/15/2013	9/5/2018	Yes	Yes	Yes
Cascadia Conservation District	No	N/A	9/5/2018	Yes	Yes	Yes
Chelan County Flood Control Zone District	No	N/A	9/5/2018	Yes	Yes	Yes
Chelan County Fire District #1	No	N/A	9/5/2018	Yes	Yes	Yes
Chelan County Fire District #3	No	N/A	9/5/2018	Yes	Yes	Yes
Chelan County Fire District #5	No	N/A	11/30/2018	Yes	Yes	Yes
Chelan County Fire District #6	No	N/A	9/5/2018	Yes	Yes	Yes
Chelan County Fire District #8	No	N/A	11/1/2018	Yes	Yes	Yes
Chelan County Fire District #9	No	N/A	10/1/2018	Yes	Yes	Yes
Lake Chelan Reclamation District	No	N/A	9/5/2018	Yes	Yes	Yes

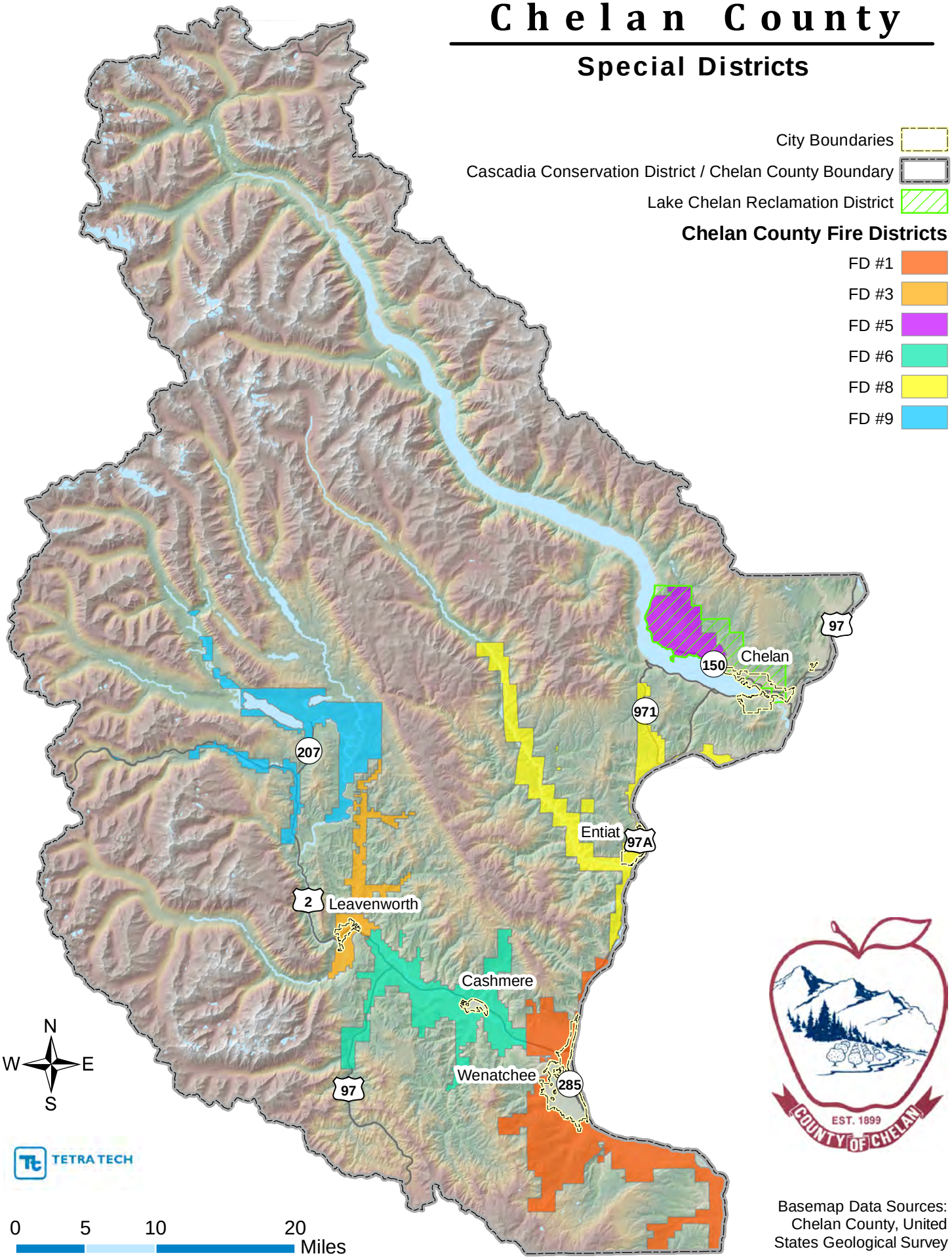
a. No letter of intent was submitted as the County was the project sponsor

FINAL COVERAGE UNDER THE PLAN

All planning partners that submitted letters of intent to participate fully met the participation requirements for this update. Table 1 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

Chelan County

Special Districts



Basemap Data Sources: Chelan County, United States Geological Survey

ACRONYMS

The following acronyms are used throughout the annexes in this volume:

- AFG—Assistance to Firefighters Grant Program
- CEMP—Comprehensive emergency management plan
- CFHMP—Comprehensive flood hazard management plan
- CFR— Code of Federal Regulations
- CIP—capital improvement program
- CRS—Community Rating System
- CWA—Clean Water Act
- CWPP—Community wildfire protection plan
- DMA—Disaster Mitigation Act
- DNR—Department of Natural Resources (Washington State)
- EMPG—Emergency Management Performance Grants
- EMS—emergency medical services
- EPA—Environmental Protection Agency (U.S.)
- ESA—Endangered Species Act
- FCAAP—Flood Control Assistance Account Program
- FCMP—Flood Control Maintenance Program
- FCZD—Flood control zone district
- FEMA—Federal Emergency Management Agency
- FMA—Flood Mitigation Assistance Grant Program
- FMAG—Fire Management Assistance Grant
- GIS—Geographic information system
- GMA—Growth Management Act
- HIVA—Hazard Identification and Vulnerability Assessment
- HMGP—Hazard Mitigation Grant Program
- HMP—Hazard mitigation plan
- IBC—International Building Code
- IFC—International Fire Code
- IPMC—International Property Maintenance Code
- IRC—International Residential Code
- LEP—Limited English Proficiency
- NFIP—National Flood Insurance Program
- NOAA—National Oceanic and Atmospheric Administration
- PDM—Pre-Disaster Mitigation
- PUD—public utility district
- RCW—Revised Code of Washington
- ROW—right of way
- SCADA—Supervisory control and data acquisition
- THIRA—Threat & Hazard Identification & Risk Assessment
- UGA—urban growth area
- UPC—Uniform Plumbing Code
- USFS—U.S. Forest Services
- WAC—Washington Administrative Code
- WDFW—Washington Department of Fish and Wildlife
- WRIA—Water resource inventory area

- WSDOT—Washington State Department of Transportation
- WUIC— Wildland Urban Interface Code
- WUI—wildland urban interface

1. UNINCORPORATED CHELAN COUNTY

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Kent Sisson – Assistant Director
Chelan County Emergency Management
206-A Easy Street
Wenatchee, WA 98801
Telephone: (509)667-6864
e-mail Address: kent.sisson@co.chelan.wa.us

Alternate Point of Contact
Stan Smoke – EM Specialist 1
Chelan County Emergency Management
206-A Easy Street
Wenatchee, WA 98801
Telephone: (509)667-6636
e-mail: stan.smoke@co.chelan.wa.us

1.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

1.2.1 Location

Chelan County is located on the eastern slopes of the Cascade Mountain range in central Washington. The County embraces the drainages of the Wenatchee River, the Entiat River, Lake Chelan, and the Chelan River. According to the U.S. Census Bureau, the county has a total area of 2,994 square miles (7,750 km^2), of which 2,921 square miles (7,570 km^2) is land and 73 square miles (190 km^2) (2.5%) is water. It is the third-largest county in Washington by area.

1.2.2 History

Chelan County was incorporated on March 13, 1899.

The initial inhabitants of the region were Native Americans from the Wenatchi tribe residing along the Wenatchee River, as it flows from the Cascade Mountains to the Columbia River. The culture and economy of the tribe centered on fishing, hunting and gathering. Trappers and Chinese gold prospectors were among the first non-natives who arrived in the area during the early 1800s. White settlers followed, beginning in the 1870s.

After 1888, the current Chelan Valley was a designated part of Okanogan County, and the current Wenatchee Valley was part of Kittitas County. In 1899, the State Legislature created Chelan County taking portions from both of the other two other counties. Wenatchee became the county seat. The county name was derived from the Native American word “chelan” which means “deep water”, and refers to the longest and deepest alpine lake in the country, Lake Chelan.

The federal Reclamation Act of 1902 (Newlands Act) provided for the organization and funding of irrigation districts that had the authority of government in acquiring land and issuing bonds. Irrigation along with railroads spurred agricultural development in Chelan County, particularly fruit orchards. Agriculture tends to be the economic force for the area and it specifically revolves around various tree fruit that includes apples, cherries, pears and peaches. While agriculture is a dominant industry in Chelan County with 23.1 percent of total covered

employment in 2016, it is followed by private health services with 13.8 percent of total covered employment. Wineries are playing an increasing role in both agriculture and in tourism. Agricultural employment directly links to nonfarm employment through nondurable goods manufacturing (i.e. food processing), wholesale trade (i.e. fresh fruit packinghouses) and transportation.

1.2.3 Climate

Chelan County receives 9 inches of rainfall, on average per year and averages 21 inches of snow. On average, there are 199 days of sunshine each year, and some type of precipitation (rain, snow, sleet) 29 days per year. The annual average high temperature is 59.8 degrees with an average summer high of 85 degrees. The annual average low temperature is 41.3 degrees with a winter average low of 24 degrees.

1.2.4 Governing Body Format

Chelan County is governed by a three-member Board of County Commissioners which liaison directly with other elected officials and the appointed county manager. Other key elected county officials include the treasurer, auditor and assessor. There are many departments which exist to make the county function. For the purpose of this plan, key departments include: Public Works, Community Development, Natural Resources, Auditor's Office and the Sheriff's Office. County Emergency Management exists as a division within the Sheriff's Office. The Board of County Commissioners assume responsibility for the adoption of this plan; The county's Emergency Management Division and Natural Resources department will oversee the plan's implementation.

1.3 DEVELOPMENT TRENDS

1.3.1 Population

According to the 2016 census, Chelan County had a population of 76,338. This is a 5.3 percent increase from a population of 72, 464 recorded during the 2010 census. (Source: US Census Bureau).

According to the Census data, as well as the WA Office of Financial Management, there are two distinct demographic groups that have steadily increased in Chelan County. Since 2010 the Hispanic population has increased by 2.3%. The largest shift in demographics is seen in the 65 and older population that has increased by 2.6% since 2010.

1.3.2 Development

Table 1-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 1-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	No					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	No					
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	No					
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?		**2014**	**2015**	**2016**	**2017**	**2018**
	Single Family	166	194	216	234	*
	Multi-Family	1	0	0	2	*
	Other (commercial, mixed use, etc.)	9	29	38	38	*
Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: # • Landslide: # • High Liquefaction Areas: # • Tsunami Inundation Area: # • Wildfire Risk Areas: #					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.						

* Information not available as of the completion of this annex

1.4 CAPABILITY ASSESSMENT

Chelan County has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 1-2.
- Development and permitting capabilities are presented in Table 1-3.
- An assessment of fiscal capabilities is presented in Table 1-4.
- An assessment of administrative and technical capabilities is presented in Table 1-5.
- An assessment of education and outreach capabilities is presented in Table 1-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 1-7.
- Classifications under various community mitigation programs are presented in Table 1-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 1-9.

Table 1-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	Yes	Yes	Yes
Comment: *Chelan County Code Title 3*				
Zoning Code	Yes	Yes	Yes	Yes
Comment: *Chelan County Code Title 11*				
Subdivisions	Yes	No	Yes	Yes
Comment: *Comprehensive Plan (2017-2037)*				
Stormwater Management	No	Yes	Yes	Yes
Comment: *Department of Ecology Storm Water Permit Regulations*				
Post-Disaster Recovery	Yes	Yes	Yes	Yes
Comment: *County CEMP*				
Real Estate Disclosure	No	No	No	No
Comment:				
Growth Management	Yes	No	Yes	Yes
Comment: Chelan County Comprehensive Plan (2017-2037)				
Site Plan Review	Yes	Yes	Yes	Yes
Comment: *City/County Codes*				
Environmental Protection	No	Yes	Yes	Yes
Comment: *WA State Dept of Ecology and Federal EPA*				
Flood Damage Prevention	Yes	Yes	No	Yes
Comment: *Chelan County Flood Control Zone District Plan (2018); Chelan County Code 3.20*				
Emergency Management	Yes	Yes	Yes	Yes
Comment: *Chelan County CEMP*				
Climate Change	No	Yes	No	Yes
Comment: *WA State Dept of Ecology*				
Other: Comprehensive Plan	Yes	Yes	Yes	Yes
Comment: *Chelan County Comprehensive Plan (2017)*				
Planning Documents				
Comprehensive Plan	Yes	No	Yes	Yes
Comment: *2017-2037 Chelan County Comprehensive Plan*				
Capital Improvement Plan	Yes	Yes	Yes	Yes
How often is the plan updated? *Annually*				
Comment:				
Floodplain or Watershed Plan	Yes	Yes	Yes	Yes
Comment: *Plans for the Wenatchee, Entiat, Stemilt/Squilchuck, and Lake Chelan watersheds.*				
Stormwater Plan	Yes	No	No	Yes
Comment: *Comprehensive Stormwater Plan, July 2012*				
Urban Water Management Plan	No	No	No	No
Comment: *Not available*				
Habitat Conservation Plan	No	No	No	No
Comment:				
Economic Development Plan	Yes	Yes	Yes	Yes
Comment:				
Shoreline Management Plan	Yes	Yes	Yes	Yes
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Community Wildfire Protection Plan	Yes	Yes	Yes	Yes
Comment: *(inclusive in Natural Hazard Mitigation Plan (2019)*				
Forest Management Plan	No	No	No	No
Comment:				
Climate Action Plan	No	No	No	No
Comment:				
Comprehensive Emergency Management Plan	Yes	No	Yes	Yes
Comment: *2014 Chelan County CEMP Update to plan in progress (2019)*				
Threat & Hazard Identification & Risk Assessment	Yes	No	No	Yes
Comment: *December 2016 Hazard Identification and Vulnerability Assessment (HIVA)*				
Post-Disaster Recovery Plan	No	Yes	No	No
Comment: *County CEMP (ESF 14 – long term recovery)*				
Continuity of Operations Plan	Yes	No	Yes	Yes
Comment: *Chelan County Continuity of Government and Operations Plan (2016)*				
Public Health Plan	Yes	Yes	Yes	Yes
Comment: *Chelan-Douglas Health District All-Hazard Plan (2017)*				

Table 1-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Yes Chelan County Community Development Chelan County Public Works
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 1-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 1-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Chelan County Public Works Chelan County Natural Resources Chelan County Community Development
Engineers or professionals trained in building or infrastructure construction practices	Yes	Chelan County Public Works Chelan County Natural Resources Chelan County Community Development
Planners or engineers with an understanding of natural hazards	Yes	Chelan County Public Works Chelan County Natural Resources Chelan County Community Development
Staff with training in benefit/cost analysis	No	On-call consultants
Surveyors	Yes	Chelan County Public Works
Personnel skilled or trained in GIS applications	Yes	Numerous county departments
Scientist familiar with natural hazards in local area	Yes	Chelan County Public Works Chelan County Natural Resources
Emergency Manager	Yes	Chelan County Sheriff's Office – Emergency Management
Grant writers	Yes	Numerous county departments
Other		

Table 1-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe.**	Yes Hazard Mitigation Plan, flood information
Do you utilize social media for hazard mitigation education and outreach? • **If yes, please briefly describe.**	Yes Various county departments utilize social media for PE&O
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly describe.**	Yes Steering committees, CWPP, CFHMP, HMP
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe.**	Yes Department's attend community meetings dependent upon topic, social media, press releases, etc.
Do you have any established warning systems for hazard events? • **If yes, please briefly describe.**	Yes AlertSense, NWS EAS, door-to-door

Table 1-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Chelan County Community Development Flood Control Zone District
Who is your floodplain administrator? (department/position)	Chelan County Community Development Flood Control Zone District Floodplain Administrator (vacant)
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2017
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	Exceeds 3-foot freeboard
When was the most recent Community Assistance Visit or Community Assistance Contact?	November 18, 2015
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, please state what they are.**	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, please state why.**	Yes FEMA is updating maps
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	Yes CRS requirements, floodplain development permitting, etc.
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving CRS Classification?** • **Is your jurisdiction interested in joining the CRS program?**	No N/A Yes
How many flood insurance policies are in force in your jurisdiction?[a] • **What is the insurance in force?** • **What is the premium in force?**	428 107,315,400 Unknown
How many total loss claims have been filed in your jurisdiction?[a] • **How many claims are still open/were closed without payment?** • **What were the total payments for losses?**	712 Unknown $43,868,299

a. According to FEMA statistics as of August 31, 2012

Table 1-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	5	Unknown
Public Protection	Yes	Unknown	Unknown
Storm Ready	No	N/A	N/A
Firewise	Yes	--	--
Alpine Acres, Leavenworth WA	Yes	Participating	N/A
Alpine Tracts, Cashmere WA	Yes	Participating	N/A
Bretz Road and Drive, Leavenworth WA	Yes	Participating	N/A
Broadview, Wenatchee, WA	Yes	Participating	N/A
Chiwawa Loop, Leavenworth, WA	Yes	Participating	N/A
Chiwawa River Pines, Leavenworth, WA	Yes	Participating	N/A
Chumstick Watershed, Leavenworth, WA	Yes	Participating	N/A

	Participating?	Classification	Date Classified
Fish Lake, Leavenworth, WA	Yes	Participating	N/A
North shore Lake Wenatchee, Leavenworth, WA	Yes	Participating	N/A
Ponderosa Community Club, Leavenworth, WA	Yes	Participating	N/A
River Road, Leavenworth, WA	Yes	Participating	N/A
Shugart Flats, Leavenworth, WA	Yes	Participating	N/A
Stellerwood, Leavenworth, WA-	Yes	Participating	N/A

Table 1-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Medium
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Medium
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Medium
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Medium
Local residents support of adaptation efforts ***Comment:***	Low

Criterion	Jurisdiction Rating[a]
Local residents' capacity to adapt to climate impacts	Medium
Comment:	
Local economy current capacity to adapt to climate impacts	Unsure
Comment:	
Local ecosystems capacity to adapt to climate impacts	Unsure
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

1.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

1.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, Chelan County made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- Comprehensive Emergency Management Plan - Should be updated to reflect new information about risk
- Chelan County Continuity of Government and Operations Plan (2016) – Should be updated to reflect new information about risk
- Comprehensive Plan (2017-2037 - Should be updated to reflect new information about risk
- Chelan County Flood Control Zone District Plan (2018)- Should be updated to reflect new information about risk.

1.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Chelan County will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- Disaster Debris Management Plan – Should be integrated into current solid waste plan with new information about risk
- Threat & Hazard Identification & Risk Assessment – Should replace current HIVA with new information about risk

1.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-10 lists past occurrences of natural hazards for which specific damage was recorded in Chelan County. Other hazard events that broadly affected the entire planning area, including Chelan County, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 1-10. Past Natural Hazard Events

Type of Event	Cause	FEMA Disaster #	Date	Damage Assessment
Navarre Fire	Human Caused – Undetermined	NA	07/31/2018	No structures damaged; 165 acres
25 Mile Creek Fire	Human Caused	NA	07/29/2018	$250,000; DESTROYED: 1 garage; power poles; guardrail; 22 acres
Cougar Creek Fire	Lightning	FM-5270-WA	07/28/2018 *(declaration 08/1/2018)*	$ in progress; 42,712 acres
Rocky Reach Fire	Electrical Wires	NA	07/23/2018	No structures damaged; 3,386 acres
Fields Point Fire	Arson	NA	07/20/2018	No structures damaged; 60 acres
Little Camas Creek Fire	Unknown cause	NA	07/05/2018	No structures damaged; 317 acres
Eight Mile Lake Dam	Potential dam failure	NA	03/13/2018	No structures damaged
Monitor Fire	Vehicle caused	NA	11/01/2017	No structures damaged; 1,100 acres
Uno Peak Fire	Unattended campfire	NA	08/30/2017	$25,000; DESTROYED: 1 cabin; 7,879 acres
Jack Creek Fire	Lightning	NA	08/11/2017	No structures damaged; 4,606 acres
Spartan Fire	Lightning	NA	06/26/2017	Power poles damaged; 1,800 acres
Spromberg Fire	Unknown cause	FM-5182-WA	05/23/2017	$ in progress; Cedar log decks destroyed; 42 acres
Horselake Fire	Human caused	NA	09/04/2016	$50,000; Historical Barn Lost / Unk acreage
Suncrest Fire	Undetermined electrical cause	FM-5152-WA	08/27/2016	$ in progress; $2,000 damage estimated.; Cell Tower Damage / 496 acres
Antilon Lake Fire	Motor vehicle caused	NA	07/29/2016	1 vehicle destroyed; 540 acres
Cranmer Road Landslide	Natural event	NA	05/06/2016	$400,000; 2 residences affected
Ribbon Cliff Fire	Unknown Cause	NA	05/08/2016	No structures damaged; 25 acres
Whispering Ridge Landslide	Natural event	NA	03/17/2016	$400,000; 1 residence damaged
Severe Storms, Landslides	Natural event	4249-DR-WA	01/15/2016	$1,320,000; Yodelin Road Damage
Chelan Complex Fires—Chelan Butte Fire; Deer Mtn Fire; Antoine Crk Fire; First Crk Fire	Lightning Strikes	4243-DR-WA	08/14/2015	$23,513,366; DESTROYED: 30 Residences; 3 Commercial Businesses; 25 Other Structures Destroyed; 54,500 acres
Sleepy Hollow Fire	Arson cause	FM-5087-WA	06/28/2015	$22,000,000+; DESTROYED: 29 Residences; 4 Commercial Businesses; 1 Outbuilding; 2,950 acres
Wolverine Fire	Lightning	NA	07/03/2015	$100,000; 62,167 acres 20
Chiwaukum Complex Fires	Lightning caused	FM-5061-WA	07/15/2014	$100,000; DESTROYED: 3 Cabins; 1 Outbuildings; 17,935 acres
Mills Canyon Fire	Human Caused – accidental	FM-5061-WA	07/08/2014	$15,000; 3 Outbuildings 22,571 acres
Eagle Fire	Unknown cause	FM-5048-WA	08/19/2013	$2,273,317; No structures damaged; 14,076 acres

Type of Event	Cause	FEMA Disaster #	Date	Damage Assessment
Milepost 10 Fire	Lightning Strike	FM-5042-WA	08/09/2013	$1,200,000; 5,554 acres
Colockum Tarps	Electrical fault caused	FM-5038-WA	07/27/2013	$1,000,000+; DESTROYED: 3 residences; 1 commercial property; 1 outbuilding; 80,184 acres
North Shore Fire—Lake Wenatchee	Unattended campfire cause	NA	07/19/2013	$1,200,000+; DESTROYED: 3 residences; DAMAGED: 1 residence; 6 acres
Ice Storm – Lake Wenatchee	Natural event	NA *(State Emergency Declaration Denied)*	12/20/2012	$500,000+; 60+ residences damaged; 2 fatalities in vehicle accidents; 4 severely injured in vehicle accidents
Wenatchee Complex Fires—Peavine Fire; Poison Cyn Fire; Canyons Fire; Twin Peaks Fire	Lightning strikes	FM-5012-WA	09/08/2101 2	$20,000; DESTROYED: 1 outbuilding; 56,478 acres
Byrd Canyon Fire	Lightning strike caused	NA	09/08/2012	No known structures damaged; 14,119 acres
Rainbow Bridge Fire	Lightning strike cause	NA	07/29/2010	No structures damaged; 3,710 acres
Wenatchee River Complex—Nahahun Cyn Fire; Tripp Cyn Fire; Devils Gulch Fire	Lightning Strikes	NA No FMAG declared	07/30/2010	$100,000; DESTROYED: Building supplies; 2,065 acres
Union Valley Fire	Lightning cause	FM-2823-WA	08/01/2009	$640,027; No structures lost; 768 acres
Severe Winter Storms—Entiat River, Mission Creek	Natural event	1817-DR-WA	01/06/2009	(Unknown Damage Assessment)
Kahler Glen Avalanche	Natural event	NA	02/07/2008	$240,000; DESTROYED: 1 residence
Easy Street Fire	Unknown cause	FM-2711-WA	07/07/2007	$60,000; DESTROYED: 3 outbuildings; 2,500+ acres
Wind Storm – Wenatchee	Natural event	NA	12/472006	$3,292,842; DESTROYED: fire station; DAMAGED: Numerous homes, outbuildings, power poles/lines, trees
Flooding – Leavenworth Area	Natural event	1671-DR-WA	11/02/2006	$92,000;
Flick Creek Fire	Lightning caused	FM-2674-WA	07/26/2006	$80,510; Homes threatened – ; No structures lost; 7,883 acres
Tinpan Fire	Lightning caused	NA	07/20/2006	No structures damaged; 9,247 acres
Dirty Face Fire	Started as residential fire	FM-2572-WA	07/31/2005	$1,061,643; 73 residences threatened; 1,150 acres
Fischer Fire	Unknown cause	FM-2543-WA	08/11/2004	$3,033,966; DESTROYED: 1 residence / 1 other; 300 residences threatened; 16,513 acres
Deep Harbor Fire—Aka: Pot Peak Complex Fires-	Pot Peak Fire & Sisi Fire	FM-2537-WA	07/30/2004	$47,179; DESTROYED: 3 cabins; 29,700 acres
Deer Point Fire	Unattended campfire caused	FSA-2449-WA	07/20/2002	$2,573,214; DESTROYED: 5 minor structures; 43,375 acres
Icicle Complex Fires	Lightning causes	FSA-2374-WA	08/14/2001	$1,186,851; 7,696 acres
Rex Creek Complex Fires	Lightning caused	FSA-2379-WA	08/13/2001	$1,0008,947; (No known structures damaged); 55,913 acres
Union Valley Fire	Human caused	FSA-2368-WA	07/28/2001	$1,121,445; DESTROYED: 3 residences; 4,700 acres
Tyee Fire – COMPLEX—Tyee Fire; Hatchery Creek Fire: Round Mountain Fire	lightning caused	FSA-2103-WA *(includes Hatchery Creek Complex Fire)*	07/24/1994	$17,711,728 - total complex; DESTROYED: 37 Structures (residences / outbuildings); 135,000 acres

Type of Event	Cause	FEMA Disaster #	Date	Damage Assessment
Hatchery Creek - COMPLEX	Rat Creek Fire human caused; Alpine Lakes Fire; Hatchery Creek Fire lightning caused	(see Tyee Complex Fire)	07/23/1994	(See Tyee Fire for Damage Totals); Additional 43,000 acres
Castle Rock Fire	Human caused	(No Known FEMA #)	09/26/1992	$5,000,000 (estimate); DESTROYED: 24 residences; 6 outbuildings; 3,500 acres
Dinkleman Fire	Unknown cause	FSA-2070	09/06/1988	Unknown. Damage Assessment; DEATH: 1 person killed; DESTROYED: 1 residence; 50,000 acres
Mount St Helens Ash Fallout		DR-623	05/18/1980	Unknown Damage Estimate
Christmas Floods	Stehekin River; Entiat River	Unknown if Disaster Declaration Granted	12/26/1980	Unknown Damage Estimate; Roadway damage, bridge damage
Lightning Burst Fires—Mitchell Creek Fire; Slide Peak Fire; Entiat River Fire	Lightning caused	FSA-2002	07/17/1970	Unknown Damage Estimate; 188,000 acres

1.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 6
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 1

Other noted vulnerabilities include the following:

1.8 HAZARD RISK RANKING

Table 1-11 presents a local ranking for Chelan County of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 1-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Severe Weather	45	High
2	Wildfire	36	High
3	Earthquake	34	High
4	Landslide	33	High
5	Flooding	18	Medium
6	Dam Failure	12	Low
7	Drought	9	Low
8	Avalanche	n/a	Low

1.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 1-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 1-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Develop disaster response plans for all hazards.	Ongoing		Yes	CC-1
Comment: Hazard, Threat, and Incident Specific plans are ongoing.				
Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses, and schools.	Ongoing		Yes	CC-2
Comment: Public education programs and materials to include Limited English Proficiency (LEP) and Access and Functional Needs (AFN) populations				
Identify recurring utility outage areas and work with utility providers to remove hazards along those areas.	Ongoing		Yes	CC-3
Comment: The Chelan County wildfire risk assessment review identified the PUDs highest risk areas for each line section – so they can prioritize mitigation efforts in the areas of concern: line segments with the highest combined risks to wildfire intensity, likelihood of damage, criticality to the system, cost of replacement, and accessibility to monitor and return to service after a failure.				
Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs.	Ongoing		Yes	CC-4
Comment: Ongoing, based on current involvement by emergency services in planning area mitigations projects: (fire adapted communities, fire resilient landscapes, improving response capabilities) and Post Fire Recovery Projects.				
Continue to implement existing programs, policies and regulations as identified within the plan.	Ongoing		Yes	CC-5
Comment: Increasing ROW widths for EVAR; Fire flow requirements for homes larger than 3,600 sq. ft.				
Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.	Ongoing		Yes	CC-6
Comment: Coordination with local agencies & utilizing technology (GIS and other).				
Investigate and develop back-up power sources for vulnerable populations.	Ongoing		Yes	CC-7
Comment: Emergency shelters? Work with PUD to create a plan?				
Investigate the availability of federal, state, or local grant funding to support acquisition of mobile power generators to supply emergency power during emergency conditions.	Ongoing		Yes	CC-8
Comment: Applied for federal funding for generators for fire district facilities and critical water supply needs by municipal providers				
Recommend revisions to building codes and construction techniques to address earthquake hazards, where appropriate	Ongoing		Yes	CC-9
Comment: Earthquake Hazard Mitigation Action (FEMA Risk Map)				
Prioritize seismic retrofit for critical facilities to meet the most current standards for new buildings to the maximum extent possible				CC-10
Comment: Earthquake Hazard Mitigation Action (stay update with best available science and standards).				
Mitigate the non-structural impacts of an earthquake on all city and county critical facilities				CC-11
Comment: Earthquake Hazard Mitigation Action				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Perform structural and nonstructural retrofitting of seismically vulnerable facilities and structures ***Comment:*** Earthquake Hazard Mitigation Action	Ongoing		Yes	CC-12
Perform public education and awareness to increase the public's knowledge of earthquake hazards inside and outside the home ***Comment:*** Earthquake Hazard Mitigation Action	Ongoing		Yes	CC-13
Improve earthquake hazard mapping data and technical analysis for Chelan County ***Comment:*** Earthquake Hazard Mitigation Action	Ongoing		Yes	CC-14
Encourage development and enforcement of severe storm-resistant building, siting, and construction codes, particularly snow load requirements ***Comment:*** Severe Storm Mitigation Action	Ongoing		Yes	CC-15
Increase public awareness of severe storm preparation and readiness activities ***Comment:*** Severe Storm Mitigation Action	Ongoing		Yes	CC-16
Enhance strategies for debris management for severe storm events ***Comment:*** Severe Storm Mitigation Action	Ongoing		Yes	CC-17
Map and publicize locations around the county that have the highest incidence of severe storms ***Comment:*** Severe Storm Mitigation Action	Ongoing		Yes	CC-18
Enhance and develop shelter networks currently organized by Red Cross ***Comment:*** All Hazard Mitigation Action	Ongoing		Yes	CC-19
Enhance notification and weather monitoring systems to notify public of imminent severe storm events ***Comment:*** Severe Storms Mitigation Action	Ongoing		Yes	CC-20
Encourage development and enforcement of severe storm-resistant building, siting, and construction codes, particularly snow load requirements ***Comment:*** Severe Storm Hazard Mitigation Action	Ongoing		Yes	CC-21
Identify slope areas that threaten critical facilities due to lack of vegetation and erosion control. Prioritize and implement slope stabilization measures. ***Comment:*** Landslide Hazard Mitigation Action	Ongoing		Yes	CC-22
Reduce risk by improving knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas ***Comment:*** Landslide Hazard Mitigation Action	Ongoing		Yes	CC-23
Encourage construction, subdivision, and location design that can be applied to steep slopes and their hazard areas to reduce the potential adverse impacts to development ***Comment:*** Landslide Hazard Mitigation Action	Ongoing		Yes	CC-24
Develop public information to emphasize economic risk where a historical landslide area exists ***Comment:*** Landslide Hazard Mitigation Action	Ongoing		Yes	CC-25
Develop drought contingency plans at watershed level ***Comment:*** Drought Hazard Mitigation Action	Ongoing		Yes	CC-26

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Develop drought public education programs ***Comment:*** Drought Hazard Mitigation Action	Ongoing		Yes	CC-27
Reduce risk of wildfire hazards and damage through implementation of wildfire prevention and mitigation activities ***Comment:*** Wildfire Hazard Mitigation Action	Ongoing		Yes	CC-28
Evaluate building and construction techniques for efficiency in preventing wildfire damage, particularly roofing requirements ***Comment:*** Wildfire Hazard Mitigation Action	Ongoing		Yes	CC-29
Enhance outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards ***Comment:*** Wildfire Hazard Mitigation Action	Ongoing		Yes	CC-30
Encourage development and dissemination of maps relating to the fire hazard to help educate and assist builders and homeowners in being engaged in wildfire mitigation activities, and to help guide emergency services during response ***Comment:*** Wildfire Hazard Mitigation Action	Ongoing		Yes	CC-31
Collaborate with Washington Department of Transportation and others to identify avalanche-prone transportation routes and identify alternative transportation routes ***Comment:*** Avalanche Hazard Mitigation Action	Ongoing		Yes	CC-32
Educate backcountry users on location and dangers of avalanche-prone areas ***Comment:*** *Avalanche Hazard Mitigation Action*	Ongoing		Yes	CC-33
Perform public education and awareness to increase the public's knowledge of dam failure inside and outside the home ***Comment:*** Dam Failure	Ongoing		Yes	CC-34
Develop emergency action plans specific to dam failures affecting downstream properties and populations ***Comment:*** Dam Failure	Ongoing		Yes	CC-35

1.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-13 lists the actions that make up the Unincorporated Chelan County hazard mitigation action plan. Table 1-14 identifies the priority for each action. Table 1-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 1-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #CC-1 Develop Disaster Response Plans for all Hazards							
Existing	All Hazards	All	Chelan County EM	Chelan County departments	High	HMGP, PDM, FMA	Short-term
Action #CC-2 Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses, and schools.							
New and Existing	All Hazards	1, 3, 4, 5, 6, 7, 9, 10, 11	Chelan County	Cascadia Conservation District and local Fire Districts	Low	Staff Time, General Funds	Ongoing
Action #CC-3 Identify recurring utility outage areas and work with utility providers to remove hazards along those areas.							
New and Existing	All Hazards	All	Chelan County and Chelan PUD	TBD	Low	Staff Time, General Funds	Ongoing
Action #CC-4—Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs.							
New and Existing	All Hazards	2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Chelan County	TBD	Medium	Staff Time, General Funds, HMGP, PDM, FMA	Short-term
Action #CC-5 Continue to implement existing programs, policies and regulations as identified within the plan.							
New and Existing	All Hazards	All	Chelan County	All Planning Partners	Medium	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-6 Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.							
New and Existing	All Hazards	3, 4, 5, 6, 7, 8	Chelan County & Cascadia Conservation District	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-7 Investigate and develop back-up power sources for vulnerable populations.							
New and Existing	All Hazards	1, 2, 6, 7, 8, 9, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-8 Investigate the availability of federal, state, or local grant funding to support acquisition of mobile power generators to supply emergency power during emergency conditions.							
New and Existing	All Hazards	1, 2, 6, 7, 8, 9, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-9 Recommend revisions to building codes and construction techniques to address earthquake hazards, where appropriate							
New and Existing	Earthquake	2, 4, 7, 8, 9, 10, 11	Chelan County	All Planning Partners	Medium	Staff Time, General Funds,	Ongoing
Action #CC-10 Prioritize seismic retrofit for critical facilities to meet the most current standards for new buildings to the maximum extent possible							
New and Existing	Earthquake	4, 5, 6, 7, 8, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-11 Mitigate the non-structural impacts of an earthquake on all city and county critical facilities							
New and Existing	Earthquake	4, 5, 6, 7, 8, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-12 Perform structural and nonstructural retrofitting of seismically vulnerable facilities and structures							
New and Existing	Earthquake	4, 5, 6, 7, 8, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #CC-13 Perform public education and awareness to increase the public's knowledge of earthquake hazards inside and outside the home							
New and Existing	Earthquake	6, 7, 10	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-14 Improve earthquake hazard mapping data and technical analysis for Chelan County							
New and Existing	Earthquake	1, 4, 6, 7, 10	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-15 Encourage development and enforcement of severe storm-resistant building, siting, and construction codes, particularly snow load requirements							
New and Existing	Severe Storms	1, 2, 4, 5, 6, 7, 8, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-16 Increase public awareness of severe storm preparation and readiness activities							
New and Existing	Severe Storms	1, 2, 4, 5, 6, 7, 10,	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-17 Enhance strategies for debris management for severe storm events							
New	Severe Storms	2, 4, 5, 6, 7, 10,	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-18 Map and publicize locations around the county that have the highest incidence of severe storms							
New and Existing	Severe Storms	1, 4, 5, 6, 7, 9, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-19 Enhance and develop shelter networks currently organized by Red Cross							
New and Existing	All Hazards	2, 6, 7, 9, 10	Chelan County	All Planning Partners and Red Cross	High	Staff Time, HMGP, PDM, FMA	Ongoing
Action # CC-20 Enhance notification and weather monitoring systems to notify public of imminent severe storm events							
New and Existing	Severe Storms	1, 2, 4, 5, 6, 7, 8, 9, 10	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-21 Identify slope areas that threaten critical facilities due to lack of vegetation and erosion control. Prioritize and implement slope stabilization measures							
New	Landslide	1, 2, 4, , 6, 7, 8, 9, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-22 Reduce risk by improving knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard-prone areas							
New	Landslide	1, 2, 4, 5, 6, 7, 10,	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-23 Encourage construction, subdivision, and location design that can be applied to steep slopes and their hazard areas to reduce the potential adverse impacts to development							
New and Existing	Landslide	1, 2, 4, 5, 6, 7, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-24 Develop public information to emphasize economic risk where a historical landslide area exists							
New and Existing	Landslide	1, 2, 4, 5, 6, 7, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-25 Develop drought contingency plans at watershed level							
New	Drought	1, 2, 4, 5, 6, 7, 8, 10, 11,	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #CC-26 Develop drought public education programs							
New	Drought	1, 2, 4, 5, 6, 7, 8, 10, 11,	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-27 Reduce risk of wildfire hazards and damage through implementation of wildfire prevention and mitigation activities							
New and Existing	Wildfire	All	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action # - CC28 Evaluate building and construction techniques for efficiency in preventing wildfire damage through use of ignition resistant materials							
New and Existing	Wildfire	3, 4, 5, 6, 7, 8, 9, 10, 11	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-29 Enhance outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards							
New and Existing	Wildfire	All	Chelan County	All Planning Partners	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action # - CC-30 Encourage development and dissemination of maps relating to the fire hazard to help educate and assist builders and homeowners in being engaged in wildfire mitigation activities, and to help guide emergency services during response							
New and Existing	Wildfire	All	Chelan County	All Planning Partners and State and Federal Agencies	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action #CC-31 Collaborate with Washington Department of Transportation and others to identify avalanche-prone transportation routes and identify alternative transportation routes							
New and Existing	Avalanche	1, 2, 4, 5, 6, 7, 8, 9, 10	Chelan County	All Planning Partners State and Federal Agencies	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action # - CC-32 Educate backcountry users on location and dangers of avalanche-prone areas							
New and Existing	Avalanche	1, 2, 4, 5, 6, 7, 8, 9, 10	Chelan County	All Planning Partners State and Federal Agencies	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action # CC-33 Perform public education and awareness to increase the public's knowledge of dam failure inside and outside the home							
New and Existing	Dam Failure	1, 2, 4, 5, 6, 7, 8, 9, 10	Chelan County, Chelan County PUD, Irrigation Districts and Private Organizations	All Planning Partners State and Federal Agencies	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing
Action # CC-34 Develop emergency action plans specific to dam failures affecting downstream properties and populations							
New and Existing	Dam Failure	1, 2, 4, 5, 6, 7, 8, 9, 10	Chelan County, Chelan County PUD, Irrigation Districts and Private Organizations	All Planning Partners State and Federal Agencies	High	Staff Time, General Funds, HMGP, PDM, FMA	Ongoing

Table 1-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	*Can Project Be Funded Under Existing Programs/ Budgets?*	Implementation Priority[a]	Grant Pursuit Priority[a]
1	All	High	High	Yes	Yes	*No*	Medium	Low
2	9	High	Low	Yes	Yes	*Yes*	Medium	High
3	All	Medium	Low	Yes	Yes	*Yes*	High	Medium
4	10	Medium	Medium	Yes	Yes	*Yes*	Medium	Medium
5	All	Medium	Medium	Yes	Yes	*Yes*	Medium	Medium
6	6	High	High	Yes	Yes	*Yes*	Medium	High
7	8	High	High	Yes	Yes	*Yes*	Medium	High
8	8	High	High	Yes	Yes	*Yes*	Medium	High
9	7	Medium	Medium	Yes	No	*Yes*	Medium	Medium
10	7	High	High	Yes	Yes	*Yes*	Medium	High
11	7	High	High	Yes	Yes	*Yes*	Medium	High
12	7	High	High	Yes	Yes	*Yes*	Medium	High
13	3	Medium	High	No	Yes	*Yes*	Medium	Medium
14	5	High	High	Yes	Yes	*Yes*	Medium	High
15	9	High	High	Yes	Yes	*Yes*	Medium	High
16	7	Medium	High	No	Yes	*Yes*	Medium	Medium
17	6	High	High	Yes	Yes	*Yes*	Medium	High
18	8	High	High	Yes	Yes	*Yes*	Medium	High
19	5	High	High	Yes	Yes	*Yes*	Medium	High
20	9	High	High	Yes	Yes	*Yes*	Medium	High
21	9	High	High	Yes	Yes	*Yes*	Medium	High
22	7	High	High	Yes	Yes	*Yes*	Medium	High
23	8	High	High	Yes	Yes	*Yes*	Medium	High
24	8	Medium	High	No	Yes	*Yes*	Medium	Medium
25	9	High	High	Yes	Yes	*Yes*	Medium	High
26	9	Medium	High	No	Yes	*Yes*	Medium	Medium
27	All	High	High	Yes	Yes	*Yes*	Medium	High
28	9	High	High	Yes	Yes	*Yes*	Medium	High
29	All	High	High	Yes	Yes	*Yes*	Medium	High
30	All	High	High	Yes	Yes	*Yes*	Medium	High
31	9	Medium	High	No	Yes	*Yes*	Medium	Medium
32	9	Medium	High	No	Yes	*Yes*	Medium	Medium
33	9	High	High	Yes	Yes	*Yes*	Medium	High
34	9	High	High	Yes	Yes	*Yes*	Medium	High

a. See the introduction to this volume for explanation of priorities.

Table 1-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Earthquake	CC-10, 11, 12, 13, 14, 15	CC-10, 11, 12, 13, 14, 15	CC-10, 11, 13, 14, 15	CC-15	CC-11, 12, 13, 15	CC-10, 11, 13, 15		CC-10, 11, 13, 15
Severe Storms	CC-16, 17, 18, 19, 21	CC-16, 17, 18, 19, 21	CC-16, 17, 18, 19, 21	CC-16, 17, 18, 19, 21	CC-16, 17, 18, 19, 21	CC-16, 19,	CC-16, 17, 18, 19	CC-16, 17, 18, 19, 21
Landslide	CC-22, 23, 24, 25	CC-22, 23, 24, 25	CC-22, 23, 24, 25	CC-22, 23, 24, 25	CC-22, 23, 24, 25	CC-23, 24	CC-22, 23, 24,	CC-22, 23, 24, 25
Drought	CC-26, 27	CC-26, 27	CC-26, 27	CC-26, 27	CC-26,	CC-26	CC-26, 27	CC-26, 27
Wildfire	CC-28, 29, 30, 31	CC-28, 29, 30, 31	CC-28, 29, 30, 31	CC-28, 29, 30, 31	CC-28, 29, 30, 31	CC-28, 29, 30		CC-28, 29, 30, 31
Avalanche	CC-32, 33	CC-32	CC-32, 33		CC-32, 33	CC-32		CC-32, 33
All Hazards	CC-1, 2, 3, 4, 5, 6, 7, 8, 9	CC-1, 2, 3, 4, 5, 6, 7, 8, 9, 20	CC-1, 2, 3, 4, 5, 6, 7, 8, 20	CC-1, 2, 3, 4, 5, 6, 7	CC-1, 2, 3, 4, 5, 6, 7, 8, 9, 20	CC-1, 2, 3, 4, 5, 6, 7, 8, 9, 20	CC-1, 2, 3, 4, 5, 6, 7	CC-1, 2, 3, 4, 5, 6, 7, 8, 9, 20
Dam Failure	CC-34, 35	CC-34, 35	CC-34, 35	CC-34, 35	CC-34, 35	CC-34, 35	CC-34, 35	CC-34, 35

a. See the introduction to this volume for explanation of mitigation types.

1.11 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Chelan County Code**—The county code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Chelan County Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.

The following **o**utside resources and references were reviewed:

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

2. CITY OF CASHMERE

2.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Steve Croci, Director of Operations
101 Woodring St.
Cashmere, WA 98815
Telephone: 509-782-3513
e-mail Address: steve@cityofcashmere.org

Alternate Point of Contact
Jim Fletcher, Mayor
101 Woodring Street
Cashmere, WA 98815
Telephone: 509-782-3513
e-mail Address:mayor@cityofcashmere.org

2.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—July 1, 1904
- **Current Population**—3,095
- **Population Growth**—1.84%
- **Location and Description**—Located in the lower Wenatchee River valley on the east slope of the Cascade Mountains, Cashmere is surround by the river and steep hillsides. Elevation of the city is between 800 and 1,000 feet above sea level. Ridges along the north side of the valley rise to over 2,000 feet Mean Sea Level before ascending higher into the Entiat Mountains. South of Cashmere ridges rise again to over 2,000 feet above sea level and are connected with the Wenatchee Mountains and Mission Ridge. Geologic formation of the valley is typical of glacial and river actions working on consolidated sedimentary formations. Soils (Chumstick) are shallow with layers of unconsolidated river rock deposited either by glaciers or by flooding. Native vegetation of the valley is typical of dry climate zones, consisting mainly of grasses and shrubs. Pine forests are dominant vegetation in higher elevations, and on the north slopes of the ridges.
- **Brief History**—The Wenatchee River valley was originally home to the Wenatchee Indian tribe. In the 1850s about 400 members of the Simpesquensi band of the Wenatchee tribe maintained a winter village of Ntuatckam near the present city of Cashmere. In 1855, the Walla Walla Treaty moved the Simpesquensis to the Yakima Reservation.

  Cashmere's development began in 1888 when a mission was built under the direction of Father de Roughe to serve the areas remaining Indians and early settlers. Eventually a small community was established around "the old mission". The current location for the City of Cashmere was platted in 1892. Incorporation of the community as "Mission" occurred in 1904. In 1906, Judge James H. Chase convinced the town to change its name to Cashmere.

  The first permanent settler was A. B. Brender. In 1881 he filed a claim in Brender Canyon. He raised vegetables for Blewett mines and later planted Cashmere's first pear trees. Significant orchard production did not occur until 1901 when the Peshastin ditch was completed, supplying irrigation water to the lower Wenatchee River valley. By 1903, the apple crop was large enough to ship fruit in rail car lots. In 1902

the Schmitten Lumber mill operated at the lower end of Brender Canyon and moved to the Sunset Highway location in 1918.

Cashmere benefited when the Great Northern Railroad constructed its line crossing Stevens Pass in 1892. This rail line provided employment and a means of transportation to get local produce to markets. The rail line also greatly influenced the town's pattern of development as fruit warehouses built adjacent to rail sidings and riverbanks were altered to construct rail embankments.

- **Climate**—In Cashmere, the summers are hot, dry, and mostly clear and the winters are very cold and partly cloudy. Climate conditions vary from normal summer highs in the 80s to 90s (ºF) and winter low temperatures are usually in the 20s and 30s (ºF). Temperatures are rarely below 13 °F or above 98 °F.
- **Governing Body Format**—Cashmere is classified as a non-charter code city with a Mayor-Council form of government pursuant to RCW 35A.12. The city council is the decision-making entity for the City. Council approves all expenditures, payroll, budget, ordinances, policies, etc., for the City. Five council members are elected for 4-year terms. City Council meets every 2nd and 4th Monday of the month at 6:00 p.m. in the City Hall council chambers. Council meetings are open to the public. City Council assumes responsibility for the adoption of this plan; the Director of Operations will oversee its implementation.

2.3 DEVELOPMENT TRENDS

Anticipated development for Cashmere is considered low consisting of mostly residential development and some industrial. Residential housing will likely consist of more multi-family housing units and/or accessory dwelling units which are intended to address the need for more affordable housing. Some mixed-commercial and light industrial will occur on the Chelan County Port District land off Sunset Highway.

Cashmere is in the process of updating the Comprehensive Land Use Plan. The plan focuses on issues of the greatest concern to the community. City actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan. Future growth and development in the city will be managed as identified in the general plan.

Table 2-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

2.4 CAPABILITY ASSESSMENT

Chelan County has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 2-2.
- Development and permitting capabilities are presented in Table 2-3.
- An assessment of fiscal capabilities is presented in Table 2-4.
- An assessment of administrative and technical capabilities is presented in Table 2-5.
- An assessment of education and outreach capabilities is presented in Table 2-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 2-7.
- Classifications under various community mitigation programs are presented in Table 2-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 2-9.

Table 2-1. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	Yes 2016 - Mill Road (10 parcels), Tanager Lane (4 parcels) and Rank Road (2 parcels).
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	No
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	Yes Chelan County Port District property on Sunset Highway. Riverside Meadow Development at the end of Vine Street next to Riverside Park. Zacher Sub-division off Valley Street. A few multifamily sites off Pioneer Ave. Orchards located in City limits which could be sub-divided. No known hazard areas.
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	

	2014	2015	2016	2017	2018
Single Family	3	0	7	3	4
Multi-Family	0	0	0	2	0
Other (commercial, mixed use, etc.)	0	0	1	4	0

Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	Cashmere does not have the ability to track the number of permits for each hazard area. All properties would be considered close to or within a wildfire hazard risk. Properties built near Mission or Brender Creeks are in a flood hazard risk. The levees on the Wenatchee River protect many properties from the potential of flooding. Tsunami, Liquefaction and Landslides are of very minor to no concern.
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Information in the existing Comprehensive Land Use Plan indicates plenty of property is available for residential construction within the Urban Growth Area, it is more limited within the city limits. No analysis has been completed land zone for different purposes.

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Table 2-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	Yes	Yes	Yes
Comment: *Cashmere Municipal Code (CMC) Title 15*				
Zoning Code	Yes	Yes	Yes	Yes
Comment: *CMC Title 17*				
Subdivisions	Yes	No	Yes	Yes
Comment: *CMC Title 16*				
Stormwater Management	No	Yes	Yes	Yes
Comment: *Department of Ecology Storm Water Permit Regulations*				
Post-Disaster Recovery	No	Yes	Yes	Yes
Comment: *County CEMP*				
Real Estate Disclosure	No	No	No	No
Comment:				
Growth Management	Yes	yes	Yes	Yes
Comment: Cashmere Comprehensive Plan (2019)				
Site Plan Review	Yes	Yes	Yes	Yes
Comment: *City/County Codes*				
Environmental Protection	Yes	Yes	Yes	Yes
Comment: *CMC 18, WA State Dept of Ecology and Federal EPA*				
Flood Damage Prevention	Yes	Yes	No	Yes
Comment: *CMC Title 18 Chelan County Flood Control Zone District Plan (2018); Chelan County Code 3.20*				
Emergency Management	Yes	Yes	Yes	Yes
Comment: *Cashmere FD, Chelan County CEMP*				
Climate Change	No	Yes	No	Yes
Comment: *WA State Dept of Ecology*				
Other: Comprehensive Plan	Yes	Yes	Yes	Yes
Comment: *Cashmere Comprehensive Plan (2019)*				
Planning Documents				
General Plan	No	No	No	No
Comment:				
Capital Improvement Plan	Yes	Yes	Yes	Yes
How often is the plan updated? *Annually*				
Comment:				
Floodplain or Watershed Plan	No	Yes	Yes	Yes
Comment: *Plans for the Wenatchee and Mission Creek watersheds.*				
Stormwater Plan	No	No	No	No
Comment:				
Urban Water Management Plan	No	No	No	No
Comment: *Not available*				
Habitat Conservation Plan	No	No	No	No
Comment:				
Economic Development Plan	No	No	No	No
Comment:				
Shoreline Management Plan	Yes	Yes	Yes	Yes
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Community Wildfire Protection Plan	Yes	Yes	Yes	Yes
Comment:				
Forest Management Plan	No	No	No	No
Comment:				
Climate Action Plan	No	No	No	No
Comment:				
Comprehensive Emergency Management Plan	Yes	Yes	Yes	Yes
Comment: *2014 Chelan County CEMP Update to plan in progress (2019)*				
Threat & Hazard Identification & Risk Assessment	No	Yes	Yes	Yes
Comment: *No local THIRA - December 2016 Hazard Identification and Vulnerability Assessment (HIVA)*				
Post-Disaster Recovery Plan	Yes	Yes	No	No
Comment: *County CEMP (ESF 14 – long term recovery)*				
Continuity of Operations Plan	Yes	No	Yes	Yes
Comment:				
Public Health Plan	Yes	Yes	Yes	Yes
Comment: *Chelan-Douglas Health District All-Hazard Plan (2017)*				

Table 2-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Yes General
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	No

Table 2-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes, general use fee
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	No

Table 2-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	No	
Engineers or professionals trained in building or infrastructure construction practices	No	
Planners or engineers with an understanding of natural hazards	No	
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	No	
Scientist familiar with natural hazards in local area	No	
Emergency Manager	Yes	Fire Chief
Grant writers	Yes	General staff
Other		

Table 2-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	No
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe.**	No
Do you utilize social media for hazard mitigation education and outreach? • **If yes, please briefly describe.**	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly describe.**	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe.**	No
Do you have any established warning systems for hazard events? • **If yes, please briefly describe.**	No

Table 2-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	City
Who is your floodplain administrator? (department/position)	City Administrator
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2004
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	12/7/16
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, please state what they are.**	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, please state why.**	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	Yes Any and all
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving CRS Classification?** • **Is your jurisdiction interested in joining the CRS program?**	No No No
How many flood insurance policies are in force in your jurisdiction? • **What is the insurance in force?** • **What is the premium in force?**	Unknown Unknown Unknown
How many total loss claims have been filed in your jurisdiction? • **How many claims are still open/were closed without payment?** • **What were the total payments for losses?**	Unknown Unknown Unknown

Table 2-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No		Date
Building Code Effectiveness Grading Schedule	Unknown		Date
Public Protection	No		Date
Storm Ready	No		Date
Firewise	No		Date

Table 2-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Low
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Low
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Low
Local residents support of adaptation efforts ***Comment:***	Low
Local residents' capacity to adapt to climate impacts ***Comment:***	Low
Local economy current capacity to adapt to climate impacts ***Comment:***	Low
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Low

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

2.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

2.5.1 Existing Integration

No current City of Cashmere plans or programs integrate components of hazard mitigation.

2.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, City of Cashmere will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- City of Cashmere Municipal Code

2.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

No past occurrences of natural hazards have resulted in specific damage recorded in City of Cashmere. Hazard events that broadly affected the entire planning area, including the City of Cashmere, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

2.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

2.8 HAZARD RISK RANKING

Table 2-10 presents a local ranking for City of Cashmere of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 2-10. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Severe Weather	45	High
3	Earthquake	36	High
4	Landslide	18	Medium
5	Flooding	18	Medium
6	Dam Failure	12	Low
7	Drought	6	Low
8	Avalanche	0	N/A

2.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 2-11 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 2-11. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Retrofit existing critical facilities (i.e. hospitals, schools, etc.) in each community to ensure compliance with current building codes so the facilities are safe following earthquakes.			X	E-1
Comment: Ongoing				
Adoption of International Building Codes with adherence to Chelan County's recognized earthquake zone			X	E-2
Comment: Ongoing				
Implement a public notification system to alert the public to severe store activity			X	SS-1
Comment: Ongoing				
Provide classes to homeowners in the urban/wildland interface zones on maintaining "safe zones" around their homes, particularly along the southern and western areas of the city		X		CA-1
Comment: Ongoing				
Adopt regulations requiring metal roofs on structures in urban/wildland interface zones			X	CA-10
Comment: Ongoing				
Raise existing homes above the floodplain and evaluate sewage treatment pond for flooding potential			X	CA-13
Comment: New water treatment plant constructed at elevation to reduce flood risk. Raising existing homes is ongoing.				
Evaluate critical facilities along Wenatchee River and Mission Creek for flooding potential and evaluate mitigation actions			X	
Comment: Ongoing				
Adopt the State's Model Floodplain Ordinance to prohibit/regulate future development in the floodplain	X			
Comment:				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Continue to work with FEMA and DOE on flood zone management.	X			
Comment:				
Require flood insurance for structures built within the flood zone.	X			
Comment:				
Identify and stock emergency shelters (including schools in the event students are unable to return home due to a storm) in each community to provide housing during severe storms		X		
Comment:				
Schedule and implement Emergency Response Planning, including table-top exercises		X		
Comment:				
Public Education/Community Preparedness Classes to teach neighborhoods to be self-reliant for three days following a disaster		X		
Comment:				

2.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 2-12 lists the actions that make up the City of Cashmere's hazard mitigation action plan. Table 2-13 identifies the priority for each action. Table 2-14 summarizes the mitigation actions by hazard of concern and mitigation type.

2.11 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Cashmere Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Chelan County Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.

The following outside resources and references were reviewed:

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

Table 2-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #CA-1—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses or critical facilities.							
Existing	All Hazards	1, 3, 4, 5, 8	Unknown	Unknown	High	HMGP, PDM, FMA	Short-term
Action #CA-2—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the Comprehensive Plan.							
New and Existing	All Hazards	1, 2, 7, 10	City of Cashmere	Unknown	Low	Staff Time, General Funds	Ongoing
Action #CA-3—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	1, 2, 7, 10	City of Cashmere	Unknown	Low	Staff Time, General Funds	Short-term
Action #CA-4—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood	1, 6, 8, 9	City of Cashmere	Unknown	Low	Staff Time, General Funds	Ongoing
Action #CA-5—Work with interagency partners and private landowners to identify emergency water sources and locations, seek funding for development of emergency water access or storage facilities at identified locations.							
New	Wildfire, Drought	1, 2, 4, 5, 8, 9, 10	City of Cashmere, CCFD#6	Chelan County, DNR, USFS	Medium	HMGP	Short-term
Action #CA-6—Develop a post-disaster recovery plan and a debris management plan.							
Existing	All Hazards	2, 3, 6, 7, 8, 9, 10	City of Cashmere	CCFD#6	Medium	EMPG	Short-term
Action #CA-7—Create a fuels reduction zone with land owners in collaboration with other fire service agencies along all roadways identified as evacuation routes.							
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City of Cashmere, CCFD#6	Chelan County, DNR, USFS	$200,000	HMGP, PDM	Short-term Ongoing
Action #CA-8—Install back-up generators at all city facilities.							
New and Existing	All hazards	2, 6, 10	City of Cashmere		Low	General funds, HMGP, PDM	Short-term
Action #CA-9—Perform a seismic risk assessment on all city facilities, and retrofit those structures with risk.							
Existing	Earthquake	1, 2, 4, 5, 6, 7, 8, 9, 10	City of Cashmere		High	General funds, HMGP, PDM	Long-term
Action #CA-10—Adopt WUIC codes.							
New and Existing	Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City of Cashmere	CCFD6	Low	General Funds	Short-term
Action #CA-11—Coordinate with Washington State Department of Transportation to designate alternate evacuation routes.							
New and Existing	All Hazards	3, 10	City of Cashmere, CCFD6	Chelan County, WSDOT	Low	General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #CA-12—Improve early notification of emergencies and subsequent evacuation plans.							
New and Existing	All Hazards	1, 6	City of Cashmere, CCFD6, DEM		Medium	General funds	Short-term
Action # CA-13—Coordinate with Chelan County Flood Control District on options for the maintenance and management of the levee system within the City.							
Existing	Riverian	4, 6, 7, 8, 10	City of Cashmere	FCZD	High	FCZD, City of Cashmere, possible grant funding	Long-term

Table 2-13. Mitigation Action Priority

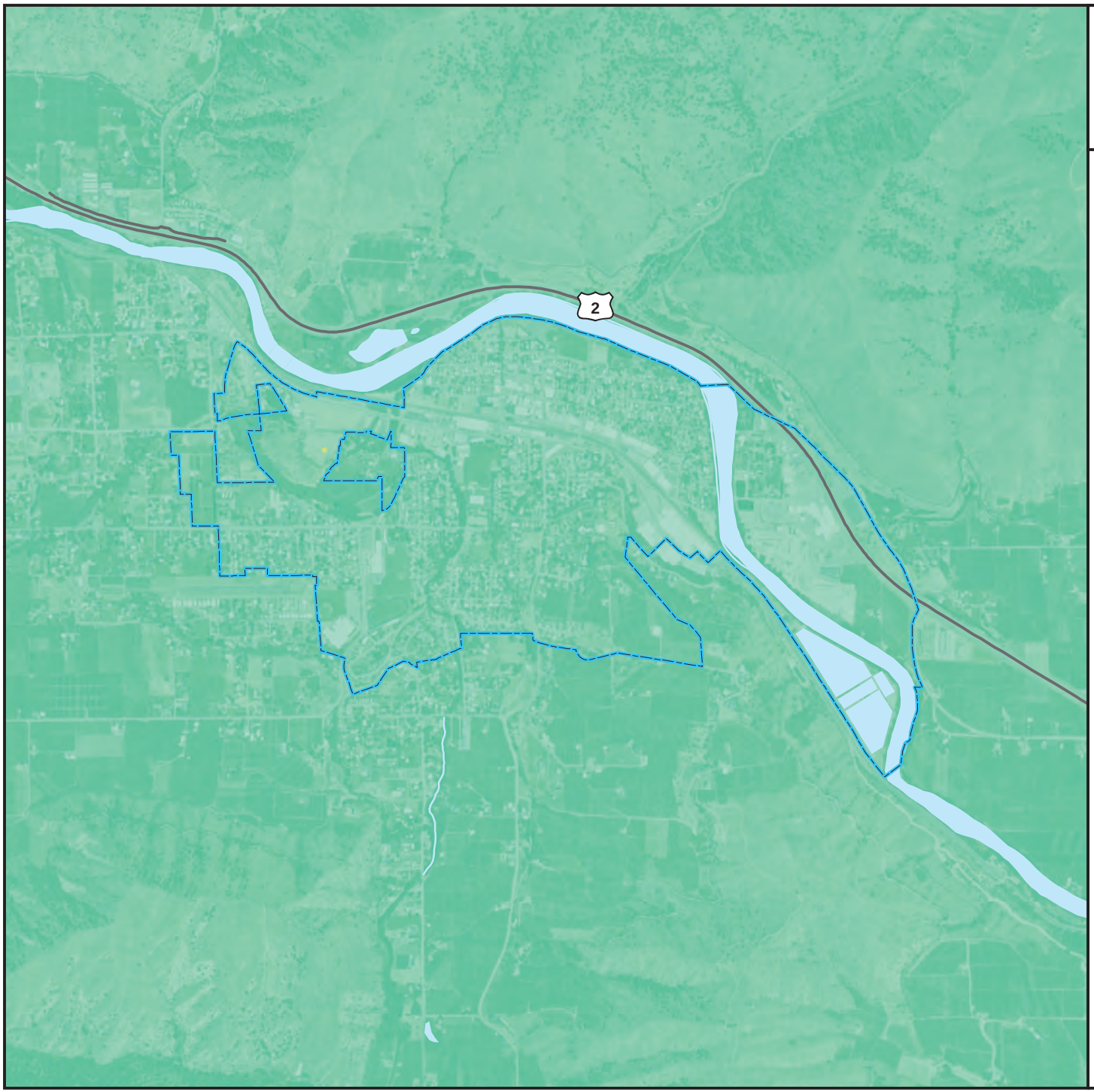
Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
CA-1	5	Low	High	No	Yes	No	Medium	High
CA-2	4	Medium	Low	Yes	No	Yes	High	Low
CA-3	4	Low	Low	Yes	No	Yes	High	Low
CA-4	4	Medium	Low	Yes	No	Yes	High	Low
CA-5	7	Medium	Medium	Yes	Yes	No	Medium	Medium
CA-6	7	Low	Medium	Yes	Yes	No	Medium	Medium
CA-7	10	Low	Low	Yes	Yes	No	Medium	Medium
CA-8	3	Low	Medium	Yes	Yes	No	Medium	Medium
CA-9	9	Medium	High	No	Yes	No	Medium	Medium
CA-10	10	Medium	Low	Yes	No	Yes	High	Low
CA-11	2	Medium	Low	Yes	No	Yes	Medium	Low
CA-12	2	High	Low	Yes	No	No	Medium	Low
CA-13	5	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 2-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Severe Weather	1, 2	1, 4	2, 5, 11, 12	6	3, 8, 12	1		1
Wildfire	1, 2	1, 4	2, 5, 11, 12	6, 7	3, 8, 12	1		1
Earthquake	1, 2	1, 4, 9	2, 5, 11, 12	6	3, 8, 12	1		1
Landslide	1, 2	1, 4	2, 5, 11, 12	6	3, 8, 12	1		1
Dam Failure								1
Drought	1, 2	1, 4	2, 5	6	3, 8, 12	1		1
Flooding	1, 2	1, 4	2, 5, 11, 12, 13	6	3, 8, 12	1		1
Avalanche								
Seiche								

a. See the introduction to this volume for explanation of mitigation types.



City of Cashmere

Cascadia M9.0 (2016) ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

V (Very Light/Moderate)

VI (Light/Strong)

0 0.15 0.3 0.6

Miles

N

W E

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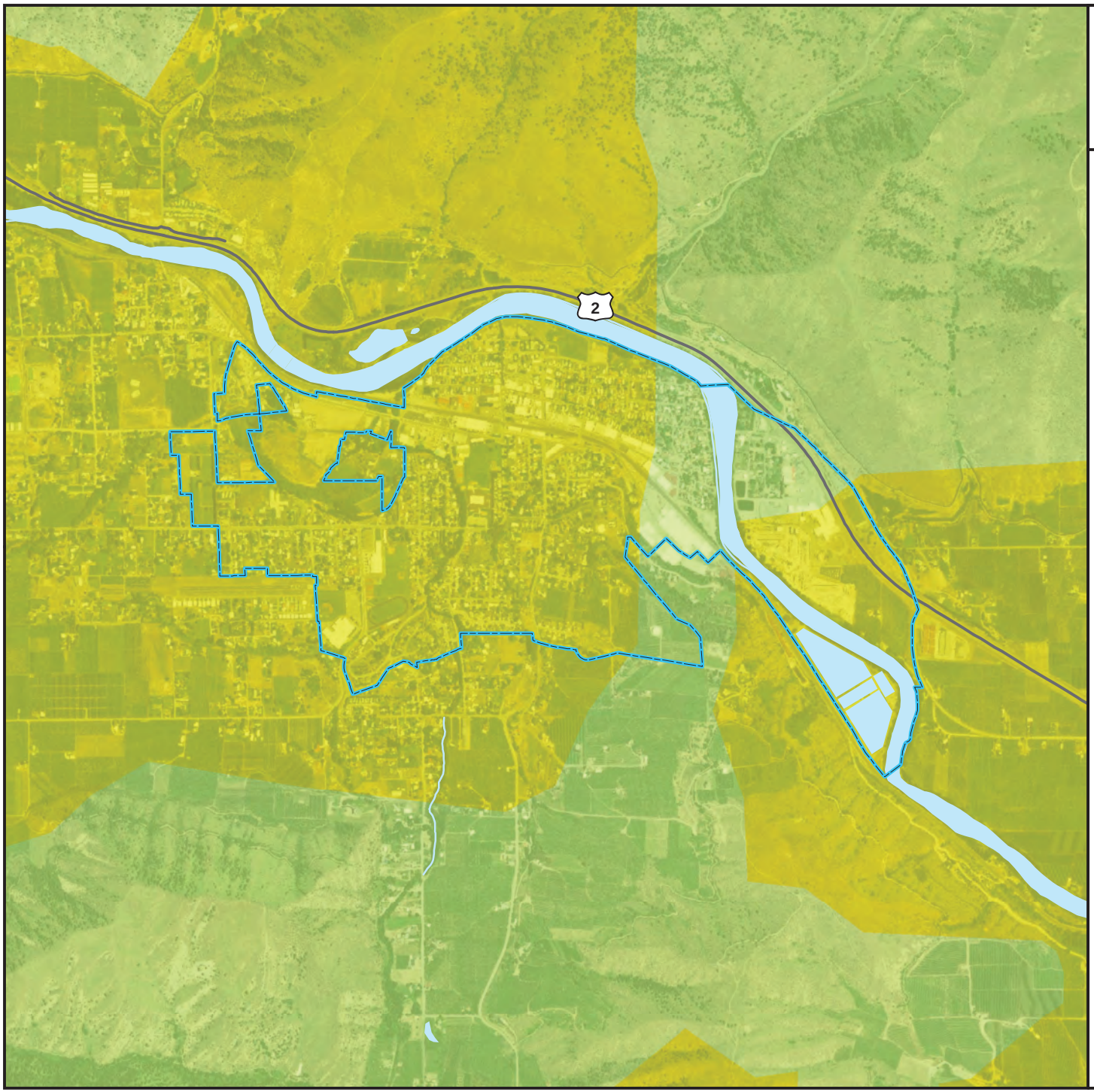
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

Chelan M7.2 ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

VI (Light/Strong)

VII (Moderate/Very Strong)

0 0.15 0.3 0.6

Miles

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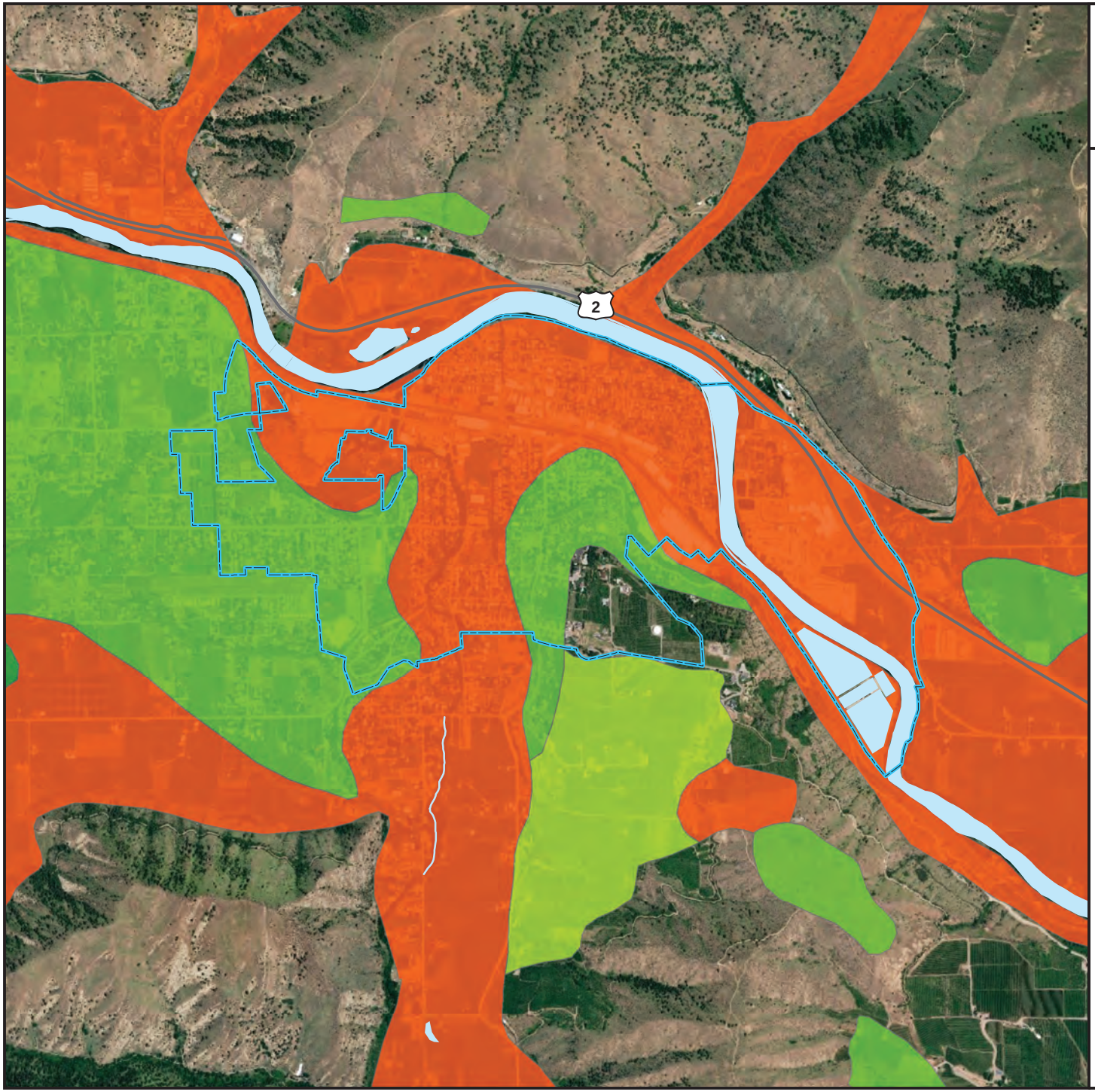
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

Liquefaction Susceptibility

City Limits

Chelan County Boundary

Liquefaction Susceptibility

Moderate to High

Low

Very Low to Low

Very Low

These data contain polygons that provide information regarding the relative liquefaction potential for Washington State. This data is part of a geodatabase that contains statewide seismic ground response data. Liquefaction is a natural phenomenon in which saturated, sandy soils lose their strength and behave as liquid.

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

0 0.15 0.3 0.6

Miles

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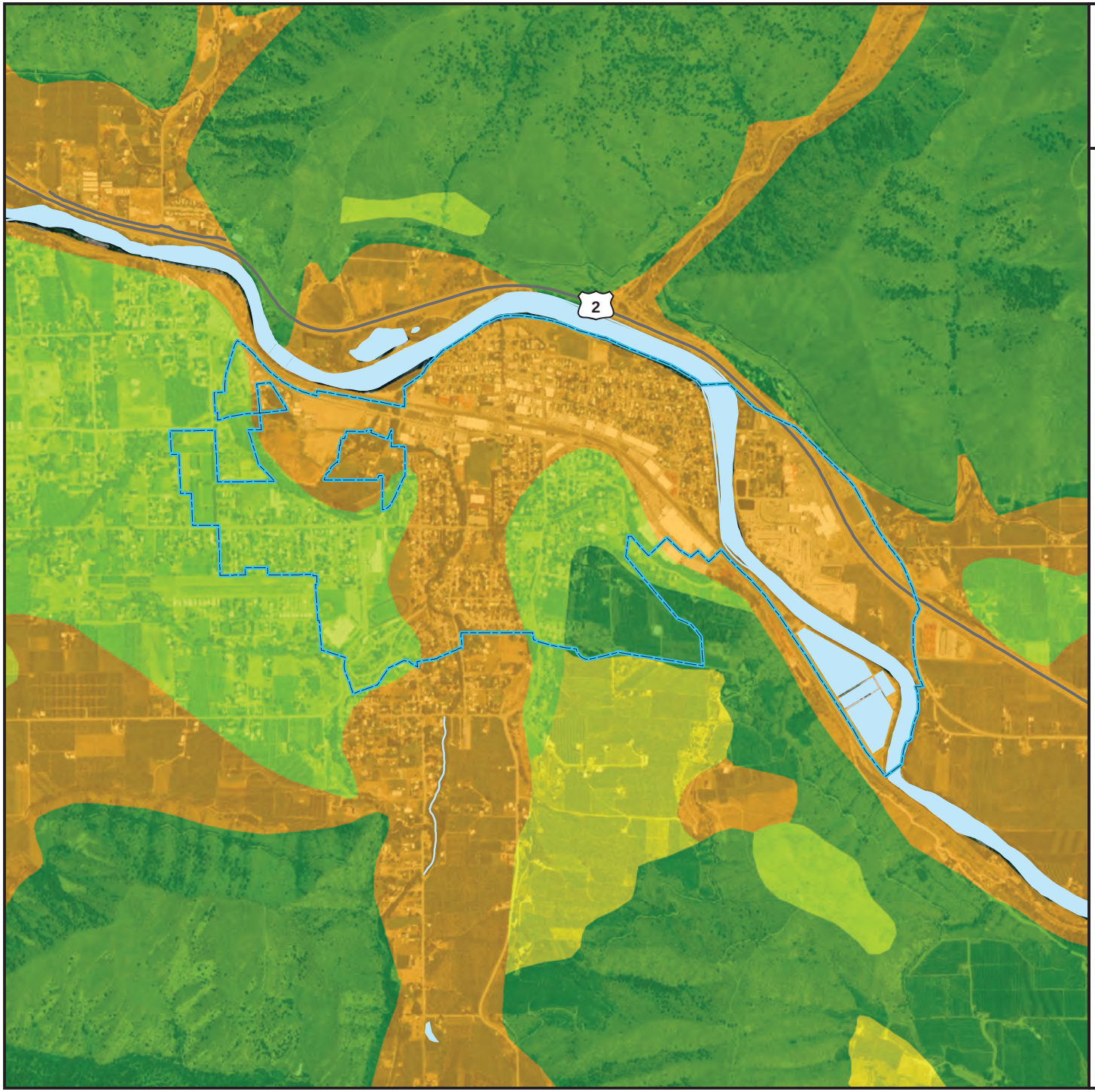
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

National Earthquake Hazards Reduction Program (NEHRP) Soil Classes

City Limits

Chelan County Boundary

Soil Type

- B / Rock
- C / Very Dense Soil - Soft Rock
- D / Stiff Soil
- E / Soft Soil

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

0 0.15 0.3 0.6

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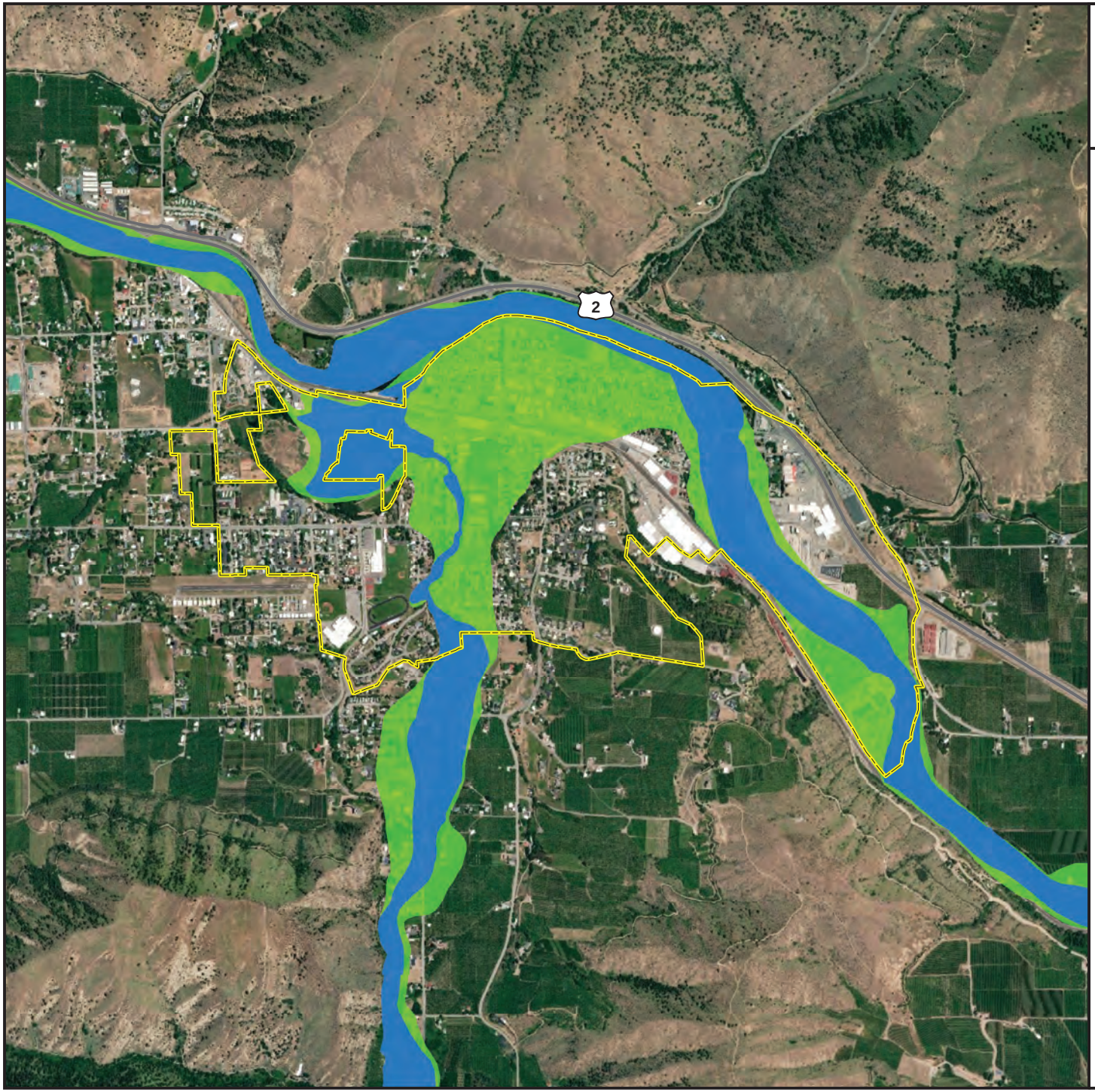
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

Flood Boundaries

City Limits

Chelan County Boundary

FEMA DFIRM Boundaries

FEMA 100-Year Flood Boundary

FEMA 500-Year Flood Boundary

FEMA Flood Hazard Boundaries are a combination of FEMA DFIRM Detailed Study Areas and FEMA Digitized Q3 Data. These data were compiled for the Chelan County Comprehensive Flood Hazard Management Plan (July 2017).

Mass Zone A (MZA), or basic approximate, analyses are used by FEMA to address program challenges including the validation of Zone A studies and the availability of flood risk data in the early stages of a Risk Mapping, Assessment, and Planning (Risk MAP) project. The STARR team conducted a MZA analysis for the Wenatchee watershed in July 2016. Data downloaded from the Washington Department of Ecology's RiskMAP website in June 2018.

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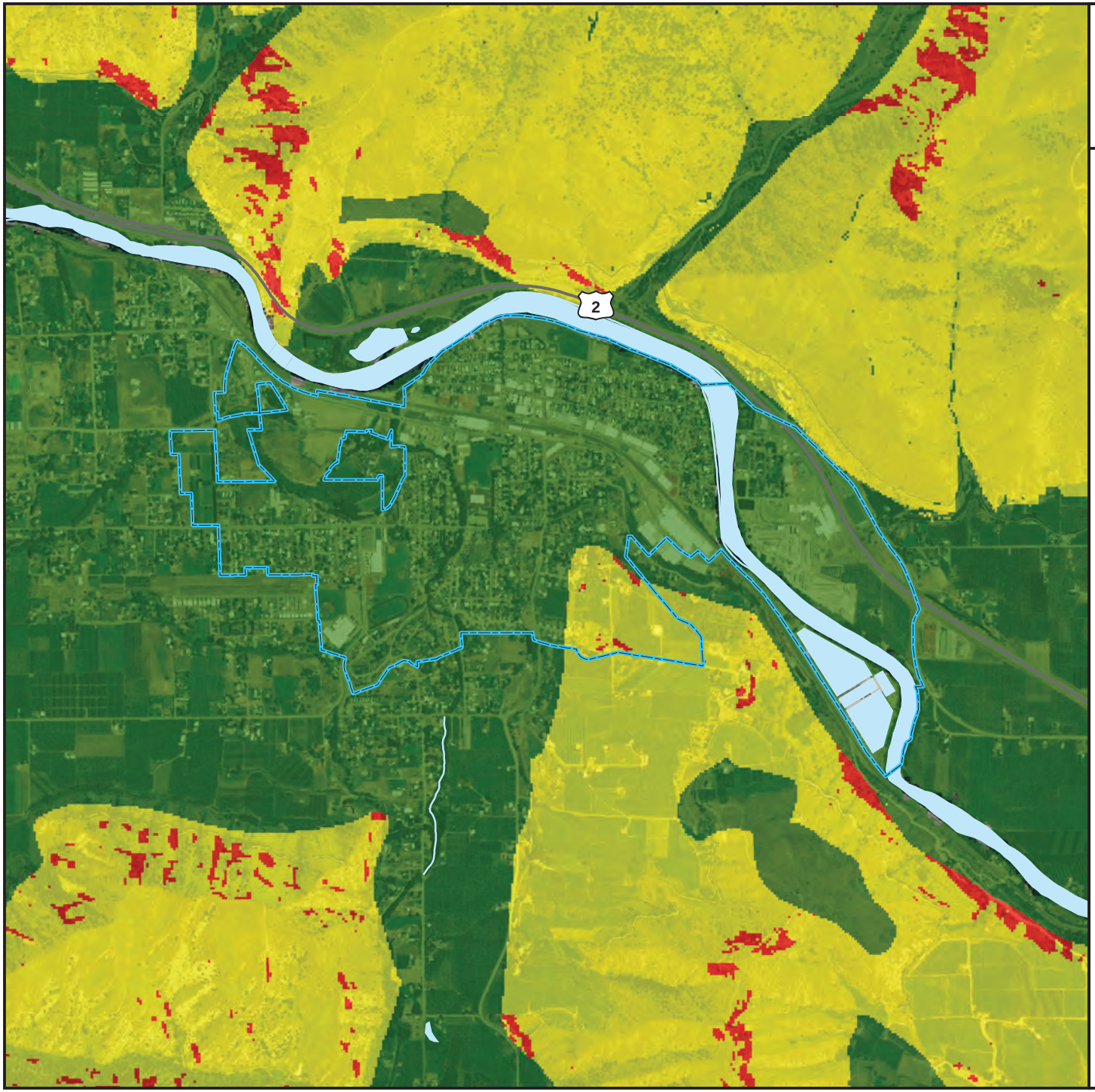
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

Deep-seated Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Deep-seated landslides occur on a failure plane below the rooting depth of vegetation, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

0 0.15 0.3 0.6

Miles

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TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

City of Cashmere

Shallow Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Shallow landslides typically affect only the uppermost part of the soil column, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

0 0.15 0.3 0.6

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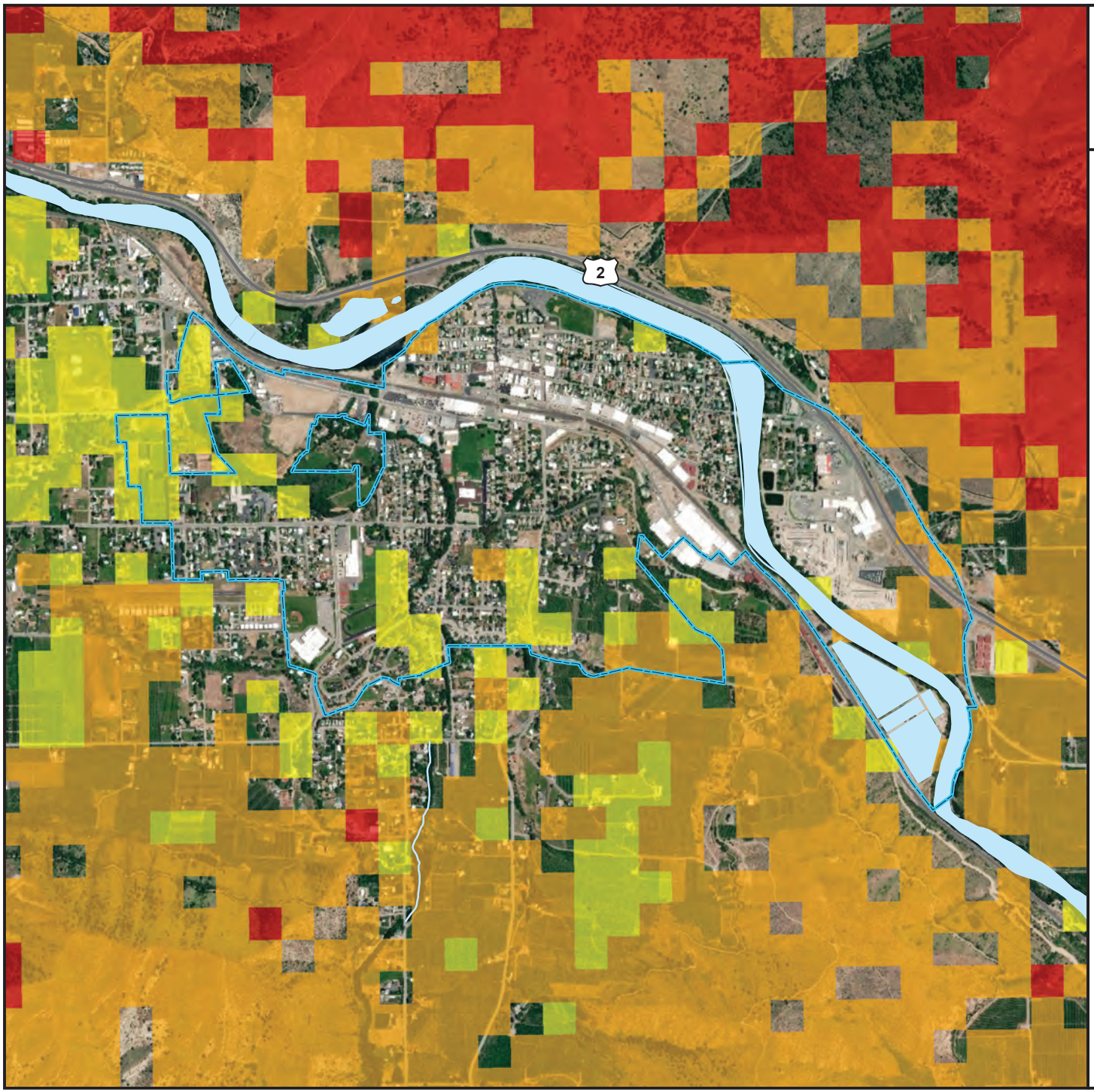
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

Landscape Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

0 0.15 0.3 0.6

Miles

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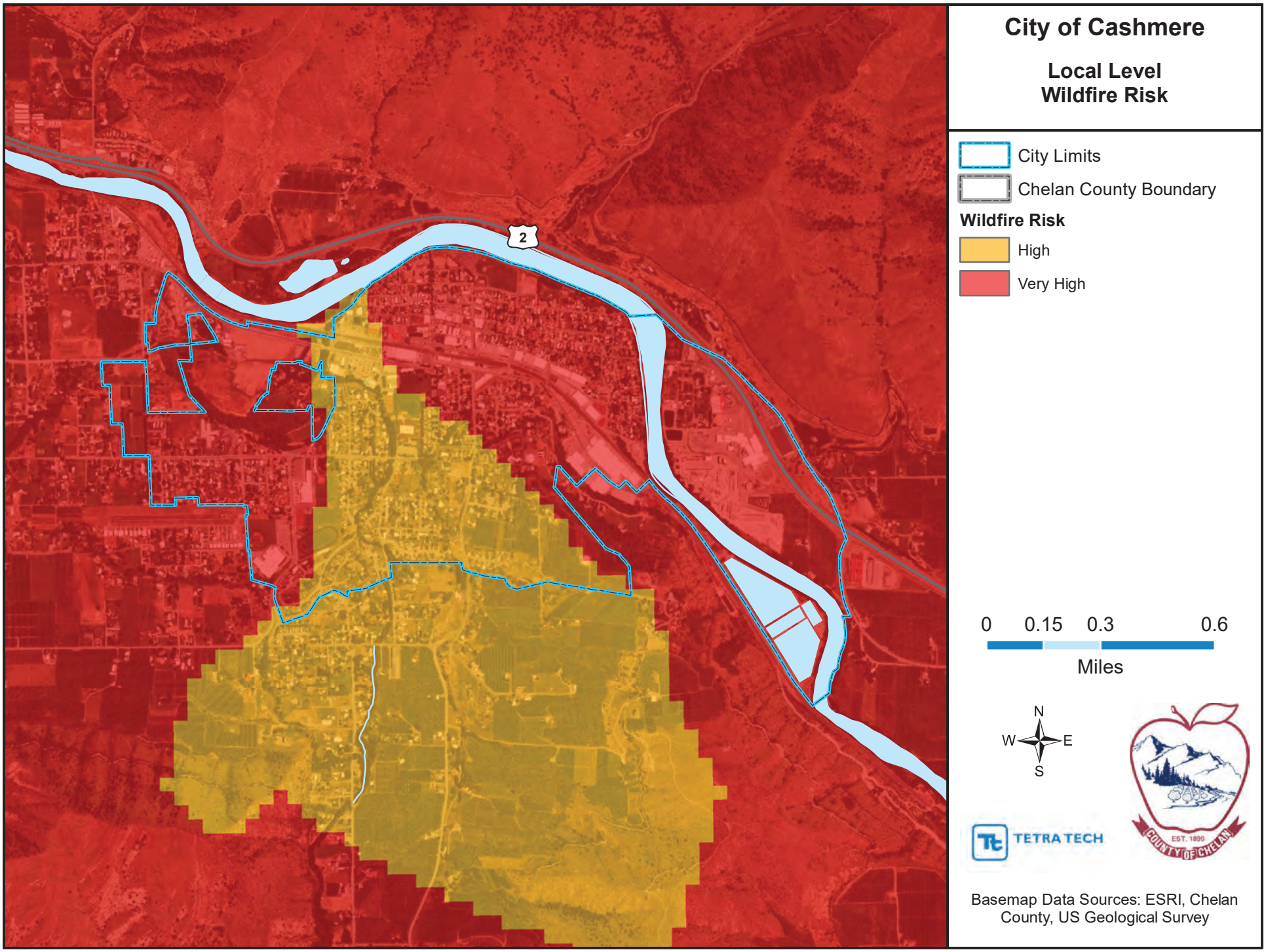
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Cashmere

Local Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

High

Very High

0 0.15 0.3 0.6

Miles

N

W E

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TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

3. CITY OF CHELAN

3.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Craig Gildroy, Community Development Director
135 E. Johnson Ave.
Chelan, Wa. 98816
Telephone: 509-682-8017
e-mail Address: cgildroy@cityofchelan.us

Alternate Point of Contact
Luis Gonzalez
135 E. Johnson Ave.
Chelan, Wa. 98816
Telephone: 509-682-8017
e-mail Address:
lgonzalez@cityofchelan.us

3.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—1902
- **Current Population**—4,045
- **Population Growth**—1.25% average, .74% projected to 2037
- **Location and Description**—SE corner of Lake Chelan. 8.19 sq. miles within the UGA
- **Brief History**—originally a resource community dominated by agriculture, forestry, and mining in the 1800s. Today tourism is leading industry.
- **Climate**—Interior climate punctuated by dry hot summers and moderate snowfall in the winters. Local weather patterns from lake and Columbia River gorges affect winds and temperatures.
- **Governing Body Format**—City Council and Strong Mayor. The City Council assumes responsibility for the adoption of this plan; the Community Development Department will oversee its implementation.

3.3 DEVELOPMENT TRENDS

Chelan' s permanent population is growing at steady rate of .74% and the seasonal population is five times the innate growth rate. Single-family home development represent the majority of development permits. Table 3-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 3-1. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	Yes 26.36 acres/ 2 residential units 1.99 acres/2 residential units 98.84 acres/ 1 vacant residential units 1.22 acres/ 0 residential units Total acres: 128.41 / 4 residential units
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	No
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	Yes The entire City of Chelan is considered a wildfire risk area.
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	
Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: 0. Our flood hazard areas are confined to seasonal drainages/steep ravines or lakeside inundation that is dam controlled. These areas are very limited to building and structure placement is avoided through setbacks and lot configurations. • Landslide: 0. There are no high susceptibility slopes for failure in Chelan. All new structures have been in low to moderate zones. • High Liquefaction Areas: Not available • Tsunami Inundation Area: N/A • Wildfire Risk Areas: all areas in Chelan are regulated as moderate or above interface or intermix wildland fire. Intermix and Interface areas have been mapped, but all properties are regulated under the moderate risk, excepting areas in urbanized high density do not require defensible space
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	2017 buildable lands inventory shows 41.3 acres within the city and UGA across all zoning areas. Population capacity for growth within this planning area was calculated to be 3,108, excluding seasonal units. Season unit build capacity is 1,316. The UGA was reduced based on this surplus capacity in 2017.

	2014	2015	2016	2017	2018
Single Family	33	48	64	*	*
Multi-Family	4		4	*	*
Other (commercial, mixed use, etc.)	5	1	6	*	*

* Information not available

3.4 CAPABILITY ASSESSMENT

The City of Chelan has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 3-2.
- Development and permitting capabilities are presented in Table 3-3.

- An assessment of fiscal capabilities is presented in Table 3-4.
- An assessment of administrative and technical capabilities is presented in Table 3-5.
- An assessment of education and outreach capabilities is presented in Table 3-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 3-7.
- Classifications under various community mitigation programs are presented in Table 3-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 3-9.

Table 3-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes?
Comment:				
Zoning Code	Yes	No	Yes	Yes
Comment:				
Subdivisions	Yes	Yes	Yes	Yes
Comment: *RCW 58.17*				
Stormwater Management	Yes	Yes	Yes	Yes
Comment: *Ecology over 1 acre*				
Post-Disaster Recovery	Yes	Yes	No	Yes
Comment:				
Real Estate Disclosure	No	Yes	Yes	
Comment:				
Growth Management	Yes	Yes	Yes	Yes
Comment:				
Site Plan Review	Yes	No	Yes	Yes
Comment:				
Environmental Protection	Yes	Yes	Yes	Yes?
Comment:				
Flood Damage Prevention	Yes	Yes	Yes	Yes?
Comment:				
Emergency Management	Yes	Yes	Yes	Yes
Comment:				
Climate Change	Yes	Yes	No	Yes
Comment:				
Other	Yes	Yes	No	Yes
Comment:				
Planning Documents				
Comprehensive Plan	Yes	Yes	Yes	Yes
Comment: *Chelan County*				
Capital Improvement Plan	Yes	No	Yes	Yes
How often is the plan updated? *yearly*				
Comment:				
Disaster Debris Management Plan	Yes	No	No	Yes
Comment:				
Floodplain or Watershed Plan	Yes	Yes	Yes	Yes
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Stormwater Plan	Yes	Yes	Yes	Yes?
Comment:				
Urban Water Management Plan	Yes	No	No	Yes
Comment:				
Habitat Conservation Plan	Yes	Yes	Yes	Yes
Comment:				
Economic Development Plan	Yes	No	No	Yes
Comment:				
Shoreline Management Plan	Yes	Yes	Yes	Yes
Comment:				
Community Wildfire Protection Plan	Yes	No	No	Yes
Comment:				
Forest Management Plan	No	Yes	No	Yes
Comment:				
Climate Action Plan	Yes	Yes	No	Yes
Comment:				
Comprehensive Emergency Management Plan	Yes	Yes	Yes	Yes
Comment:				
Threat & Hazard Identification & Risk Assessment	No	No	No	No
Comment: *Unknown*				
Post-Disaster Recovery Plan	No	No	No	No
Comment:				
Continuity of Operations Plan	Yes	No	No	Yes
Comment:				
Public Health Plan	No	Yes	Yes	Yes
Comment:				

Table 3-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Yes Community Development
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	No

Table 3-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes (Water and Sewer)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Unknown
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	

Table 3-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning and Public Works
Engineers or professionals trained in building or infrastructure construction practices (limited)	Yes	Public Works
Planners or engineers with an understanding of natural hazards	No	Planning
Staff with training in benefit/cost analysis	No	
Surveyors	No	Insert appropriate information
Personnel skilled or trained in GIS applications	Limited	Planning
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	Insert appropriate information
Grant writers	No	Insert appropriate information
Other	No	Insert appropriate information

Table 3-6. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	No
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, briefly describe.	No
Do you use social media for hazard mitigation education and outreach? • If yes, briefly describe.	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, briefly describe.	Yes Planning Commission
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, briefly describe.	No
Do you have any established warning systems for hazard events? • If yes, briefly describe.	No

Table 3-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Planning and Building
Who is your floodplain administrator? (department/position)	Building Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	Amended 2005
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	unknown
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, state what they are.**	No
Are any RiskMAP projects currently underway in your jurisdiction? • **If so, state what they are.**	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, state why. Some areas may need to be removed**	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	Yes Basic
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving its CRS Classification?** • **If no, is your jurisdiction interested in joining the CRS program?**	No
How many flood insurance policies are in force in your jurisdiction? • **What is the insurance in force?** • **What is the premium in force?**	Unknown
How many total loss claims have been filed in your jurisdiction? • **How many claims are still open or were closed without payment?** • **What were the total payments for losses?**	Unknown

Table 3-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 3-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Low
Comment:	
Jurisdiction-level monitoring of climate change impacts	Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment:	
Participation in regional groups addressing climate risks	Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High
Comment:	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment:	
Identified strategies for adaptation to impacts	Low
Comment:	
Champions for climate action in local government departments	Low
Comment:	
Political support for implementing climate change adaptation strategies	Low
Comment:	
Financial resources devoted to climate change adaptation	Low
Comment:	
Local authority over sectors likely to be negative impacted	Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment:	
Local residents support of adaptation efforts	Low
Comment:	
Local residents' capacity to adapt to climate impacts	Low
Comment:	
Local economy current capacity to adapt to climate impacts	Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	Unsure
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

3.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

3.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, City of Chelan made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- 2017 Comprehensive Plan- Wildfire Planning

3.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, City of Chelan will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- Comprehensive Plan
- Zoning Code
- Public Works Development Standards
- Critical Areas Ordinance
- Eastern Washington Storm Water Manual

3.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Tables 3-10 and 3-11 list past occurrences of natural hazards for which specific damage was recorded in the City of Chelan. Other hazard events that broadly affected the entire planning area, including the City, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

3.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Table 3-10. Past Natural Hazard Events

Type of Event	Description	Date	Damage Assessment
Earthquake	153 events >2.5	1970-2018	
Severe Storms	26 regional events not FEMA ranked	1970-2018	
CHELAN LOCAL			
Hail	Crop damage	7-5-2006	4.16 M
Hail	Crop Damage	5-16-1994	$8 M
Flash flood	Chelan Airport mudflow	7-19-2016	$7,000
Flash flood		5-29-2015	N/A
Flash flood	Mudflows blocked Hwy 150	6-21-2006	$500,000
Thunderstorm			
Flooding (stage)	Stehekin River	1-5-2006	
Avalanche	0	Date	
Wildfire Regional Smoke Impacts	50 calls by CFR 7 5 events	2009-2018 2017, 2018	
Landslide	Chelan Airport mudflow Mudflows blocked Hwy 150	7-19-2016 6-21-2006	

Table 3-11. Storm Events Catalog City of Chelan and Vicinity

Date	Event Type	Source	Location	Property Damage	Crop Damage	Damage Total $
7/19/2016	Debris Flow	Heavy Rain	CHELAN ARPT	$7,000.00		$7,000.00
5/29/2015	Debris Flow	Heavy Rain	CHELAN FALLS			
7/5/2006	Flash Flood		CHELAN			
6/21/1997	Hail		CHELAN			
6/21/1997	Hail		CHELAN			
6/21/1997	Hail		CHELAN			
6/21/1997	Hail		CHELAN			
6/21/1997	Hail		CHELAN		$500,000.00	$500,000.00
7/5/2006	Hail		CHELAN		$4,160,000.00	$4,160,000.00
7/5/2006	Hail		CHELAN		$4,160,000.00	$4,160,000.00
5/29/2015	Hail		CHELAN			
5/29/2015	Hail		CHELAN			
5/29/2015	Hail		CHELAN			
5/29/2015	Heavy Rain		CHELAN			
8/7/1999	Lightning		CHELAN			
4/23/2005	Thunderstorm Wind		CHELAN			
8/2/1998	Wildfire		CHELAN	$10,000,000.00	$80,000,000.00	$90,000,000.00
8/3/1999	Wildfire		CHELAN			
8/12/2001	Wildfire		CHELAN	$200,000.00		$200,000.00

Other noted vulnerabilities include the following:

- Power/generation capabilities for public water supplies domestic and suppression
- Lack of preparedness planning
- Lack of resiliency planning
- Coordination/public information of escape routes -maintenance, access
- Retrofitting of historic buildings is unknown
- Current building review doesn't incorporate seismic, liquefaction levels
- 100yr storm event design standards for storm water systems seems to be inadequate for more recent events
- Communication systems vulnerability

3.8 HAZARD RISK RANKING

Table 3-12 presents a local ranking for City of Chelan of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 3-12. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Severe Storms	45	High
3	Earthquake	36	High
4	Landslide	18	Medium
5	Flood	18	Medium
7	Avalanche	0	Low
8	Drought	6	Low
9	Dam Failure	12	Low

3.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 3-13 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

3.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 3-14 lists the actions that make up the City of Chelan hazard mitigation action plan. Table 3-15 identifies the priority for each action. Table 3-16 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 3-13. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
***Earthquake;* Priority 1—Retrofit existing critical facilities (i.e. hospitals, schools, etc.) in each community to ensure compliance with current building codes so the facilities are safe following earthquakes**	No		Yes	
Comment:				
Earthquake; Priority 2—Develop a transportation evacuation plan	No		Yes	C-6
Comment:				
Earthquake; Priority 3—Adoption of International Building Codes with adherence to Chelan County's recognized earthquake zone	Yes	Yes		
Comment:				
***Severe Storms;* Priority 1—Implement a public notification system to alert the public to severe store activity**	No		Yes	C-4
Comment:				
***Flooding;* Priority 1—Adopt the State's Model Floodplain Ordinance to prohibit / regulate future development in the floodplain**	No		No	
Comment:				
***Avalanche;* Priority 1—Coordinate with the WSDOT to designate alternate evacuation routes from each community in the event of an avalanche**	No		Yes	C-6
Comment:				
***Multi-Hazard Mitigation;* Priority 1—Identify and stock emergency shelters (including schools in the event students are unable to return home due to a storm) in each community to provide housing during severe storms**	No		No	
Comment:				
***Multi-Hazard Mitigation;* Priority 2—Schedule and implement Emergency Response Planning, including table-top exercises**	No		Yes	C-7
Comment:				

Table 3-14. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action C-1—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses. Retrofit existing critical facilities (i.e. hospitals, schools, ensure compliance with current building codes so the facilities are safe following earthquakes)							
Existing	All Hazards	7, 11	Planning Building/ Agency/Owner	FIRE	High	HMGP, PDM, FMA	Short-term
Action C-2—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	2	Planning		Low	Staff Time, General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action C-3—Encourage retention of irrigated orchard lands along the perimeter in the WUI.							
New	Wildfire	3, 8, 11	Planning	Irrigation District, FIRE	Medium	Mitigation funds	Long-term
Action C-4 —Implement a public notification system to alert the public to severe storm activity							
Existing	Severe storm	1	EMS County/Sheriff	City	Medium	Mitigation Funds	Long-term
Action C-5 - Update Floodplain Ordinance to be consistent with new FEMA maps once available							
Existing	Flood	11	City Planning		Low	General funds	Short-term
Action C-6—Coordinate with the WSDOT to designate alternate evacuation routes from each community in the event of an emergency							
Existing	All	10, 7, 1	City/EMS	CFR7	Low	General funds, state funds	Long-term
Action C-7—Schedule and implement Emergency Response Planning, including table-top exercises							
Existing	Multi-hazard	2	Sheriff/EMS/CRF7	City	Medium	Grant funds, general funds	Short-term
Action C-8—Public Education / Community Preparedness Classes to teach neighborhoods to be self-reliant for three days following a disaster							
Existing	Multi-hazard	5	EMS		Medium	General funds	Short-term
Action C-9—Provide classes to homeowners in the urban / wildland interface zones on maintaining “safe zones” around their homes. Focus on northern section of city near rodeo grounds.							
Existing	Wildfire	5, 2	Planning	Cascadia/ County	Medium	State, Federal	Long-term
Action C-10—Complete a city-wide Community Wildfire Protection Plan							
New	Wildfire	8, 7, 5	Planning	Cascadia/ County	High	Mitigation Funds, state funds	Long-term
Action C-11—Revise subdivision development standards to include requirements for fire breaks/buffers							
New	Wildfire	11	Planning	County	Medium	General funds	Short-term
Action C-12—Map erosion potential zones, inventory homes, and revise hillside development standards accordingly							
New	Landslide	8, 11	Planning		Medium	General funds, state funds	Long-term
Action C-13—Develop a Climate Action Plan							
New	Severe Storms, Wildfire	11, 10, 7	Planning		High/Medium	General funds	Long-term
Action C-14—Develop irrigation and landscaping standards that minimize consumptive water use							
New	Drought	11, 8	Planning	Cascadia	Low	General funds	Short-term
Action C-15—Review/revise stormwater design standards							
Existing/ New	Flood, landslide	11, 8	Planning/ Public Works	County	Low	General funds	Long-term
Action C-16—Produce better seismic/earthquake maps to guide additional building code revisions for high shaking and liquification areas							
Existing/ New	Earthquake	11	Planning/building	State/County	Low	Mitigation Funds, state funds	Long-term
Action C-17 - Include emergency power generators in all new/remodels of critical facilities in CIP							
Existing/ New	All	11	Public Works		Medium	Mitigation Funds	Short-term
Action C-18 - Ware house critical infrastructure and establish cooperative agreements with suppliers for repair after an emergency							
Existing/ New	Earthquake, flood, landslide, Severe Storm	11, 10	Public works	PUD, WDO	Low	General funds	Long-term
Action C-19 - Support neighborhood communication/warning platforms like “Next Door App”, Be Ready programs, Phone Trees							
Existing/ New	All	11, 10, 7	Planning/Public Works	County	Low	General funds	Short-term

Table 3-15. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
C-1	1	High	High	Yes	Yes	No	Medium	
C-2	1	Low	Low	Yes	No	Yes	High	Low
C-3	3	High	Medium	Yes	No	No	Medium	Low
C-4	1	High	Low	Yes	Yes	No	Medium	Medium
C-5	1	Low	Medium	No	No	Yes	High	Low
C-6	3	High	Low	Yes	No	No	Low	Low
C-7	1	High	Medium	Yes	No	No	Medium	Low
C-8	1	Medium	Medium	Yes	No	No	Medium	Low
C-9	1	Medium	Low	Yes	No	No	Medium	Low
C-10	2	High	Medium	Yes	Yes	No	Medium	Medium
C-11	3	High	Medium	Yes	No	Yes	High	Low
C-12	2	High	Medium	Yes	No	Maybe	Medium	Low
C-13	3	Medium	Low	Yes	No	No	Medium	Low
C-14	2	Low	Low	Yes	No	Maybe	Medium	Low
C-15	2	Medium	Low	Yes	No	Yes	High	Low
C-16	1	High	Low	Yes	No	No	Low	Low
C-17	1	High	High	Yes	Yes	No	Medium	Medium
C-18	2	Medium	Low	Yes	No	Yes	High	Low
C-19	3	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 3-16. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	C-1, 3, 4, 9, 10, 11	C-1	C-2, 8, 10, 19	C-10	C-6, 7, 10, 17, 17		C-3, 10, 13	C-8, 9, 10, 19
Severe Storms	C-1, 4		C-2, 8, 19		C-6, 7, 17, 17		C-13	C-8, 19
Earthquake	C-1, 4, 10, 16		C-2, 8, 19		C-6, 7, 17, 18		C-13	C-8, 19
Landslide	C-4, 10, 15, 16		C-2, 8, 19		C-6, 7, 17, 18		C-13	C-8, 19
Flood	C-1, 3, 4, 15	C-1	C-2, 5, 8, 19		C-6, 7, 17, 18		C-13	C-8, 19
Drought	C-14		C-2, 19				C-13	C-19
Avalanche	C-4		C-2, 8, 19		C-6, 7, 17, 18		C-13, 14	C-8, 19
Seiche	C-4		C-2, 8, 19		C-6, 7, 17, 18		C-13	C-8, 19

a. See the introduction to this volume for explanation of mitigation types.

3.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

- Catalog critical facilities, geo-locate. Have more detailed information.
- List what capacity each critical facility has and needs.
- Re-visit interlocal/cooperative arrangements for roads and power
- Need to coordinate with PUD/Wireless industry to understand their capacity and plans for future emergency service
- Cooperate with private land/road owners to address access/egress issues

3.12 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

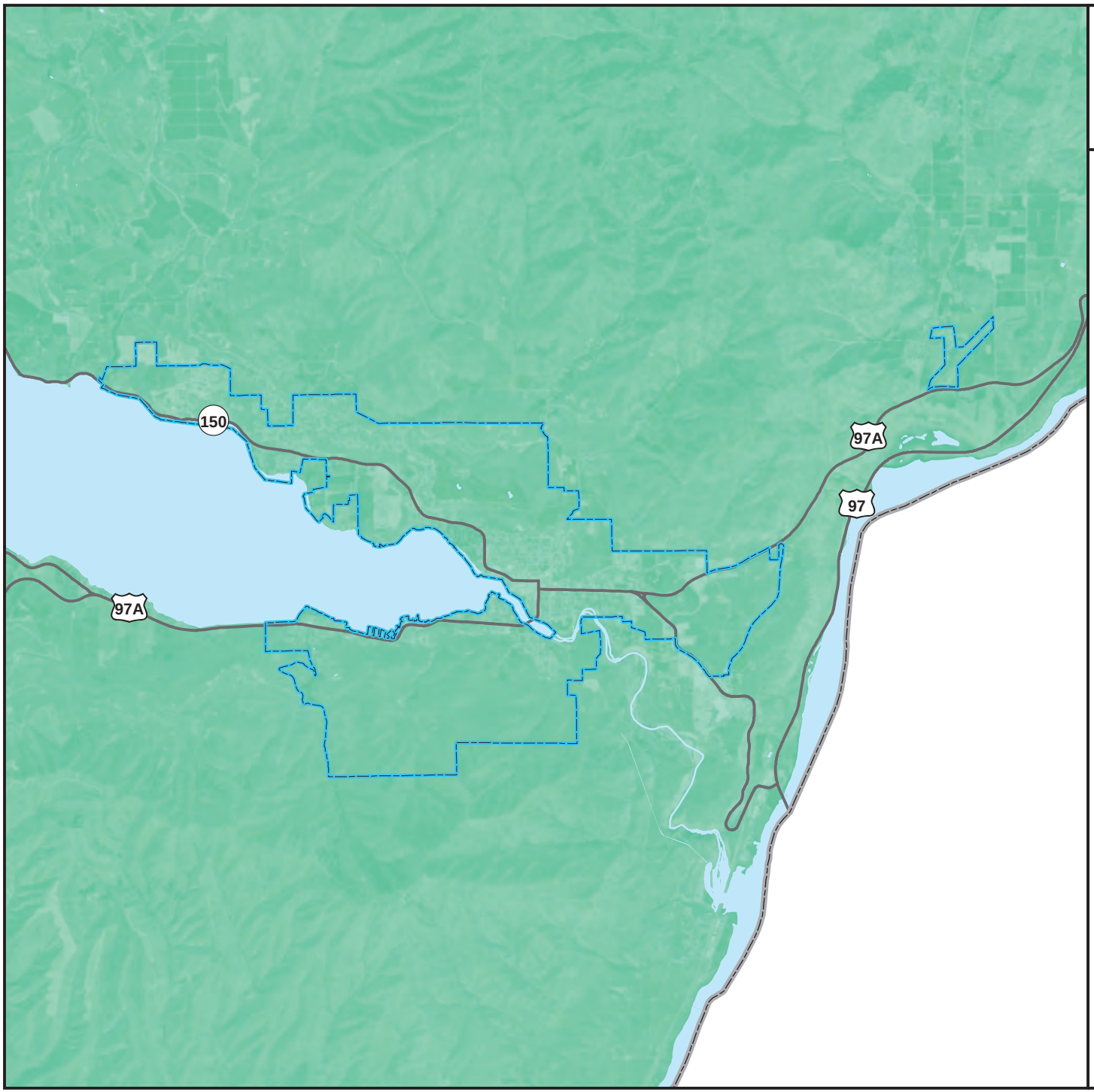
The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Chelan Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **City of Chelan Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.

    - CPAW: https://planningforwildfire.org/project/city-chelan-washington/ CPAW Recommendations for the City of Chelan.
    - CMC 15.06: Wildland Urban Interface Code
    - City of Chelan: Continuity of Government Operations Plan July 2018.
    - ICS – Incident Command System, The City Cooperates with Emergency Management from County Emergency Management and Sheriff's Department, and Fire District 7 to coordinate ICS.
    - Chelan County Liquification Maps, Chelan County Landslide Susceptibility Maps,
    - City of Chelan Building Permits Summary Reports
    - City of Chelan Comprehensive Plan 2017.

The following **o**utside resources and references were reviewed:

- **Hazard Mitigation Plan Annex Development Toolkit**—The toolkit was used to support the identification of past hazard events and noted vulnerabilities, the risk ranking, and the development of the mitigation action plan.



City of Chelan

Cascadia M9.0 (2016) ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

V (Very Light/Moderate)

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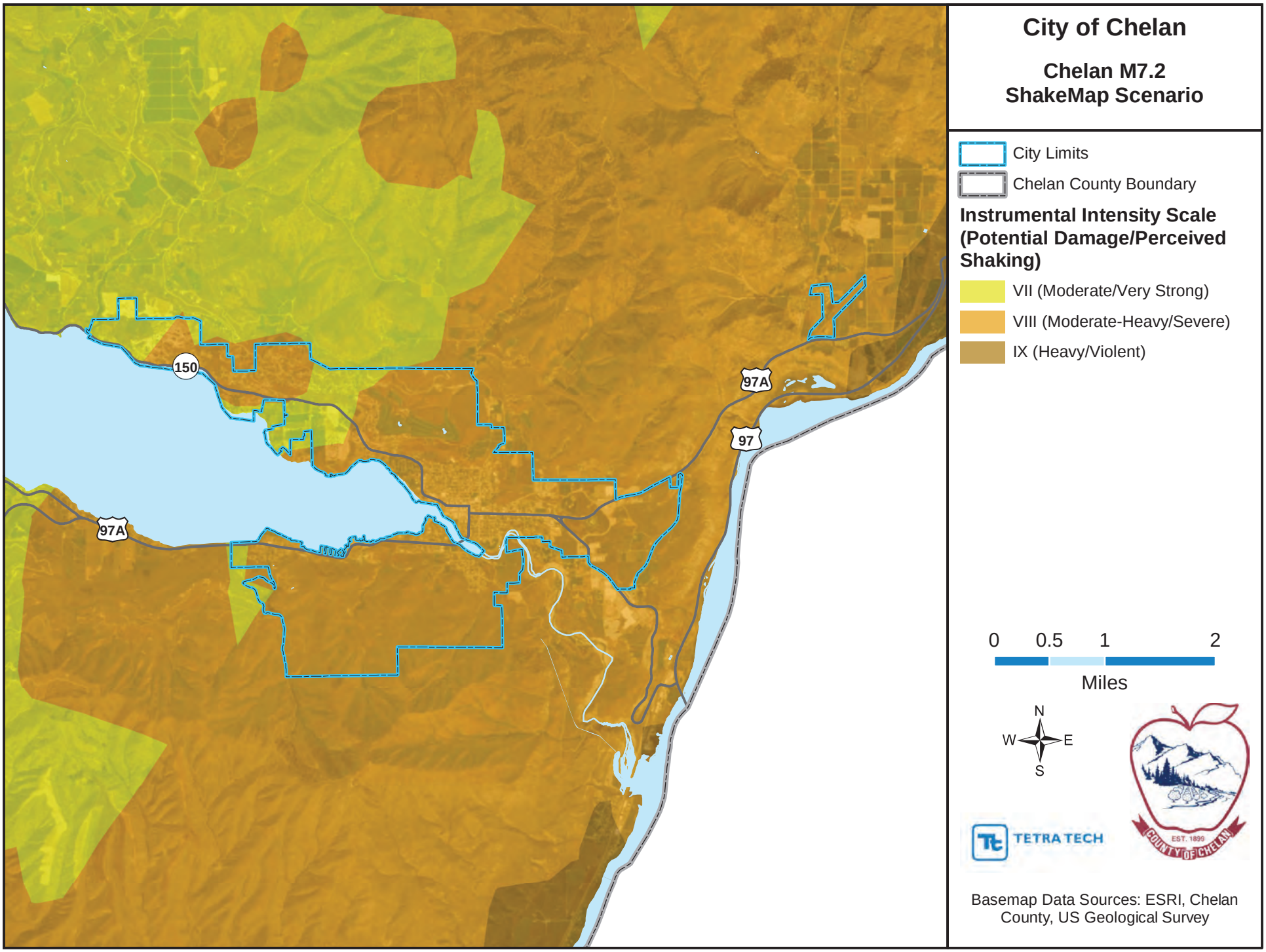
Basemap Data Sources: ESRI, Chelan County, US Geological Survey


City of Chelan
Chelan M7.2
ShakeMap Scenario
City Limits
Chelan County Boundary
Instrumental Intensity Scale (Potential Damage/Perceived Shaking)
VII (Moderate/Very Strong)
VIII (Moderate-Heavy/Severe)
IX (Heavy/Violent)
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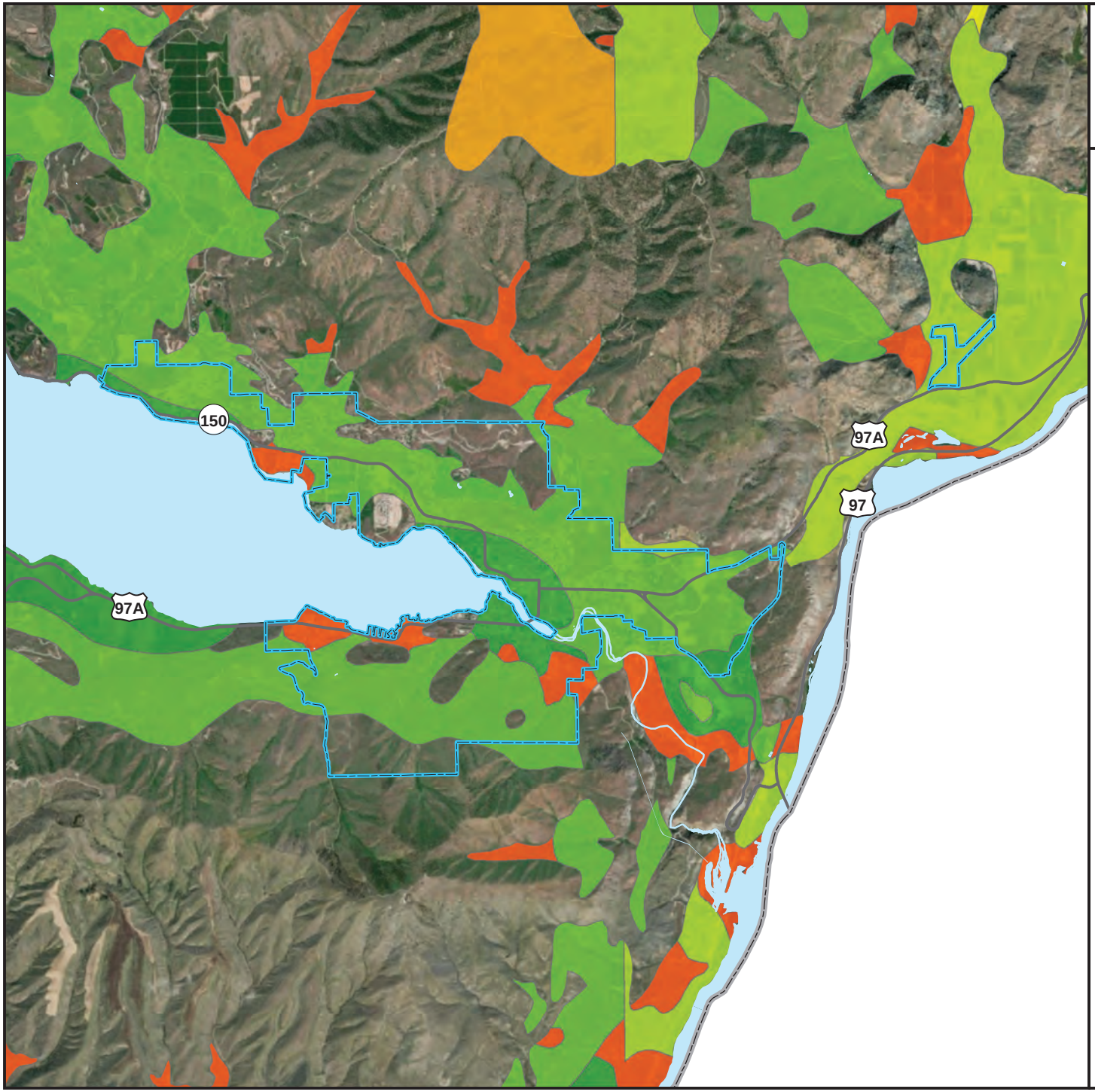
COUNTY OF CHELAN
Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Chelan

Liquefaction Susceptibility

City Limits

Chelan County Boundary

Liquefaction Susceptibility

- Moderate to High
- Moderate
- Low to Moderate
- Low
- Very Low to Low
- Very Low

These data contain polygons that provide information regarding the relative liquefaction potential for Washington State. This data is part of a geodatabase that contains statewide seismic ground response data. Liquefaction is a natural phenomenon in which saturated, sandy soils lose their strength and behave as liquid.

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

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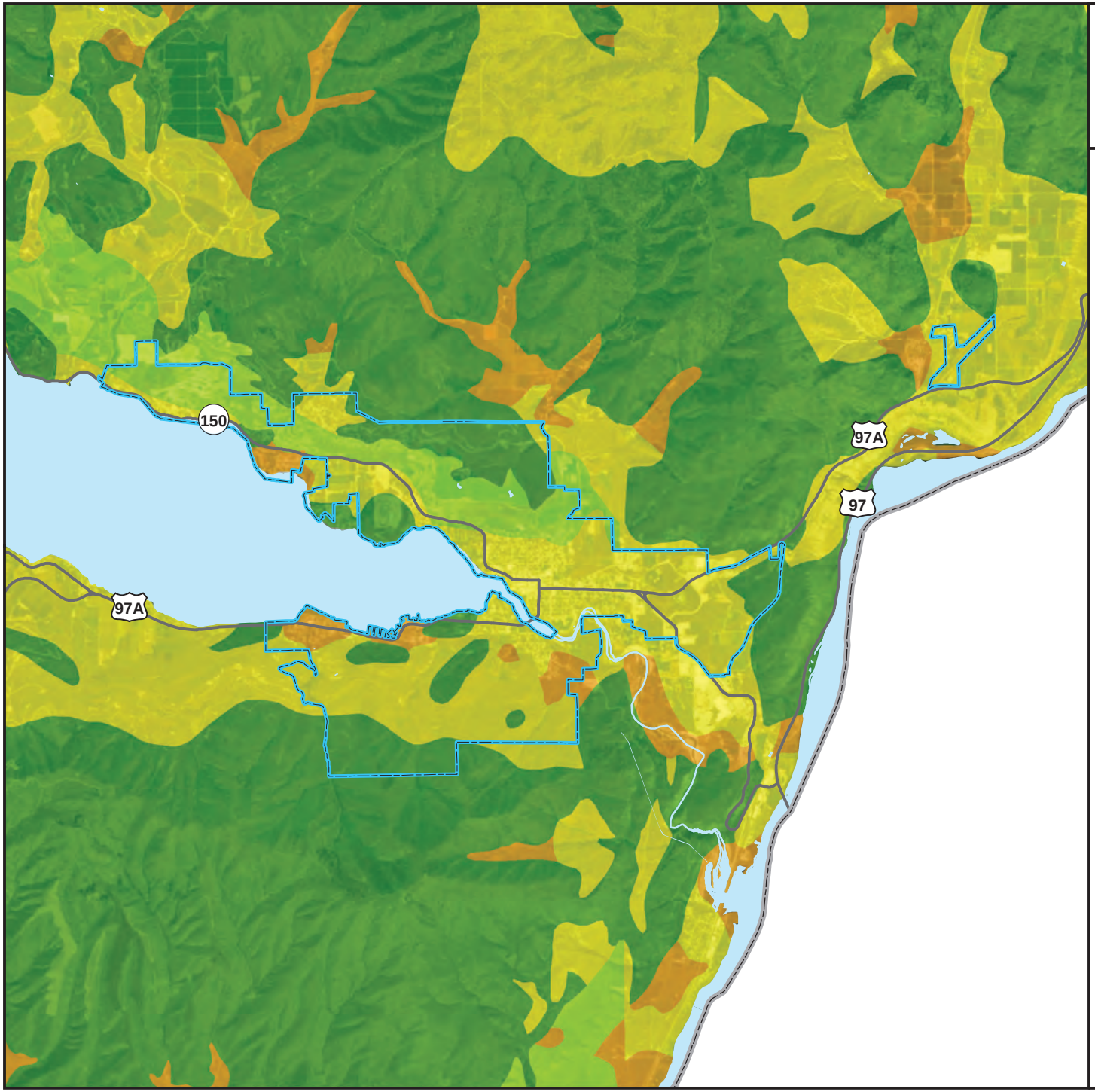
Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Chelan

National Earthquake Hazards Reduction Program (NEHRP) Soil Classes

City Limits

Chelan County Boundary

Soil Type

- B / Rock
- C / Very Dense Soil - Soft Rock
- D / Stiff Soil
- E / Soft Soil

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

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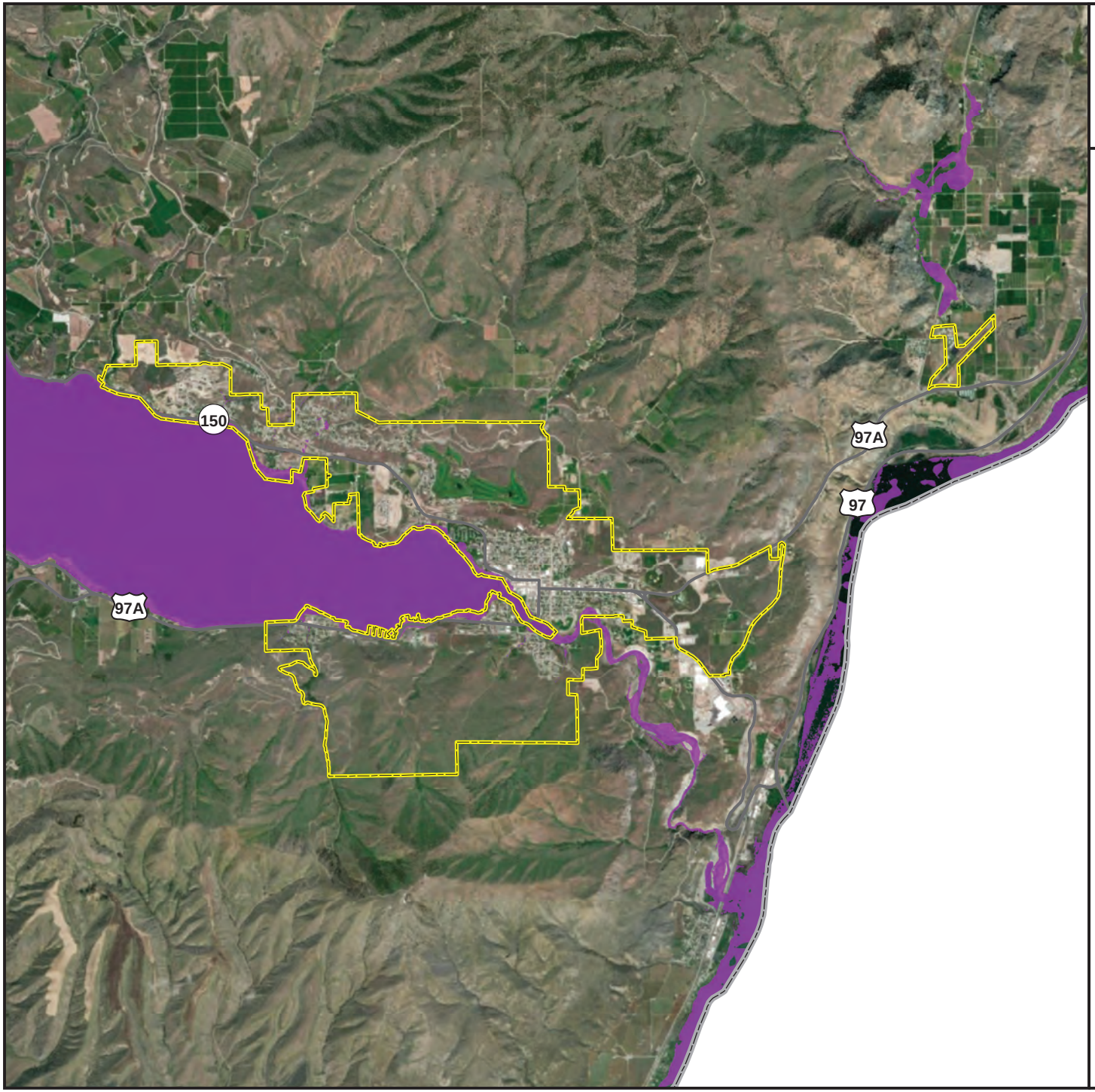
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Chelan

Flood Boundaries

City Limits

Chelan County Boundary

Mass Zone A Boundaries

100-Year Flood Boundary

FEMA Flood Hazard Boundaries are a combination of FEMA DFIRM Detailed Study Areas and FEMA Digitized Q3 Data. These data were compiled for the Chelan County Comprehensive Flood Hazard Management Plan (July 2017).

Mass Zone A (MZA), or basic approximate, analyses are used by FEMA to address program challenges including the validation of Zone A studies and the availability of flood risk data in the early stages of a Risk Mapping, Assessment, and Planning (Risk MAP) project. The STARR team conducted a MZA analysis for the Wenatchee watershed in July 2016. Data downloaded from the Washington Department of Ecology's RiskMAP website in June 2018.

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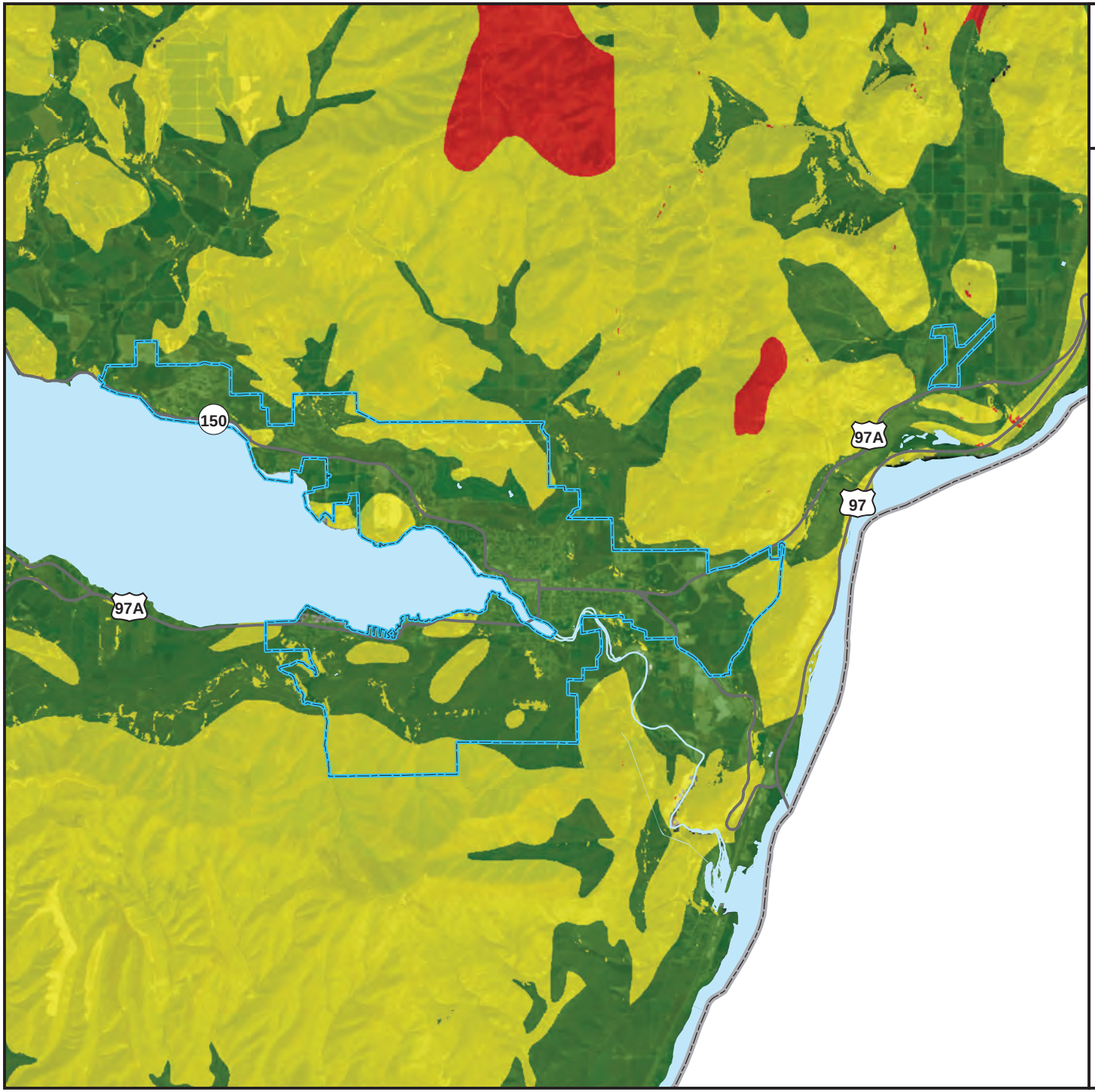
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Chelan

Deep-seated Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Deep-seated landslides occur on a failure plane below the rooting depth of vegetation, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

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TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

City of Chelan

Shallow Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Shallow landslides typically affect only the uppermost part of the soil column, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

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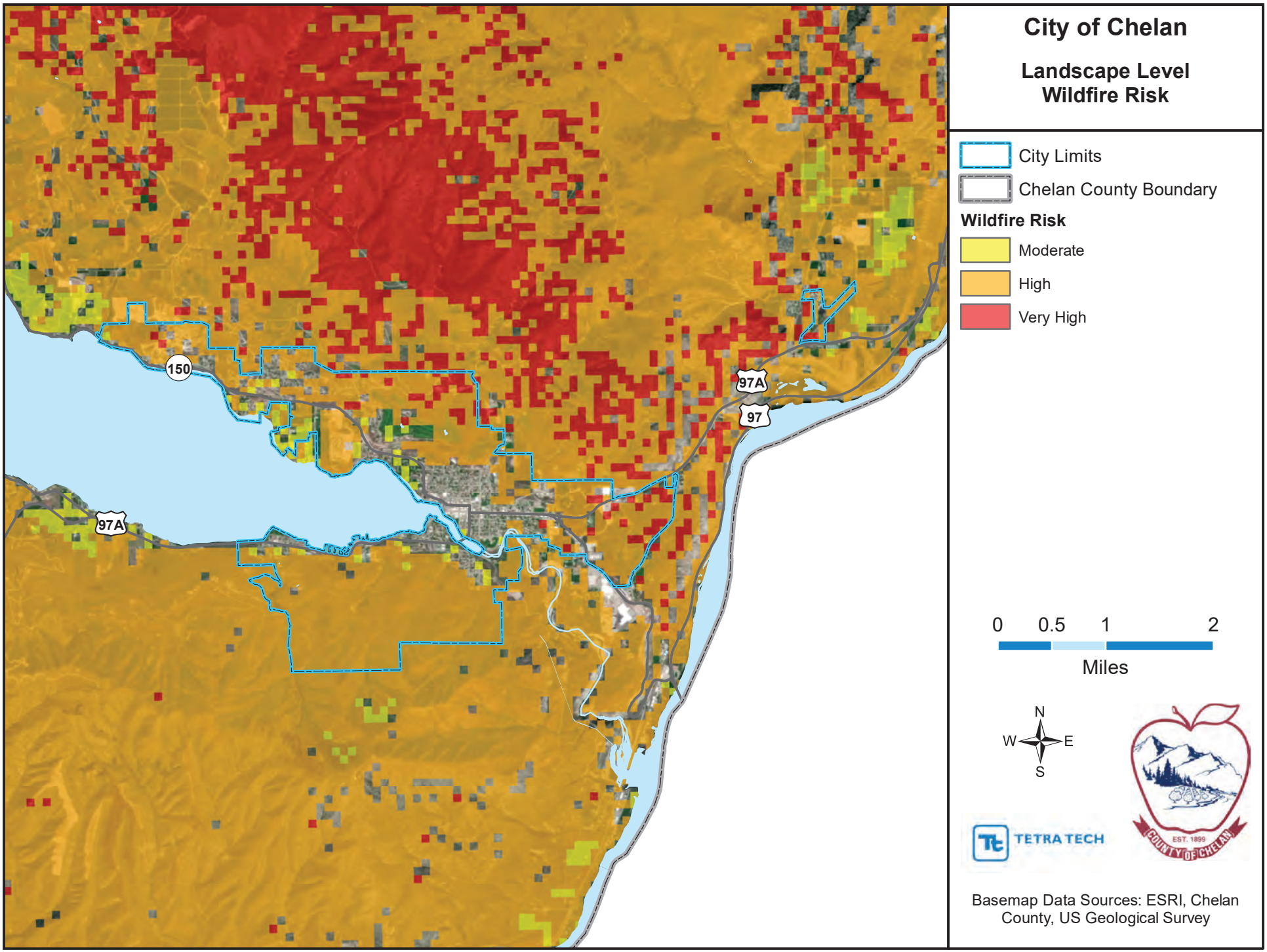
Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Chelan

Landscape Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

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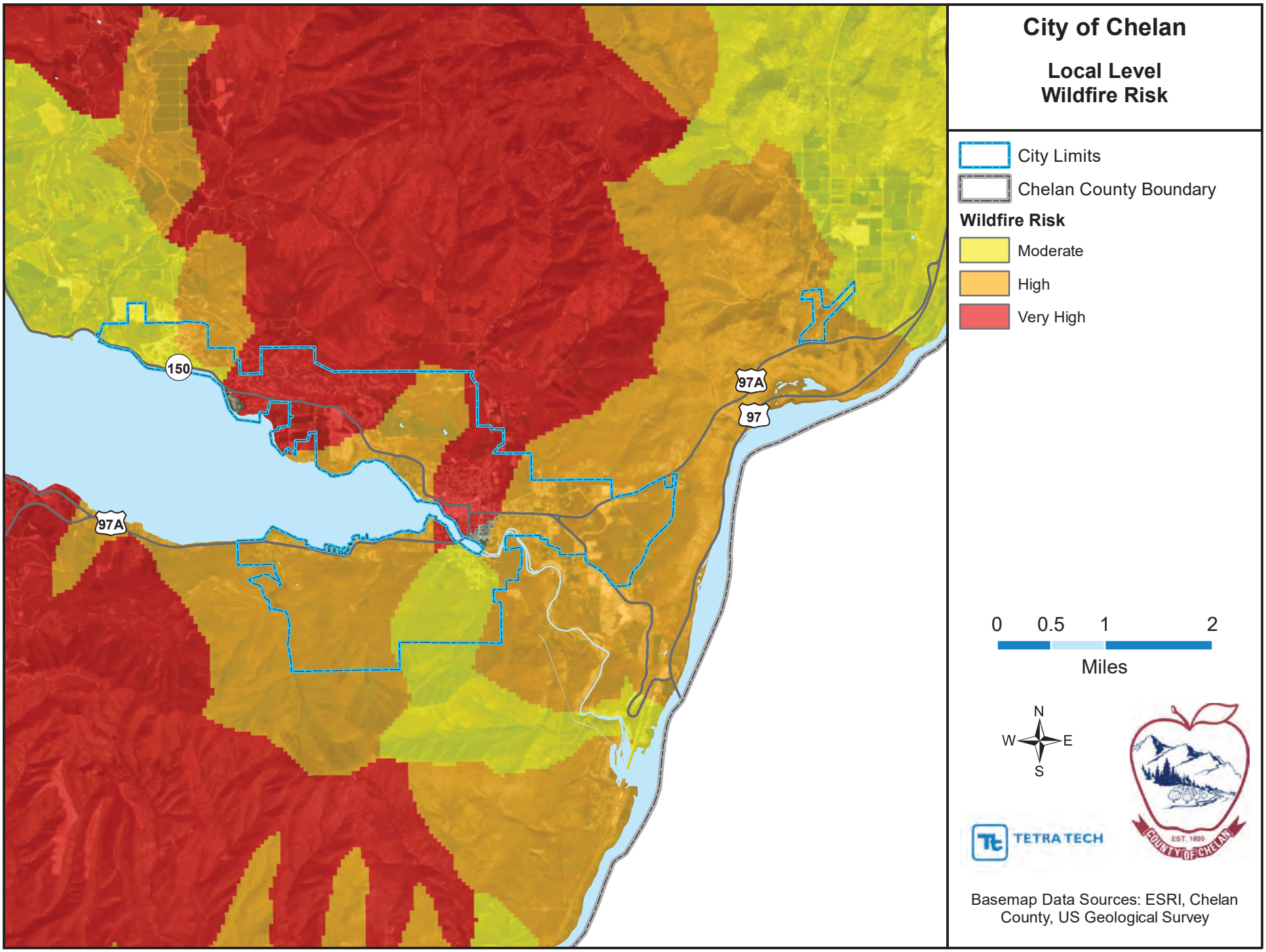
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Chelan

Local Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

0 0.5 1 2

Miles

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TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

4. CITY OF ENTIAT

4.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
RJ Lott, Community Development Director
14070 Kinzel St.
Entiat, WA 98822
Telephone: 509-784-1500
e-mail Address: rjlott@entiatwa.us

Alternate Point of Contact
Jim Brooks, Public Works
14070 Kinzel St.
Entiat, WA 98822
Telephone: 509-784-1500
e-mail Address: jbrooks@entiatwa.us

4.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—April 25, 1944
- **Current Population**—1205
- **Population Growth**—8%
- **Location and Description**—Entiat is located at the confluence of the Entiat and Columbia rivers. This section of the Columbia is known as Lake Entiat. This is the reservoir formed behind Rocky Reach Dam. The town is situated between the eastern foothills of the Cascade Mountain range, Lake Entiat and the Entiat River. Entiat is located at 47°40′40″N 120°12′47″W (47.677640, -120.213149). According to the United States Census Bureau, the city has a total area of 2.74 square miles (7.10 km2), of which, 2.11 square miles (5.46 km2) is land and 0.63 square miles (1.63 km2) is water.
- **Brief History**—In 1877, the first white settler arrived in the Entiat Valley, Lewis Detwiler. The first public school was established in Entiat in 1891. In 1895 the first Entiat Post Office was established. In 1903 the Chief of the Entiat Indian tribe, Shil-how-Saskt (Silico Saska) died. The Entiat Power Plant opened for business in 1908. The Keystone Fruit Company opened for business in the valley in 1910. E.P. Murphy began publishing the Entiat Times in 1913, and railroad service began in Entiat in 1914. In 1915 a fire burned the "first" town of Entiat and only six businesses survived. The Entiat school opened in 1916 in its current location. In 1920, the tradition of Numeral Mountain began as High School seniors painted their graduation class number on the Mountainside across the Entiat River from the school. Entiat was officially incorporated on April 25, 1944. In 1960, Rocky Reach Dam was constructed downriver from Entiat, much of the town had to be relocated to higher ground due to the rising waters behind the dam. Most of the original buildings were razed or moved to a location north of the original town. The "third" town of Entiat was "officially" open for business in 1961. The new Entiat Park re-opened for camping on Friday, May 22, 2015 after being closed for over a year.
- **Climate**—Entiat gets 24 inches of rain, on average, per year. Entiat averages 76 inches of snow per year. On average, there are 203 sunny days per year in Entiat. Entiat gets some kind of precipitation, on average, 87 days per year. Precipitation is rain, snow, sleet, or hail that falls to the ground.
- **Governing Body Format**—Mayor-council. The city council assumes responsibility for the adoption of this plan; mayor will oversee its implementation.

4.3 DEVELOPMENT TRENDS

The City of Entiat has maintained an 8% growth rate the last two to three years with nearly all of the residences being single-family dwellings. Commercial and industrial growth has not occurred.

Table 4-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 4-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	No					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	No					
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	Yes Between Cammack and Howe Streets. No known hazards.					
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?		**2011**	**2012**	**2013**	**2014**	**2015**
	Single Family	7	5	3	9	14
	Multi-Family	N/A	N/A	N/A	N/A	N/A
	Other (commercial, mixed use, etc.)	4	3	2	3	5
Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: 0 • Landslide: 0 • High Liquefaction Areas: 0 • Tsunami Inundation Area: N/A • Wildfire Risk Areas: 53					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Estimated at 40% buildout. No buildable lands inventory has been completed.					

4.4 CAPABILITY ASSESSMENT

The City of Entiat has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 4-2.
- Development and permitting capabilities are presented in Table 4-3.
- An assessment of fiscal capabilities is presented in Table 4-4.

- An assessment of administrative and technical capabilities is presented in Table 4-5.
- An assessment of education and outreach capabilities is presented in Table 4-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 4-7.
- Classifications under various community mitigation programs are presented in Table 4-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 4-9.

Table 4-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Y	N	Y	N
Comment: *Title 15, section 15.08.01 of the EMC adopts the international building code, International Residential code, International Mechanical Code, Uniform Plumbing Code, International Fire Code; In compliance with Chapter 19.27 RCW, the following codes, standards, and the Washington Administrative Code (WAC). (Ord. 619 § 1, 2004)*				
Zoning Code	Y	N	Y	N
Comment: *Title 18 of the EMC, Ordinance 799, passed March 28, 2019.*				
Subdivisions	Y	N	Y	N
Comment: *Title 16 of the EMC, Ordinance 799, passed March 28, 2019.*				
Stormwater Management	Y	N	N	N
Comment: *Title 19, Chapter 19.20 EMC. Ordinance 799, passed March 28, 2019.*				
Post-Disaster Recovery	N	N	N	Y
Comment:				
Real Estate Disclosure	N	N	N	Y
Comment:				
Growth Management	Y	N	Y	N
Comment: *City of Entiat Comprehensive Land Use Plan, 2009*				
Site Plan Review	Y	N	Y	N
Comment: *Title 14, Chapter 14.08, EMC. Ordinance 799, passed March 28, 2019.*				
Environmental Protection	Y	N	Y	N
Comment: *Title 17 of the EMC, Ordinance 799, passed March 28, 2019.*				
Flood Damage Prevention	Y	N	Y	N
Comment: *Title 17, Chapter 17.10.620 of the EMC, Ordinance 799, passed March 28, 2019.*				
Emergency Management	N	N	N	Y
Comment: *City falls under the jurisdiction of Chelan County Emergency Management for emergency management functions*				
Climate Change	N	N	N	N
Comment:				
Other:				
Comment:				
Planning Documents				
Comprehensive Plan	Y	N	Y	N
Comment: *City of Entiat Comprehensive Land Use Plan, 2009*				
Capital Improvement Plan	N	N	N	N
How often is the plan updated? *N/A*				
Comment:				
Floodplain or Watershed Plan	N	Y	N	N
Comment: *Chelan County Comprehensive Flood Hazard management Plan, 2016*				
Stormwater Plan	N	N	N	Y
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Urban Water Management Plan ***Comment:***	N	N	N	N
Habitat Conservation Plan ***Comment:***	N	N	N	N
Economic Development Plan ***Comment:***	N	N	N	N
Shoreline Management Plan ***Comment:***	Y	N	Y	N
Community Wildfire Protection Plan ***Comment:***	N	N	N	Y
Forest Management Plan ***Comment:***	N	N	N	N
Climate Action Plan ***Comment:***	N	N	N	N
Comprehensive Emergency Management Plan ***Comment:***	N	N	N	N
Threat & Hazard Identification & Risk Assessment ***Comment:***	N	N	N	N
Post-Disaster Recovery Plan ***Comment:***	N	N	N	N
Continuity of Operations Plan ***Comment:***	N	N	N	N
Public Health Plan ***Comment:***	N	N	N	N
Other: ***Comment:***				

Table 4-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Y Community Development
Does your jurisdiction have the ability to track permits by hazard area?	N
Does your jurisdiction have a buildable lands inventory?	N

Table 4-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Y
Capital Improvements Project Funding	Y
Authority to Levy Taxes for Specific Purposes	Y
User Fees for Water, Sewer, Gas or Electric Service	Y Water and Sewer
Incur Debt through General Obligation Bonds	Y
Incur Debt through Special Tax Bonds	Y
Incur Debt through Private Activity Bonds	N
Withhold Public Expenditures in Hazard-Prone Areas	N
State-Sponsored Grant Programs	Y
Development Impact Fees for Homebuyers or Developers	Y
Other	N

Table 4-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Community Development Director
Engineers or professionals trained in building or infrastructure construction practices	y	Building Inspector
Planners or engineers with an understanding of natural hazards	Y	Community Development Director
Staff with training in benefit/cost analysis	N	N/A
Surveyors	N	N/A
Personnel skilled or trained in GIS applications	Y	Community Development Director
Scientist familiar with natural hazards in local area	N	N/A
Emergency Manager	N	N/A
Grant writers	Y	Community Development Director
Other	N	N/A

Table 4-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	No
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	No
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly describe.	Yes Planning Commission
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	No
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	No

Table 4-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Community Development
Who is your floodplain administrator? (department/position)	Community Development Director
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	N/A
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	None
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, please state what they are.**	No Insert appropriate information
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, please state why.**	Yes Insert appropriate information
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	No
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving CRS Classification?** • **Is your jurisdiction interested in joining the CRS program?**	No No No
How many flood insurance policies are in force in your jurisdiction? • **What is the insurance in force?** • **What is the premium in force?**	0 Unknown Unknown
How many total loss claims have been filed in your jurisdiction? • **How many claims are still open/were closed without payment?** • **What were the total payments for losses?**	0 Unknown Unknown

Table 4-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	No	N/A
Building Code Effectiveness Grading Schedule	unknown	unknown	unknown
Public Protection	Unknown	unknown	unknown
Storm Ready	Unknown	unknown	unknown
Firewise	Unknown	unknown	unknown

Table 4-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Low
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Low
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Low
Local residents support of adaptation efforts ***Comment:***	Low
Local residents' capacity to adapt to climate impacts ***Comment:***	Low
Local economy current capacity to adapt to climate impacts ***Comment:***	Low
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Low

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

4.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

4.5.1 Existing Integration

No current City of Entiat plans or programs integrate components of hazard mitigation.

4.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, City of Entiat will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- City of Entiat Municipal Code

4.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

No past occurrences of natural hazards have resulted in specific damage recorded in City of Entiat. Hazard events that broadly affected the entire planning area, including the City of Entiat, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

4.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction. No repetitive-loss or severe-repetitive-loss properties have been identified in the City of Entiat.

4.8 HAZARD RISK RANKING

Table 4-10 presents a local ranking for City of Entiat of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 4-10. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Severe Weather	45	High
2	Wildfire	54	High
3	Earthquake	36	High
4	Landslide	18	Medium
5	Dam Failure	12	Low
6	Drought	6	Low
7	Flooding	0	Low
8	Avalanche	n/a	Low

4.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 4-11 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

4.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 4-12 lists the actions that make up the City of Entiat hazard mitigation action plan. Table 4-13 identifies the priority for each action. Table 4-14 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 4-11. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Retrofit existing critical facilities for an earthquake. ***Comment:***			X	E-9
Develop a transportation evacuation plan. ***Comment:***			X	E-10
Adopt International Building Codes for an earthquake zone. ***Comment:***	X			
Implement a public notification alert system. ***Comment:***			X	E-12
Develop public education programs. ***Comment:***		X		
Provide classes to homeowners on wildfires. ***Comment:*** *In Fire District's Annex*		X		
Adopt regulations requiring metal roofs. ***Comment:***			X	E-10
Adopt the State's model floodplain ordinance. ***Comment:***	X			
Coordinate with WSDOT on avalanche evacuation routes. ***Comment:*** *Changed to general evacuation routes.*			X	E-11
Identify and stock emergency shelters. ***Comment:***		X		

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Schedule and implement emergency response exercises.		X		
Comment:				
Public education on being self-reliant after disasters.		X		
Comment:				

Table 4-12. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #E-1—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	1, 3, 4, 5, 8	Unknown	Unknown	High	HMGP, PDM, FMA	Short-term
Action #E-2—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the Comprehensive Plan.							
New and Existing	All Hazards	1, 2, 7, 10	City of Entiat	Unknown	Low	Staff Time, General Funds	Ongoing
Action #E-3—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	1, 2, 7, 10	City of Entiat	Unknown	Low	Staff Time, General Funds	Short-term
Action #E-4—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood	1, 6, 8, 9	City of Entiat	Unknown	Low	Staff Time, General Funds	Ongoing
Action #E-5—Work with interagency partners and private landowners to identify emergency water sources and locations, seek funding for development of emergency water access or storage facilities at identified locations.							
New	Wildfire, Drought	1, 2, 4, 5, 8, 9, 10	City of Entiat, CCFD#8	Chelan County, DNR, USFS	Medium	HMGP	Short-term
Action #E-6—Develop a post-disaster recovery plan and a debris management plan.							
Existing	All Hazards	2, 3, 6, 7, 8, 9, 10	City of Entiat	CCFD#8	Medium	EMPG	Short-term
Action #E-7—Create a fuels reduction zone with land owners in collaboration with other fire service agencies along all roadways identified as evacuation routes.							
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City of Entiat, CCFD#8	Chelan County, DNR, USFS	$200,000	HMGP, PDM	Short-term Ongoing
Action #E-8—Install back-up generators at all city facilities.							
New and Existing	All hazards	2, 6, 10	City of Entiat		Low	General funds, HMGP, PDM	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #E-9—Perform a seismic risk assessment on all city facilities, and retrofit those structures with risk.							
Existing	Earthquake	1, 2, 4, 5, 6, 7, 8, 9, 10	City of Entiat		High	General funds, HMGP, PDM	Long-term
Action #E-10—Adopt WUIC codes.							
New and Existing	Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City of Entiat	CCFD8	Low	General Funds	Short-term
Action #E-11—Coordinate with Washington State Department of Transportation to designate alternate evacuation routes.							
New and Existing	All Hazards	3, 10	City of Entiat, CCFD8	Chelan County, WSDOT	Low	General Funds	Short-term
Action #E-12—Improve early notification of emergencies and subsequent evacuation plans.							
New and Existing	All Hazards	1, 6	City of Entiat, CCFD8, DEM		Medium	General funds	Short-term

Table 4-13. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
1	5	Low	High	No	Yes	No	Medium	High
2	4	Medium	Low	Yes	No	Yes	High	Low
3	4	Low	Low	Yes	No	Yes	High	Low
4	4	Medium	Low	Yes	No	Yes	High	Low
5	7	Medium	Medium	Yes	Yes	No	Medium	Medium
6	7	Low	Medium	Yes	Yes	No	Medium	Medium
7	10	Low	Low	Yes	Yes	No	Medium	Medium
8	3	Low	Medium	Yes	Yes	No	Medium	Medium
9	9	Medium	High	No	Yes	No	Medium	Medium
10	10	Medium	Low	Yes	No	Yes	High	Low
11	2	Medium	Low	Yes	No	Yes	Medium	Low
12	2	High	Low	Yes	No	No	Medium	Low

a. See the introduction to this volume for explanation of priorities.

Table 4-14. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Severe Weather	1, 2	1, 4	2, 5, 11, 12	6	3, 8, 12	1		1
Wildfire	1, 2	1, 4	2, 5, 11, 12	6, 7	3, 8, 12	1		1
Earthquake	1, 2	1, 4, 9	2, 5, 11, 12	6	3, 8, 12	1		1
Landslide	1, 2	1, 4	2, 5, 11, 12	6	3, 8, 12	1		1
Dam Failure								1
Drought	1, 2	1, 4	2, 5	6	3, 8, 12	1		1
Flooding								
Avalanche								
Seiche								

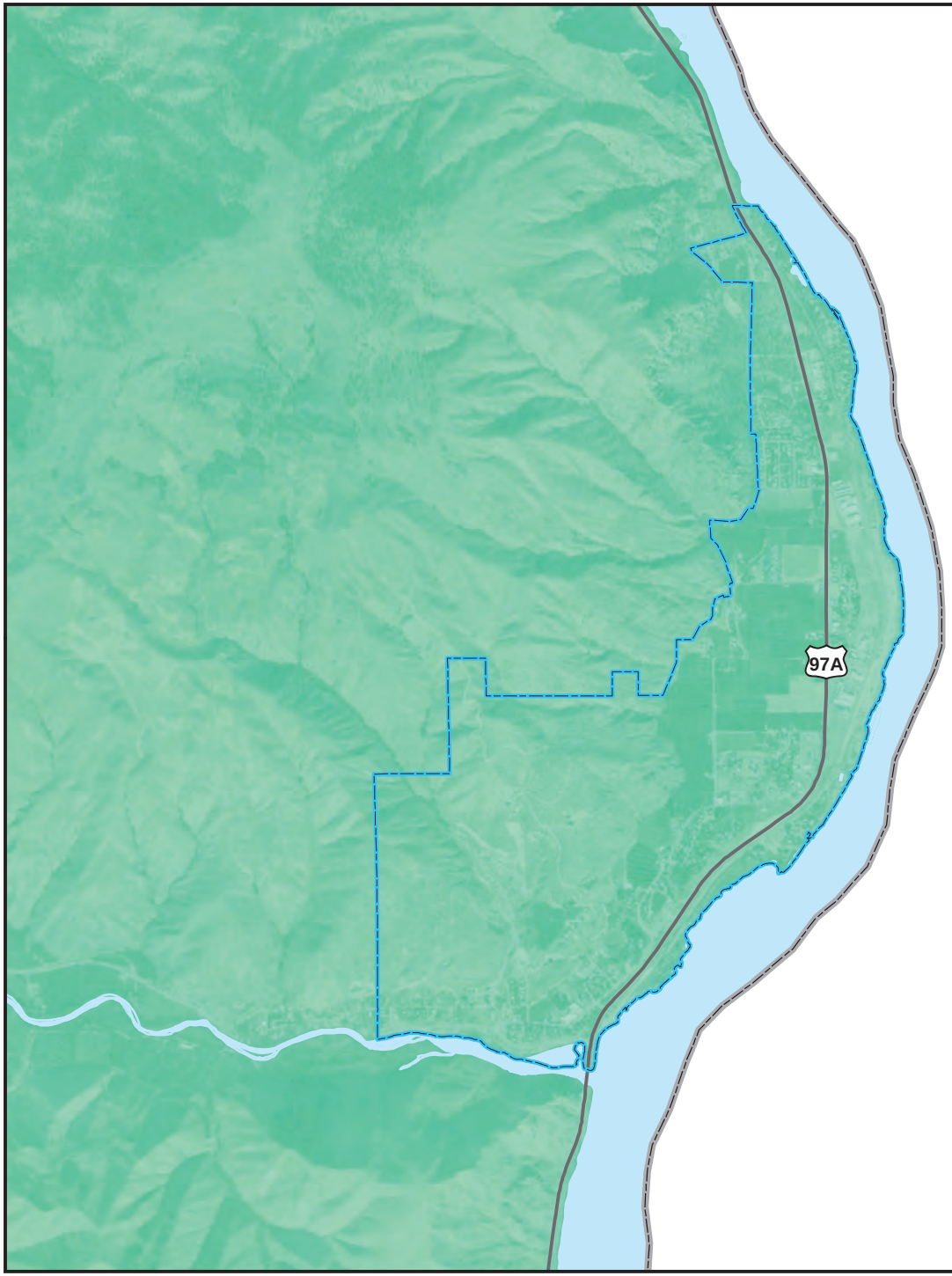
a. See the introduction to this volume for explanation of mitigation types.

4.11 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Entiat Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Chelan County Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Technical Reports and Information—**The following **o**utside resources and references were reviewed:

  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.



City of Entiat

Cascadia M9.0 (2016) ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

V (Very Light/Moderate)

0 0.25 0.5 1

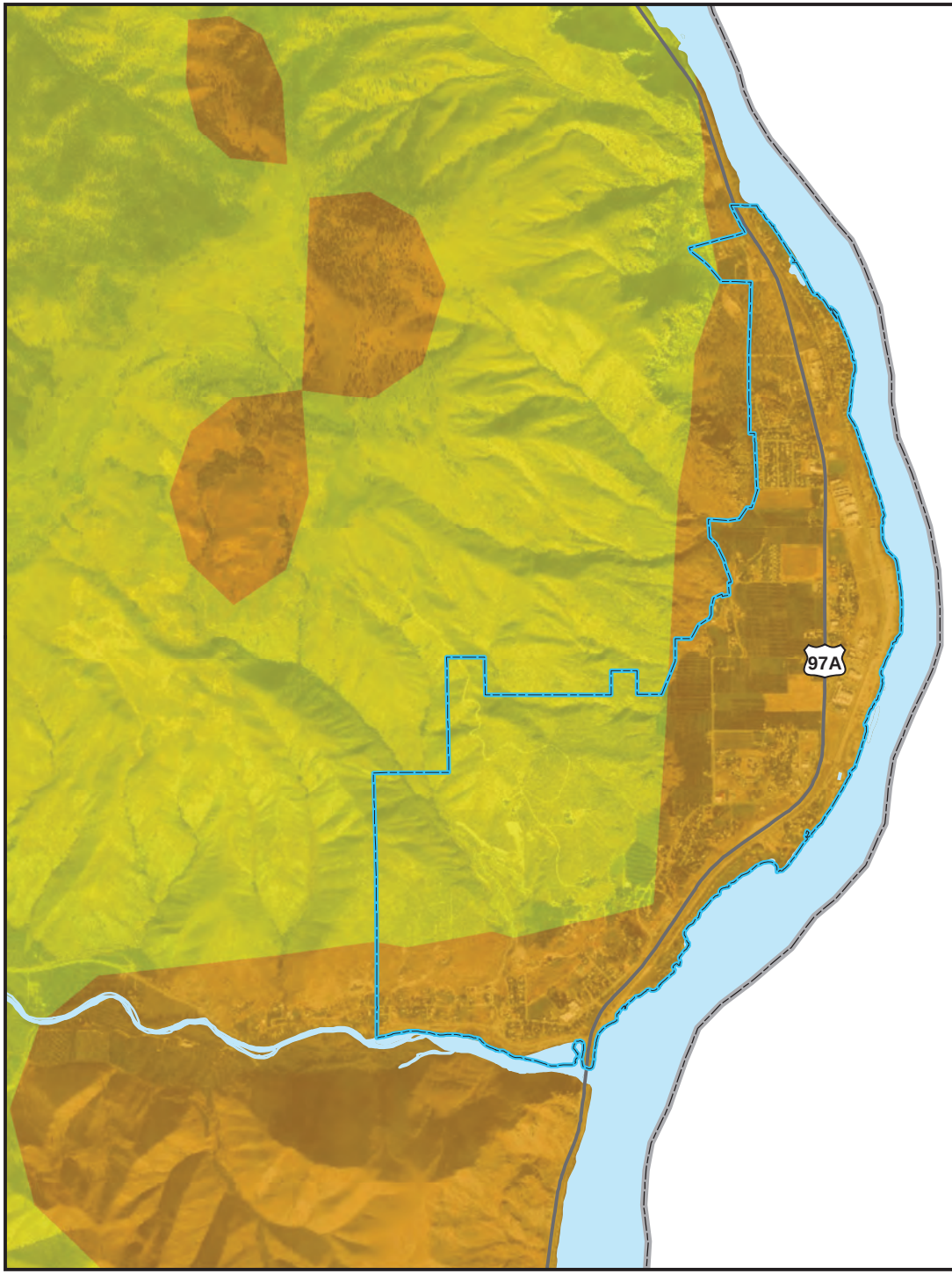
Miles

N
W E
S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Chelan M7.2 ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

VII (Moderate/Very Strong)

VIII (Moderate-Heavy/Severe)

IX (Heavy/Violent)

0 0.25 0.5 1

Miles

N

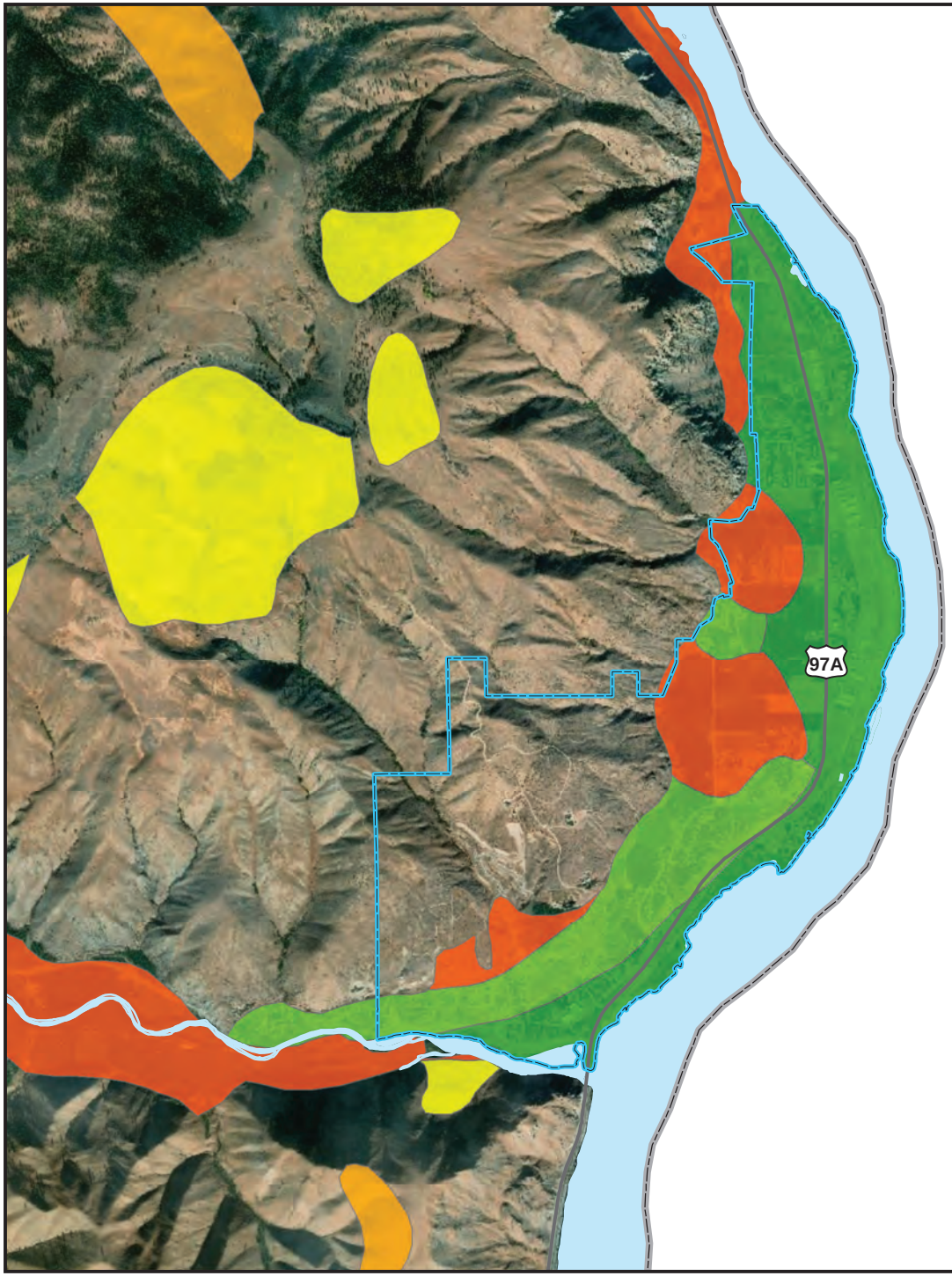
W E

S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Liquefaction Susceptibility

City Limits

Chelan County Boundary

Liquefaction Susceptibility

- Moderate to High
- Moderate
- Low to Moderate
- Low
- Very Low to Low
- Very Low

These data contain polygons that provide information regarding the relative liquefaction potential for Washington State. This data is part of a geodatabase that contains statewide seismic ground response data. Liquefaction is a natural phenomenon in which saturated, sandy soils lose their strength and behave as liquid.

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

0 0.25 0.5 1

Miles

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W E
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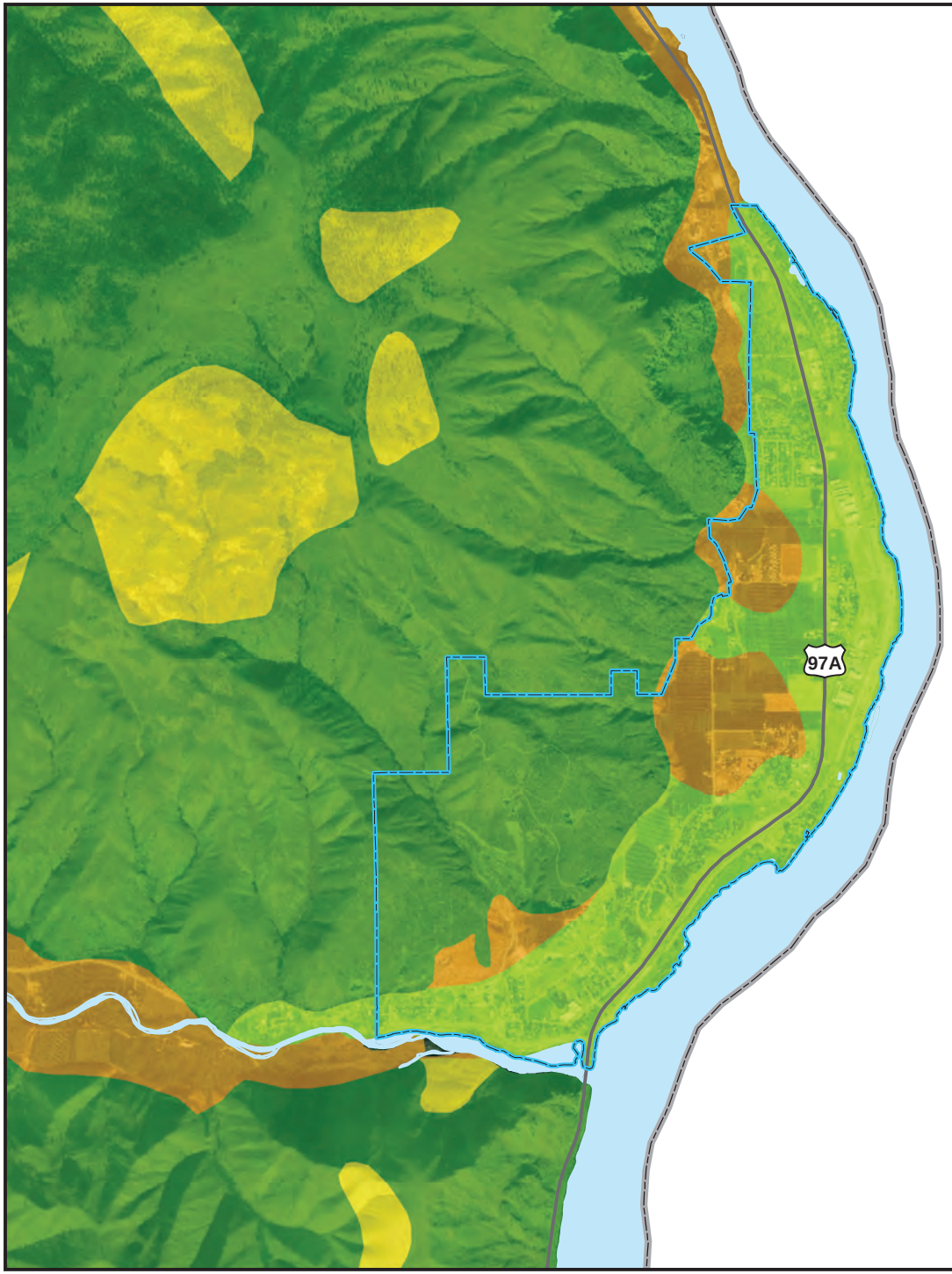
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

National Earthquake Hazards Reduction Program (NEHRP) Soil Classes

City Limits

Chelan County Boundary

Soil Type

B / Rock

C / Very Dense Soil - Soft Rock

D / Stiff Soil

E / Soft Soil

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

0 0.25 0.5 1

Miles

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W E

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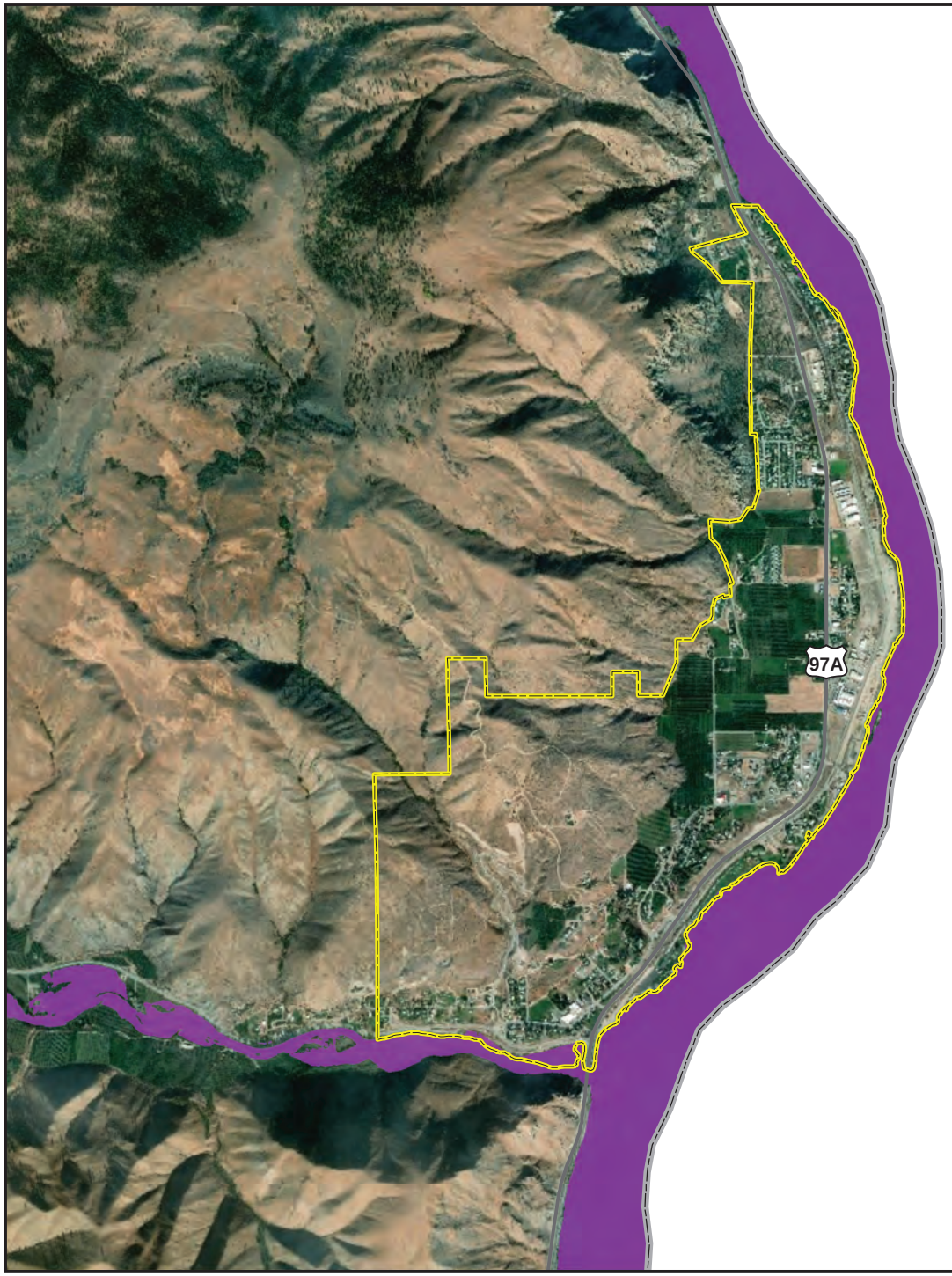
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Flood Boundaries

City Limits

Chelan County Boundary

Mass Zone A Boundaries

100-Year Flood Boundary

FEMA Flood Hazard Boundaries are a combination of FEMA DFIRM Detailed Study Areas and FEMA Digitized Q3 Data. These data were compiled for the Chelan County Comprehensive Flood Hazard Management Plan (July 2017).

Mass Zone A (MZA), or basic approximate, analyses are used by FEMA to address program challenges including the validation of Zone A studies and the availability of flood risk data in the early stages of a Risk Mapping, Assessment, and Planning (Risk MAP) project. The STARR team conducted a MZA analysis for the Wenatchee watershed in July 2016. Data downloaded from the Washington Department of Ecology's RiskMAP website in June 2018.

0 0.25 0.5 1

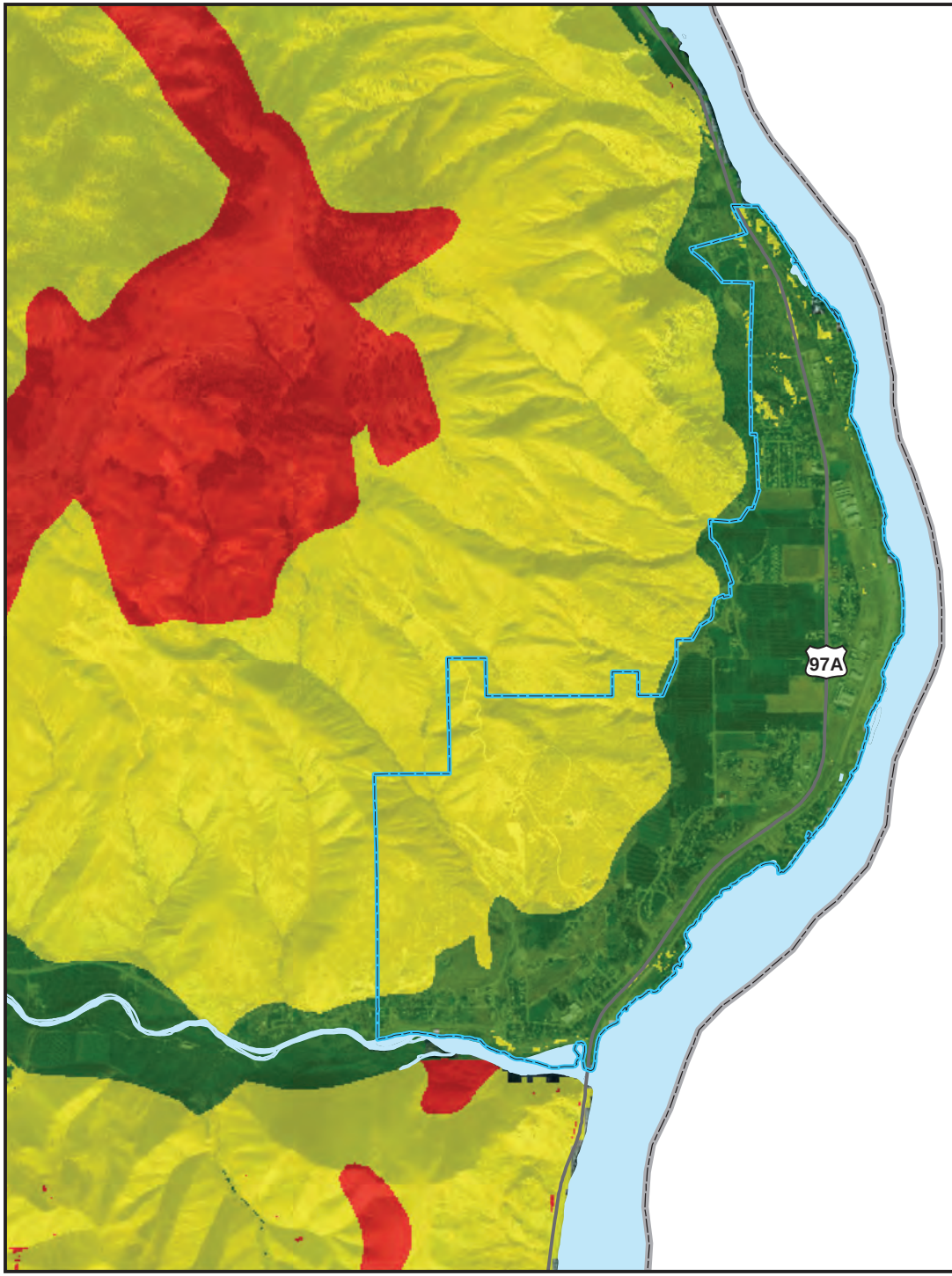
Miles

N W E S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Deep-seated Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Deep-seated landslides occur on a failure plane below the rooting depth of vegetation, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

0 0.25 0.5 1

Miles

N

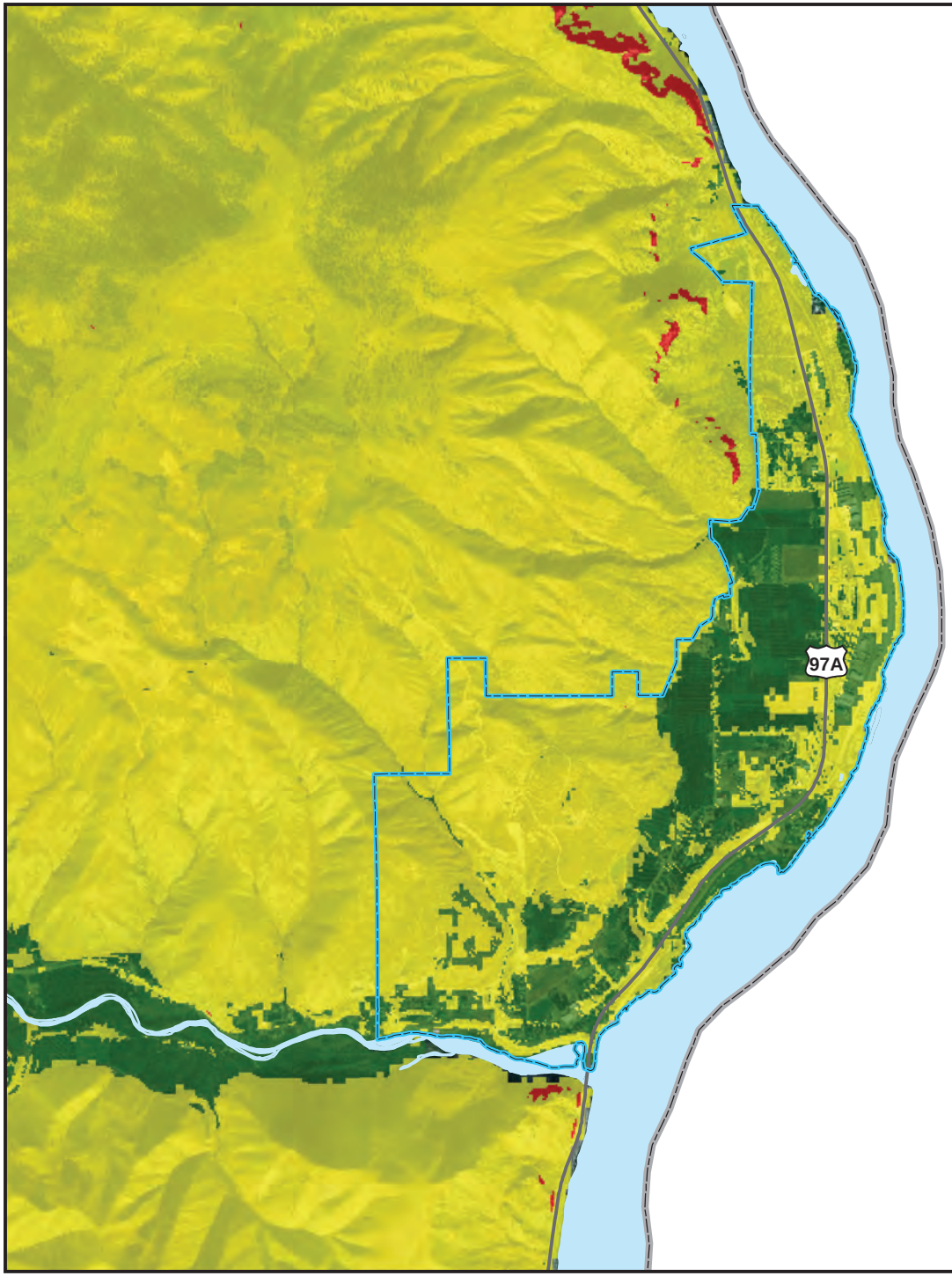
W E

S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Shallow Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Shallow landslides typically affect only the uppermost part of the soil column, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

0 0.25 0.5 1

Miles

N

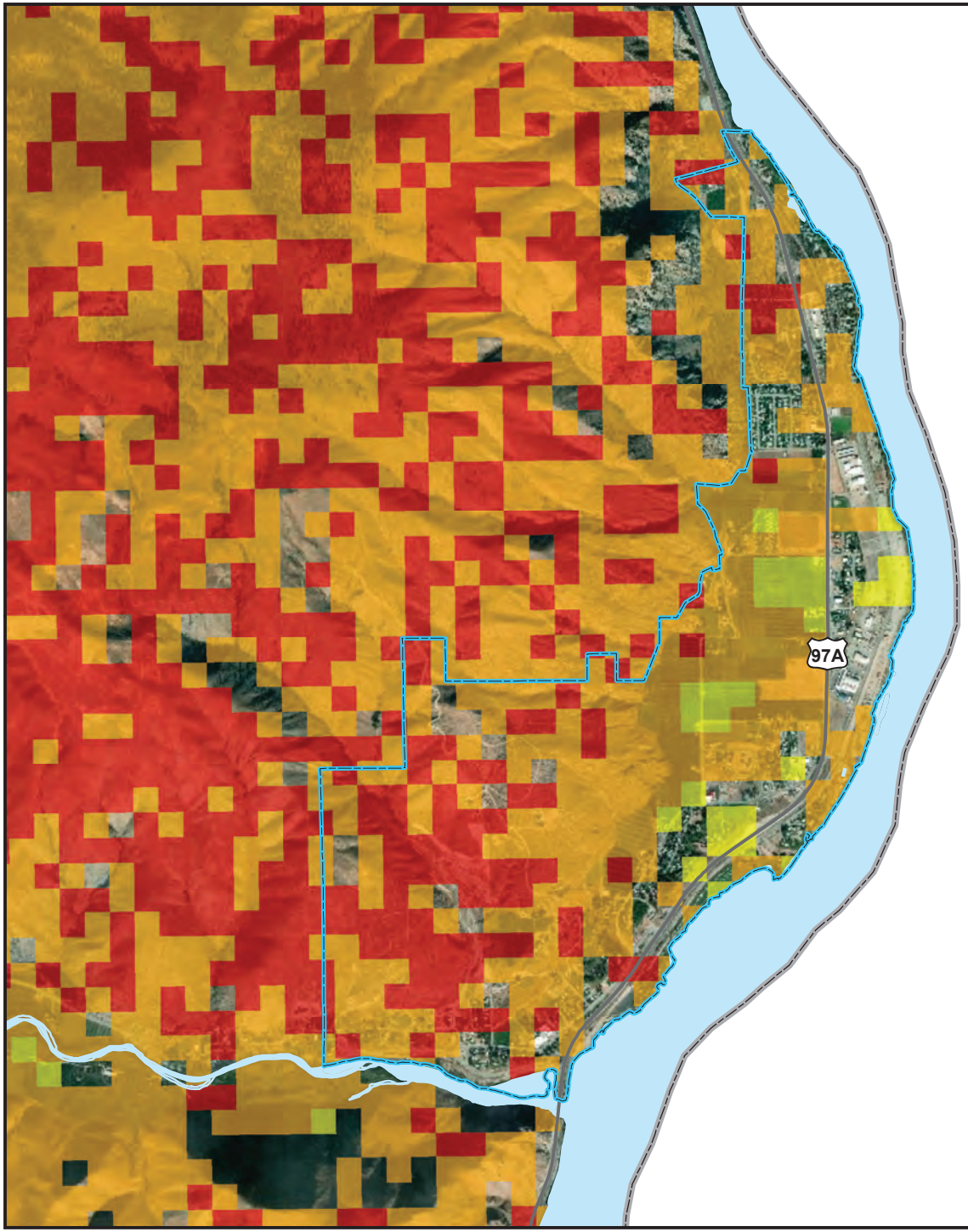
W E

S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Landscape Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

0 0.2 0.4 0.8

Miles

N

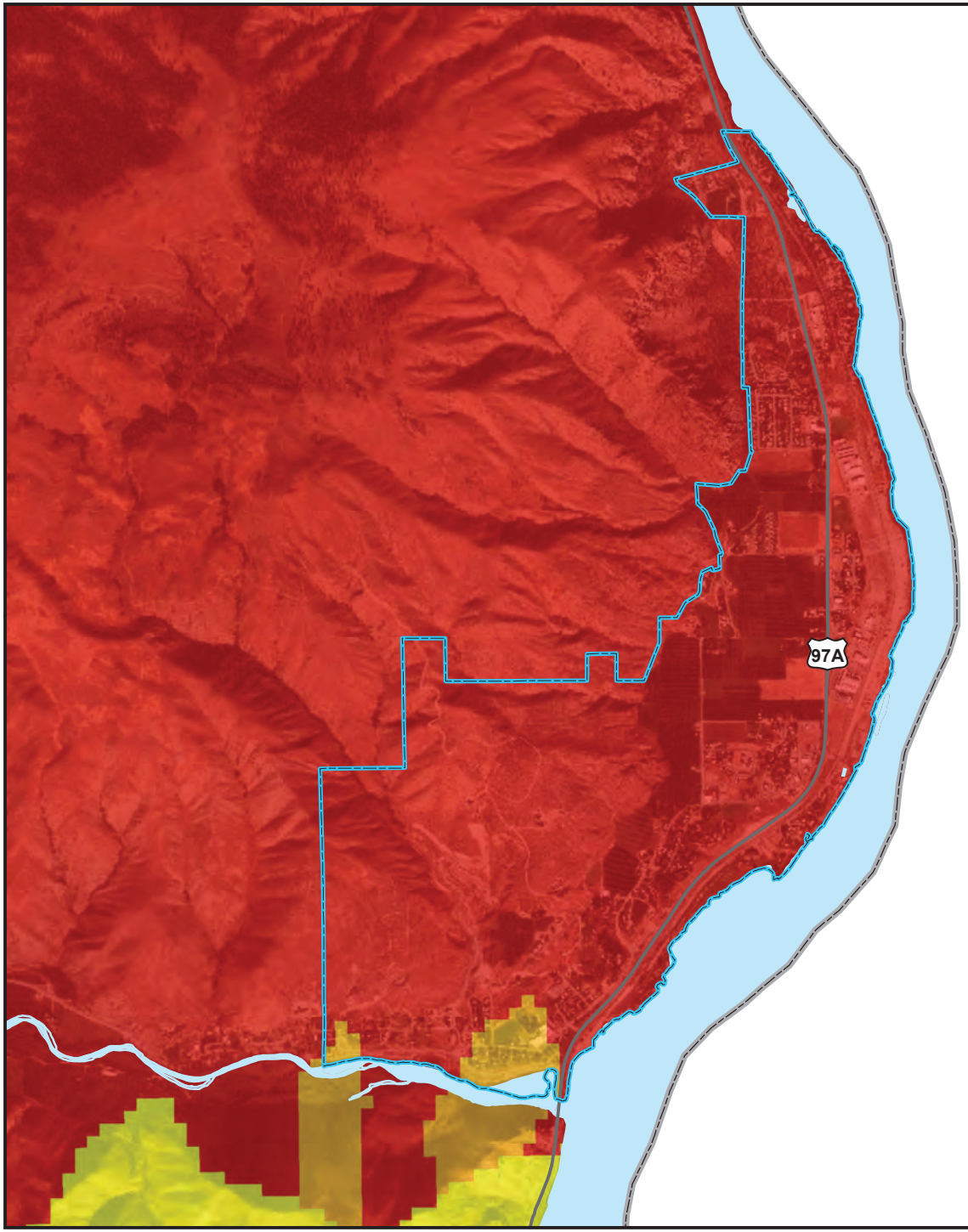
W E

S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Entiat

Local Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

0 0.2 0.4 0.8

Miles

N

W E

S

TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

5. CITY OF LEAVENWORTH

5.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Lilith Vespier, Development Services Manager
700 Highway 2, PO Box 287
Leavenworth, WA 98801
Telephone: 509-548-5275 ext. 131
e-mail Address: dsmanager@cityofleavenworth.com

Alternate Point of Contact
Herb Amick, Public Works Director
700 Highway 2, PO Box 287
Leavenworth, WA 98801
Telephone: 509-548-5275 ext. 136
e-mail Address: herba@cityofleavenworth.com

5.2 JURISDICTION PROFILE

Location and Description

Leavenworth is located on the eastern slopes of the Cascade Mountain Range in the upper reaches of the Wenatchee River Valley in Chelan County, Washington. Leavenworth is 118 miles east of Seattle and 22 miles northwest of Wenatchee on U.S. Highway 2. The City was incorporated on September 5, 1906. The 2016 population as 1,990. Projected population for 2025 is 2,534 (Comprehensive Plan page LU-3)

Brief History

Leavenworth's history does not begin with the alpine tradition it knows today, but with the proud heritage of the Yakima, Chinook, and Wenatchi tribes. The Native American tribes lived by hunting the land for deer and elk, as well as fishing Icicle Creek for salmon. Surrounded by some of the most beautiful and bountiful lands in North America, the three tribes co-existed from Lake Wenatchee to the Icicle and beyond. The area was eventually settled by pioneers in search of gold, furs, and fertile farmland. Stakes were claimed, land was tracked, and the Leavenworth area was soon bustling with settlers.

By 1890, the original town was built on the Icicle Flats. It wasn't until the end of the century that the town began to blossom with the arrival of the rail line. The Great Northern Railway Company's tracks through Leavenworth brought with them opportunities for work, commerce, and a new economy. A sawmill and a healthy logging industry eventually fell apart when the Great Northern Railway Company pulled out of Leavenworth. The re-routing of the railroad and the subsequent closure of the sawmill sadly converted the town from a bustling, thriving hub of commerce into a hollow, empty community. For more than thirty years, Leavenworth lived on the brink of extinction.

But in the early 1960s, everything changed. In a last-chance effort to turn their precarious situation around, the leaders of the community decided to change Leavenworth's appearance, hoping to bring tourism into the area. Using the beautiful backdrop of the surrounding Alpine hills to their advantage, the town agreed to remodel their hamlet in the form of a Bavarian village. Hoping to create more than a mere facelift, the entire community rallied to create the illusion of Bavaria in the middle of Washington State. Besides the complete renovation of the downtown area, community members worked to begin a series of festivals. The Autumn Leaf Festival, Maifest,

and the extremely popular Christmas Lighting Ceremony were the first of many attractions Leavenworth offered to passers-by. The new plan worked. Ever since the change to a Bavarian motif, Leavenworth has become a pillar of the tourism industry in the Pacific Northwest. Today, close to two million tourists come to Leavenworth each year, each visitor finding their own individual love affair with the community. The story is a landmark case of human spirit: The people of Leavenworth not only survived their most critical hour, they endured.

Climate

Leavenworth has a "continental Mediterranean climate" with hot sunny summer days and chilly nights and cold snowy winters. The annual mean snowfall is 90.1 inches with the heaviest snow fall recorded in 1968-69 of 217.2 inches and the lightest snow fall recorded in 1962-63 of 19.4 inches. The wettest "rain year" has been from July 1955 to June 1956 with a total of 41.13 inches and the driest from July 1929 to June 1930 with 11.77 inches. The spring months see gradual warming and drying, though frosts remain frequent into April – over 168 mornings during an average year fall to or below freezing and the average last freeze is May 16. However, 2016 was the first year to record the "last frost" in March.

Governing Body Format

Leavenworth has a Mayor/City Council form of government. The City Council assumes responsibility for the adoption of this plan; the Mayor will oversee its implementation through the City Administrator.

5.3 DEVELOPMENT TRENDS

The City of Leavenworth has been a slower growing community with most new residential development occurring in the surrounding County land, see 2014 Land Use Capacity Report. Over the last few years, the City has received an increased number of residential building permits and several large commercial building permits. In 2016, the City received 14 new single-family residential permits or Accessory Dwelling Units and 2 commercial permits. In 2017, the City receive 10 new single-family residential permits or Accessory Dwelling Units, 1 multi-family unit and 2 new commercial building permits. As of November of 2018, the City received 15 single-family residential permits or Accessory Dwelling Units, 2 multifamily permits and 3 commercial permits.

In the next year, the City is anticipating at least one large subdivision, one large apartment complex and several large planned developments which should result in a notable increase in building in the years to come.

Table 5-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 5-1. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	Yes 62.18 acres, all vacant land, except for the KOA campground with an estimated six structures
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	Yes The City is anticipating annexation of vacant land which may be developed for residential uses. The areas of potential annexation are currently located in the City's Urban Growth Area regulated by Chelan County.
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	Yes The City is anticipating one or more residential subdivisions in the north end of town and one or more planned developments in the east end of town. These areas contain some wetland/soil limitations. Fire hazard is a concern throughout the City
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	

	2014	2015	2016	2017	2018
Single Family	4	5	15	12	19
Multi-Family	0	1	0	1	1
Other (commercial, mixed use, etc.)	0	0	1	0	1

Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: Flooding may occur along the shoreline or wetland areas. Development is limited or setback from flood areas through the implementation of the critical area regulations. According to the Chelan Risk Report (draft) by FEMA, the City has 41 buildings in the Special Flood Hazard Area, see Table 3 page 16. Verification of these structure locations is an appropriate first step. • Landslide: Known landslide areas, excluding shoreline erosion, are outside of the City limits. Development may occur on the shoreline but with setbacks to avoid the hazard. We do need to coordinate with WSDOT as landslides outside of town have historically closed access to the highway. • High Liquefaction Areas: Unknown • Tsunami Inundation Area: N/A • Wildfire Risk Areas: All development may be susceptible to fire hazard.
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The estimated buildable land for residential dwellings is 471.25 acres which could serve 2,618 additional residents, according to the 2017 Comprehensive Plan page LU-5.

5.4 CAPABILITY ASSESSMENT

The City of Leavenworth performed an assessment of its existing capabilities for implementing hazard mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 5-2.
- Development and permitting capabilities are presented in Table 5-3.
- An assessment of fiscal capabilities is presented in Table 5-4.

- An assessment of administrative and technical capabilities is presented in Table 5-5.
- An assessment of education and outreach capabilities is presented in Table 5-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 5-7.
- Classifications under various community mitigation programs are presented in Table 5-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 5-9.

Findings of the capability assessment were reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 5.10 identifies these as community capacity building mitigation actions.

Table 5-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
Comment: *International Building & Residential Codes, LMC 15.04; adopted Ordinance 1506, August 25, 2015*				
Zoning Code	Yes	No	Yes	Yes
Comment: *LMC Title 18; adopted Ordinance 531, April 30, 1973*				
Subdivisions	Yes	No	Yes	Yes
Comment: *LMC Title 17; adopted Ordinance 1223, May 13, 2004*				
Stormwater Management	Yes	No	Yes	Yes
Comment: *LMC Title 13; adopted Ordinance 876, February 26, 1991 – prohibited water drainage to go through city sewer; more specific stormwater regulations were adopted by Ordinance 1449, June 11, 2013*				
Post-Disaster Recovery	No	No	No	No
Comment:				
Real Estate Disclosure	No	No	No	No
Comment:				
Growth Management	Yes	No	Yes	Yes
Comment: *LMC Chapter 21.31; adopted Ordinance 1158, February 13, 2001*				
Site Plan Review	Yes	No	Yes	Yes
Comment: *LMC Title 21; adopted Ordinance 1008, August 25, 1998 repealed prior procedural review adopted under Ordinance 1016, April 23, 1996, which initially implemented GMA required uniform processing*				
Environmental Protection	Yes	No	Yes	Yes
Comment: *LMC Title 16; adopted Ordinance 1395, July 26, 2011*				
Flood Damage Prevention	Yes	No	Yes	Yes
Comment: *LMC Chapter 14.24; adopted Ordinance 1222, March 9, 2004 – repealing Chapter 18.70 adopted Ordinance 600, February 14, 1978*				
Emergency Management	No	No	No	No
Comment:				
Climate Change	No	No	No	No
Comment:				
Other				
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Planning Documents				
Comprehensive Plan	Yes	No	Yes	Yes
Comment: *Comprehensive Plan adopted 2017, Ordinance 1559*				
Capital Improvement Plan	Yes	No	Yes	Yes
How often is the plan updated? *Annually*				
Comment: *Part of the Comprehensive Plan, Resolution 12-2018*				
Disaster Debris Management Plan	No	No	No	No
Comment:				
Floodplain or Watershed Plan	No	Yes	Yes	No
Comment: *The County has a Watershed Plan for the region*				
Stormwater Plan	Yes	No	No	Yes
Comment: *Resolution 06-2017*				
Urban Water Management Plan	Yes	No	Yes	Yes
Comment: *Water System Plan, Resolution 09-2018*				
Habitat Conservation Plan	No	No	No	No
Comment:				
Economic Development Plan	Yes	No	No	Yes
Comment: *Part of the 2017 Comprehensive Plan, Ordinance 1559*				
Shoreline Management Plan	Yes	Yes	Yes	Yes
Comment: *Adopted final document August 2014, Ordinance 1482; joint jurisdiction with Department of Ecology*				
Community Wildfire Protection Plan	No	No	No	Yes
Comment: *The City may consider integration once a plan is developed*				
Forest Management Plan	No	No	No	No
Comment:				
Climate Action Plan	No	No	No	No
Comment:				
Comprehensive Emergency Management Plan	No	No	No	Yes
Comment: *The City may consider integration once a plan is developed*				
Threat & Hazard Identification & Risk Assessment	No	No	No	No
Comment:				
Post-Disaster Recovery Plan	No	No	No	No
Comment:				
Continuity of Operations Plan	No	No	No	No
Comment:				
Public Health Plan	No	No	No	No
Comment:				
Other	No	No	No	No
Comment:				

Table 5-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Yes Development Services
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	No

Table 5-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes – with limitations
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes (water and sewer)
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes (not used)
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No (excluding connection fees)
Other	Local Improvement District

Table 5-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Development Services – Manager and Assistant Planner Public Works – Engineer on contract
Engineers or professionals trained in building or infrastructure construction practices	Yes	Building Official and Inspector Engineer on contract
Planners or engineers with an understanding of natural hazards	Yes	Public Works – Engineer on contract
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Development Services - Manager
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	
Grant writers	Yes	Various Staff depending on grant type
Other		

Table 5-6. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	No, not a specific staff member
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • **If yes, briefly describe.**	Yes Planning Page is on website – can be updated with final plan when available
Do you use social media for hazard mitigation education and outreach? • **If yes, briefly describe.**	Yes We can use our FB page for such notices
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, briefly describe.**	Yes Public Safety Committee and RiverCom Board attendance
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, briefly describe.**	No
Do you have any established warning systems for hazard events? • **If yes, briefly describe.**	No City has an agreement with Chelan County Emergency Management as the designated lead agency in the event of a disaster.

Table 5-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Development Services
Who is your floodplain administrator? (department/position)	Building Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2011 – Ordinance 1395 (critical area) 2015 – Ordinance 1506 (building)
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	Fall 2018
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, state what they are.**	No
Are any RiskMAP projects currently underway in your jurisdiction? • **If so, state what they are.**	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, state why.**	Yes Based on the BAS
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	None required
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving its CRS Classification?** • **If no, is your jurisdiction interested in joining the CRS program?**	No, in process of applying

Criterion	Response
How many flood insurance policies are in force in your jurisdiction?[a] • **What is the insurance in force?** • **What is the premium in force?**	1 $300 million with a limit of 50m for flood zones A and V $300,000 annually inclusive of all insurance (not just flood)
How many total loss claims have been filed in your jurisdiction?[a] • **How many claims are still open or were closed without payment?** • **What were the total payments for losses?**	0

a. According to FEMA statistics as of January 31, 2019

Table 5-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No		Date
Building Code Effectiveness Grading Schedule	Yes	4	2017
Public Protection	No		Date
Storm Ready	No		Date
Firewise	Yes via Chumstick Watershed	n/a	12/2009

Table 5-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Low
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Low
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low

Criterion	Jurisdiction Rating[a]
Political support for implementing climate change adaptation strategies	Low
Comment:	
Financial resources devoted to climate change adaptation	Low
Comment:	
Local authority over sectors likely to be negative impacted	Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment:	
Local residents support of adaptation efforts	Medium
Comment:	
Local residents' capacity to adapt to climate impacts	Low
Comment:	
Local economy current capacity to adapt to climate impacts	Unsure
Comment:	
Local ecosystems capacity to adapt to climate impacts	Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

5.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

For hazard mitigation planning, "integration" means that hazard mitigation information is used in other relevant planning mechanisms, such as general planning and capital facilities planning, and that relevant information from those sources is used in hazard mitigation. This section identifies where such integration is already in place, and where there are opportunities for further integration in the future. Resources listed in Section 5.12 were used to provide information on integration. The progress reporting process described in Volume 1 will document the progress of hazard mitigation actions related to integration and identify new opportunities for integration.

5.5.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- **2017 Comprehensive Plan**—The Comprehensive Plan identifies and addresses goals related to Geological hazards, fire hazards, flood controls and water protections.
- **Capital Improvement Plan**—Includes funding related to public services
- **Building Codes** —The City has adopted International Building Code Appendix G – Flood-resistant construction Section 701 Tanks only; Appendix J Grading with amendments for higher protection with excavating and fill activities. International Fire Codes Appendix C requiring hydrants at 300' or as approved by the City; Appendix D with amendment to fire roads standards

5.5.2 Opportunities for Future Integration

The capability assessment presented in this annex identified the following plans and programs that do not currently integrate hazard mitigation information but provide opportunities to do so in the future:

- **Capital Improvement Projects** —Future capital improvement projects may consider hazard mitigation potential as a means of evaluating project priority.
- **Comprehensive Plan**—Future amendment may consider climate change impacts; as well as direct review of known hazards and future land use designations.
- **Regulations – zoning code, development standards, building codes**—Future amendment may consider ways to incorporate hazard mitigation tools and recovery steps.
- **Pre & Post Disaster Plan**—Building on the hazard mitigation plan, consider planning for implementation of pre-disaster actions and post disaster recovery.

5.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 5-10 lists past occurrences of natural hazards for which specific damage was recorded in City of Leavenworth. Other hazard events that broadly affected the entire planning area, including City of Leavenworth, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 5-10. Past Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Severe Storms, high wind, and flooding (DR)	1079	January 1996	Trail Restoration
Volcanic Eruption, Mt St Helens (DR)	623	May 1980	Ash removal
Landslide	n/a	1965	One fatality – identified in 2010 Chelan County Hazard Plan

5.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

There are no repetitive loss records in the City of Leavenworth. Other noted vulnerabilities include the following:

- The City has a high volume of tourism throughout the year which would not be aware of risks and responses to the City's priority hazards – fire, flooding or earthquake hazards.
- The City has been impacted by smoke during regional fires.
- The City school grounds have been used for staging during regional fires.
- Power outage due to downed trees
- Loss of access during landslide events on Hwy 2, specifically through the Tumwater Canyon.

5.8 HAZARD RISK RANKING

Table 5-11 presents a local ranking for City of Leavenworth of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 5-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Severe Weather	45	High
3	Earthquake	32	High
4	Flooding	18	Medium
5	Landslide	18	Medium
6	Dam Failure	12	Low
7	Drought	6	Low
8	Avalanche	n/a	Low

5.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 5-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 5-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Earthquake – Retrofit existing critical facilities (i.e. hospitals, schools, etc.) to ensure compliance with current building codes	X		X	L-1
Comment: *The hospital and high school completed a major remodel and the elementary school is was rebuilt (new construction). All structures were required to meet earthquake standards adopted by the city. This type of review and update should continue to other critical facilities (water, sewer, fire, power facilities and city hall).*				
Earthquake – Adopt International Building Codes	X			n/a
Comment: *The last update to building codes was in 2015.*				
Severe Storms – Implement public notification system			X	L-3
Comment:				
Wildfire – Educate property owners in the wildland interface zones on maintaining "safe zones" around their homes			X	L-9, L-15
Comment:				
Wildfire – Adopt regulations requiring metal roofs on structures in wildland interface zones			X	L-4
Comment:				
Flooding – Buy-out floodway homes that are subject to regular flooding			X	L-1
Comment: *Verification of structures is necessary.*				
Flooding – Raise existing homes above the floodplain			X	L-1
Comment: *There are no known residential structures in the City limits floodplain.*				
Flooding – Adopt Model Floodplain Ordinance	X			n/a
Comment: *The City has flood regulations from 2004 which should be reviewed and updated.*				
Avalanche – Coordinate with WSDOT to designate alternate evacuation routes			X	L-5
Comment:				
Multi-hazard Mitigation – Identify and stock emergency shelters			X	L-8
Comment:				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Multi-hazard Mitigation – Schedule and implement Emergency Response Planning, including table-top exercises			X	L-9
Comment:				
Multi-hazard Mitigation – Public Education/Community Preparedness – self-reliance for three days following a disaster			X	L-10
Comment:				

5.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 5-13 lists the actions that make up the City of Leavenworth hazard mitigation action plan. Table 5-14 identifies the priority for each action. Table 5-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 5-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #L-1 Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses. This may include a buy-out or raising of structures.							
Existing	Earthquake, flood, fire, severe weather, landslide	2, 7, 8	Development Services	Public Works	High	HMGP, PDM, FMA, Staff Time, General Funds	Long-term
Action # L-2 Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the Comprehensive Plan.							
New	Earthquake, flood, fire, severe weather, landslide	2, 4, 5, 6, 7, 8, 10, 11	Development Services	Public Works	Low	Staff Time, General Funds	Ongoing
Action # L-3 Implement public notification system – using the hazard mitigation survey, or other data, to determine best notification tools.							
Existing	Earthquake, flood, fire, severe weather, landslide, avalanche, dam failure	1, 2, 10	Development Services	Public Works	High	HMGP, PDM, FMA, General Funds, Staff Time	Long-term
Action # L-4 Adopt regulations requiring fire resistant roofs on structures in wildland interface zones.							
Existing	Fire	3, 4, 5, 11	Development Services	Public Works	Low	Staff Time, General Funds	Short-term
Action # L-5 Coordinate with Washington State Department of Transportation to designate alternate evacuation routes.							
Existing	Earthquake, flood, fire, avalanche, landslide	1, 2, 4, 7, 9, 10	Development Services	Public Works	Medium	State, HMGP, PDM, FMA, Staff Time, General Funds	Ongoing
Action # L-6 Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New	Earthquake, flood, fire, severe weather, landslide, avalanche, dam failure	2, 8, 9, 10	Development Services	Public Works	Low	Staff Time, General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action # L-7 Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New	Flood	2, 4, 5, 6, 7, 9, 10	Development Services	Public Works	Low	Staff Time, General Funds	Ongoing
Action # L-8 Multi-hazard Mitigation – Identify and stock emergency shelters							
Existing	Earthquake, flood, fire, severe weather, landslide, avalanche, dam failure	1, 2, 9, 10	Development Services	Public Works		Staff Time, General Funds, HMGP, PDM	Long-term
Action # L-9 Multi-hazard Mitigation – Schedule and implement Emergency Response Planning, including table-top exercises							
Existing	Earthquake, flood, fire, severe weather, landslide, avalanche, dam failure	1, 2, 9, 10	Development Services	Public Works	Medium	Staff Time, General Funds, HMGP, PDM	Ongoing
Action # L-10 Multi-hazard Mitigation – Public Education/Community Preparedness – self-reliance for three days following a disaster							
Existing	Earthquake, flood, fire, severe weather, landslide, avalanche, dam failure	1, 2, 9, 10	Development Services	Public Works	Low	Staff Time, General Funds	Ongoing
Action # L-11 Identify and pursue strategies to increase adaptive capacity to climate change							
New	Climate change, flood, fire, drought, severe weather, landslide, avalanche, dam failure	2, 4, 5, 6, 7, 9, 10, 11	Development Services	Public Works	Medium	Staff Time, General Funds, HMGP, PDM, FMA	Long-term
Action # L-12 Coordinate methods of sharing building plans and construction information with Emergency Management and Fire District.							
New	Earthquake, flood, fire, landslide, avalanche	1, 7, 8, 9, 10	Development Services	Public Works	Medium	Staff Time, General Funds	Short-term
Action # L-13 Purchase generators for all critical facilities and infrastructure that lack adequate back-up power.							
New	Earthquake, flood, fire, severe weather	1, 2, 4, 8, 9	Development Services	Public Works	Medium	Staff Time, General Funds, HMGP, PDM, FMA	Short-term
Action # L-14 Purchase protection hardware (such as sprinklers, snow breaks, tie-downs) for all critical facilities and infrastructure.							
New	Earthquake, flood, fire, severe weather	1, 2, 4, 9	Development Services	Public Works	Medium	Staff Time, General Funds, HMGP, PDM, FMA	Short-term
Action # L-15 Participate in programs such as Firewise, StormReady and the Community Rating System.							
New	Earthquake, flood, fire, severe weather	5, 7, 8, 9, 10, 11	Development Services	Public Works	Medium	Staff Time, General Funds, HMGP, PDM, FMA	Short-term

Table 5-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
L-1	3	High	High	Yes	Yes	No	Medium	Medium
L-2	8	Medium	Low	Yes	No	Yes	High	Low
L-3	3	High	Medium	Yes	No	Yes	Medium	Medium
L-4	4	High	Low	Yes	Yes	No	High	Medium
L-5	6	Medium	Medium	Yes	Yes	No	Low	Medium
L-6	4	Low	Medium	No	Yes	Yes	Medium	Medium
L-7	7	Medium	Medium	Yes	Yes	No	High	Low
L-8	4	Medium	Medium	Yes	Yes	No	Medium	Medium
L-9	4	Medium	Medium	Yes	No	No	Medium	Medium
L-10	4	High	Medium	Yes	Yes	Yes	Medium	Medium
L-11	8	Medium	High	No	Yes	No	Low	Medium
L-12	5	Medium	Medium	Yes	Yes	No	Medium	Medium
L-13	5	High	Medium	Yes	Yes	Yes	High	High
L-14	4	High	Medium	Yes	Yes	No	Medium	Medium
L-15	6	Medium	Low	Yes	No	No	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 5-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	L-1, L-2, L-4	L-1, L-3, L-4, L-12	L-10, L-15	L-11, L-15	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10
Severe Weather	L-1, L-2	L-1, L-3, L-12	L-10, L-15	L-11, L-15	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10
Earthquake	L-1, L-2, L-10	L-1, L-3, L-12	L-10	L-11, L-15	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10
Flooding	L-1, L-2		L-10, L-15	L-11, L-15	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10
Landslide	L-1, L-2	L-1, L-3, L-12	L-10	L-11	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10
Dam Failure	L-2	L-1, L-12	L-10	L-11	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10
Drought	L-2	L-1, L-4, L-12	L-10	L-11	L-5	L-3, L-13, L-14	L-11, L-15	L-10
Avalanche	L-2	L-1, L-4, L-12	L-10	L-11	L-5, L-12	L-3, L-13, L-14	L-11, L-15	L-10

a. See the introduction to this volume for explanation of mitigation types.

5.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

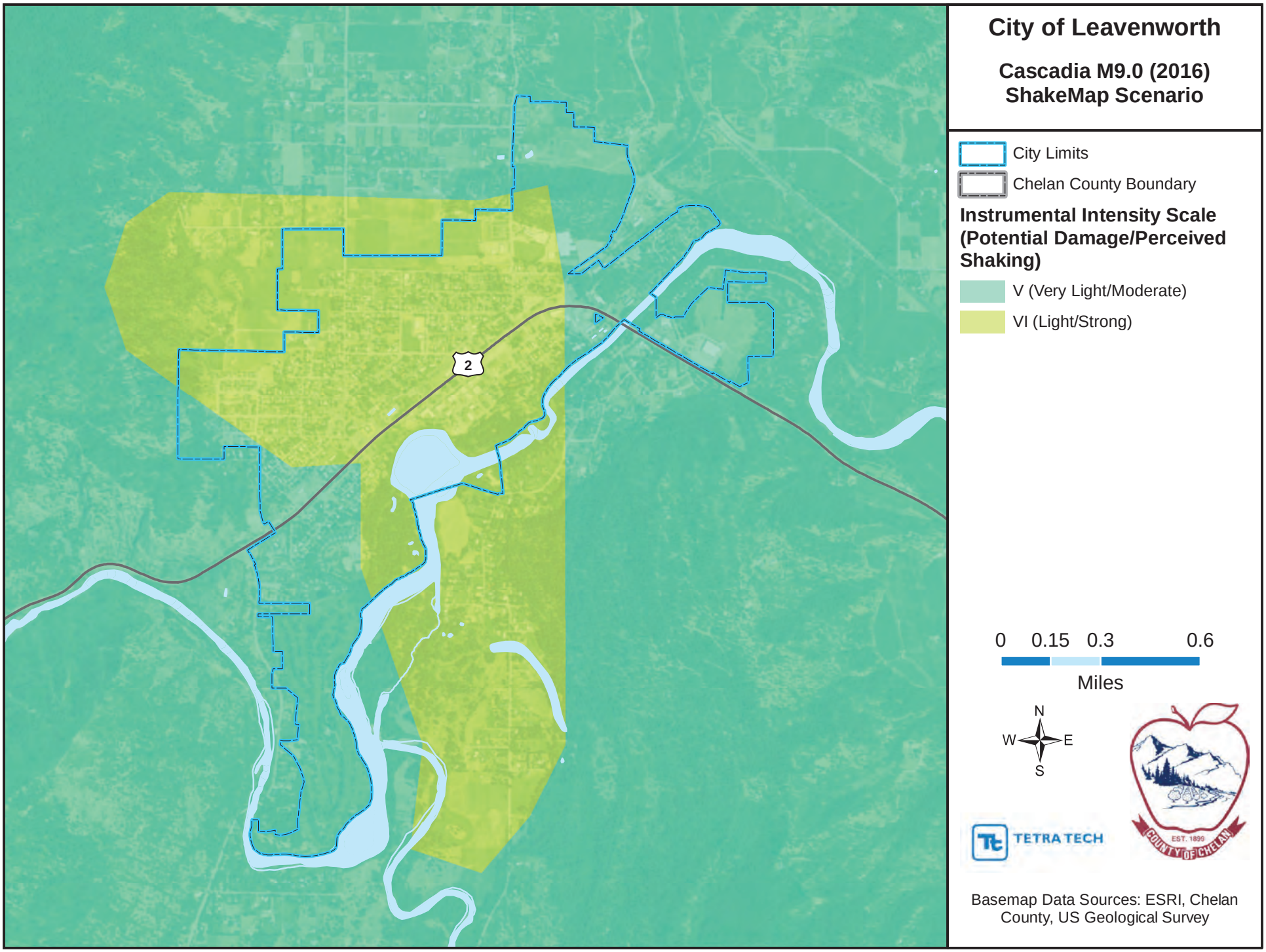
Continued education and hazard training will provide a better understanding of how to mitigate risk and improve public safety.

5.12 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Leavenworth Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **City of Leavenworth Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Technical Reports and Information—**The following **o**utside resources and references were reviewed:

  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.



City of Leavenworth

Cascadia M9.0 (2016) ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

V (Very Light/Moderate)

VI (Light/Strong)

0 0.15 0.3 0.6

Miles

N

W E

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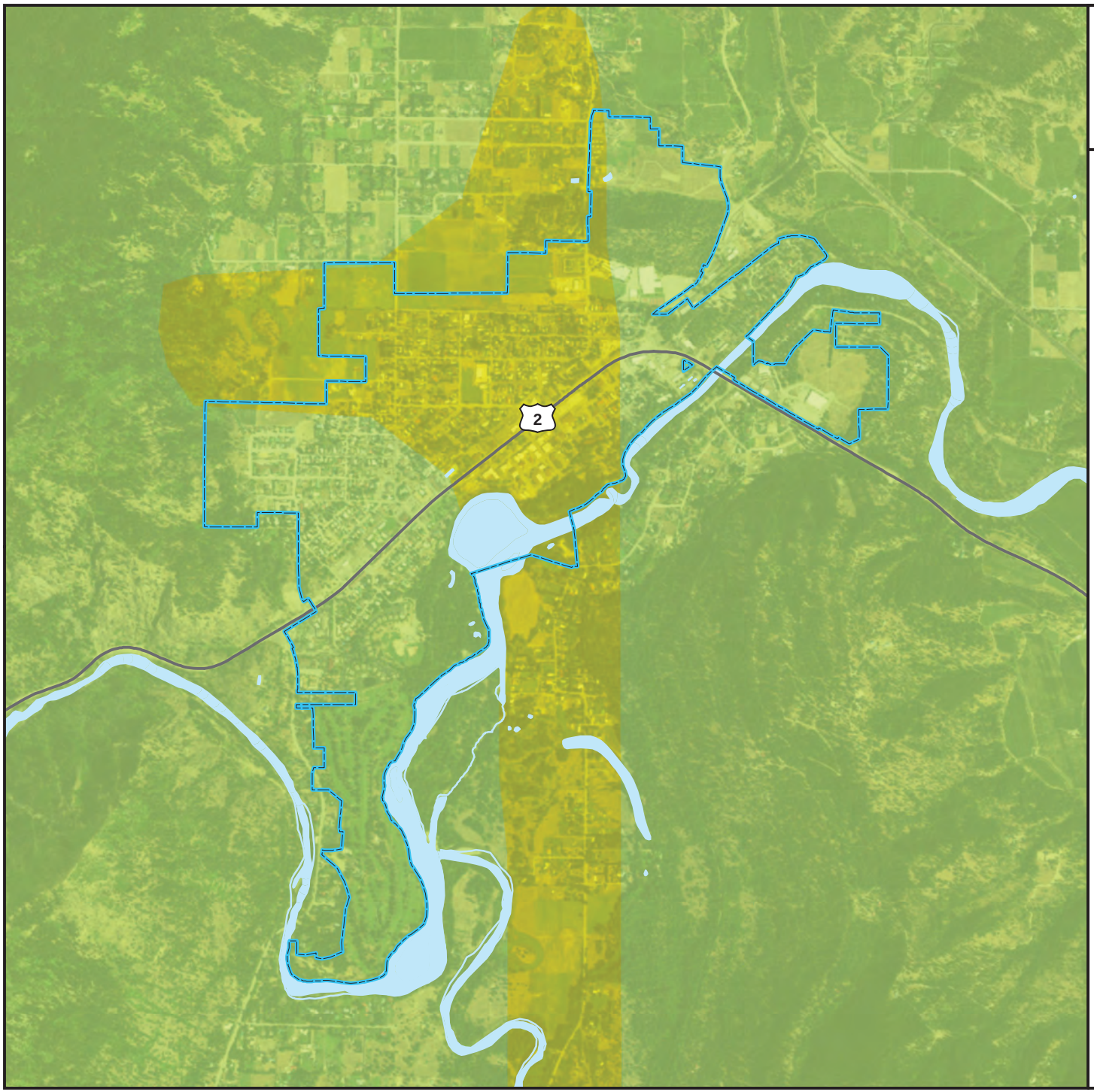
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

Chelan M7.2 ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

VI (Light/Strong)

VII (Moderate/Very Strong)

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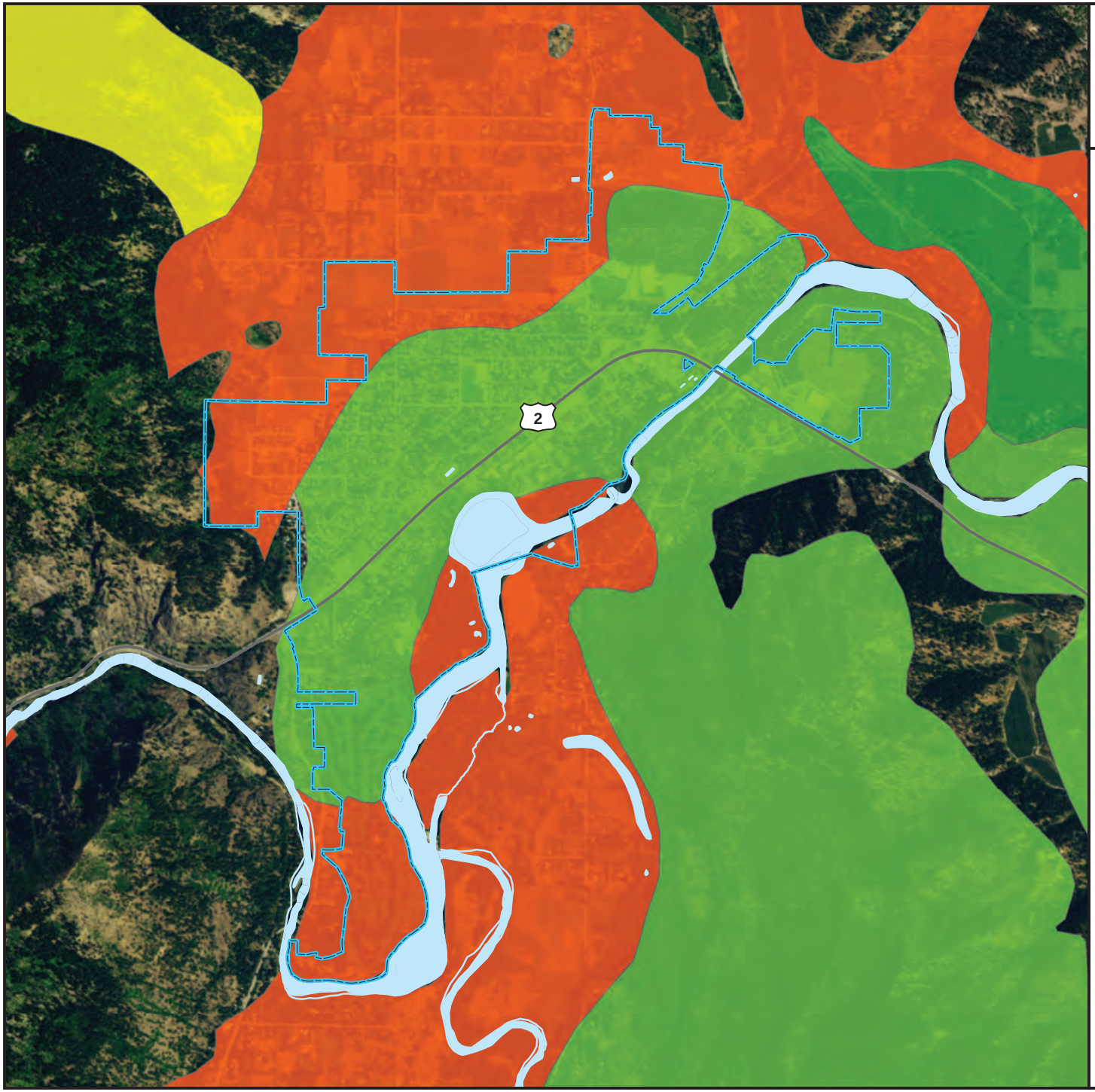
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

Liquefaction Susceptibility

City Limits

Chelan County Boundary

Liquefaction Susceptibility

Moderate to High

Low to Moderate

Very Low to Low

Very Low

These data contain polygons that provide information regarding the relative liquefaction potential for Washington State. This data is part of a geodatabase that contains statewide seismic ground response data. Liquefaction is a natural phenomenon in which saturated, sandy soils lose their strength and behave as liquid.

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

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Miles

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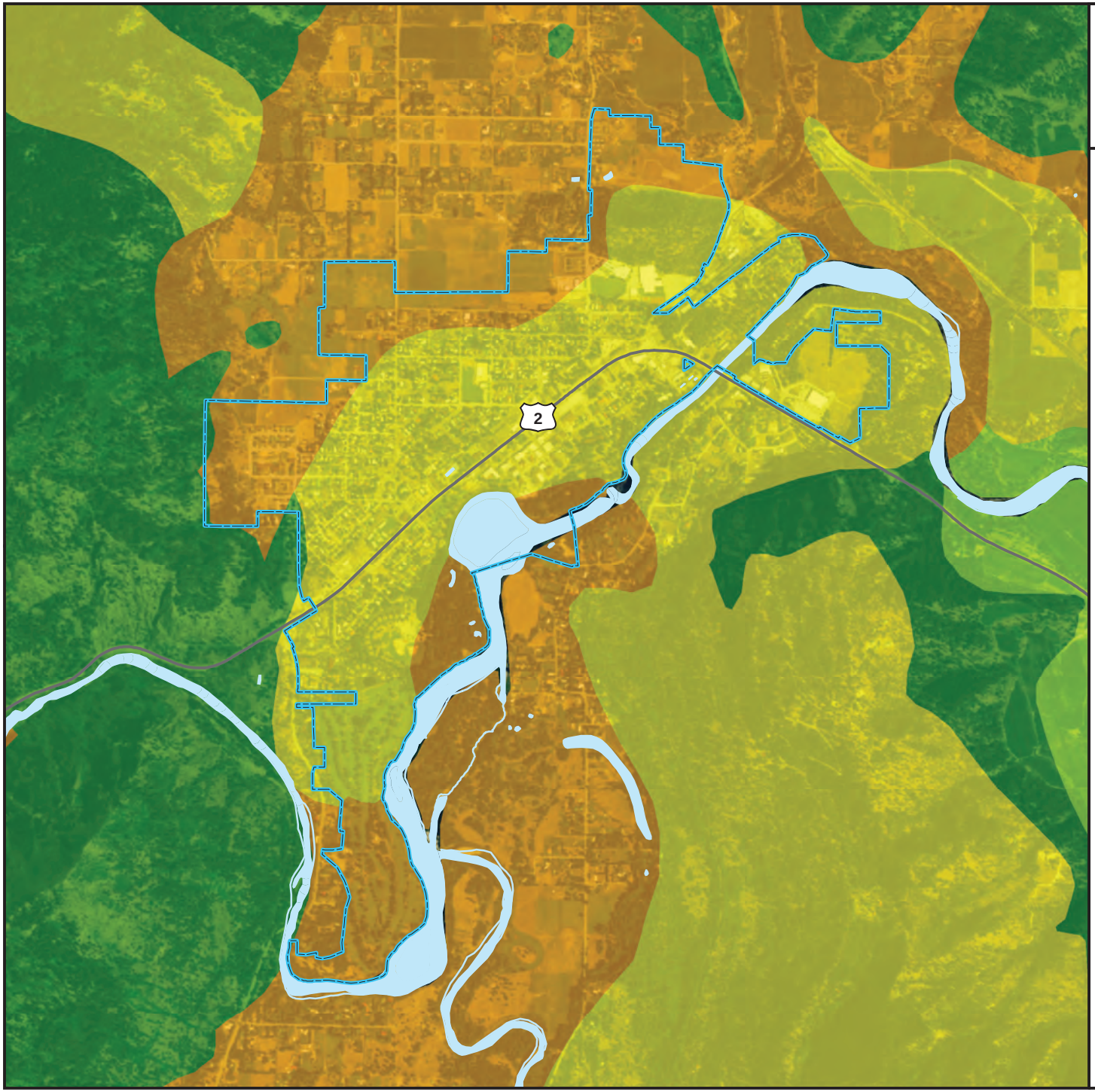
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

National Earthquake Hazards Reduction Program (NEHRP) Soil Classes

City Limits

Chelan County Boundary

Soil Type

- B / Rock
- C / Very Dense Soil - Soft Rock
- D / Stiff Soil
- E / Soft Soil

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

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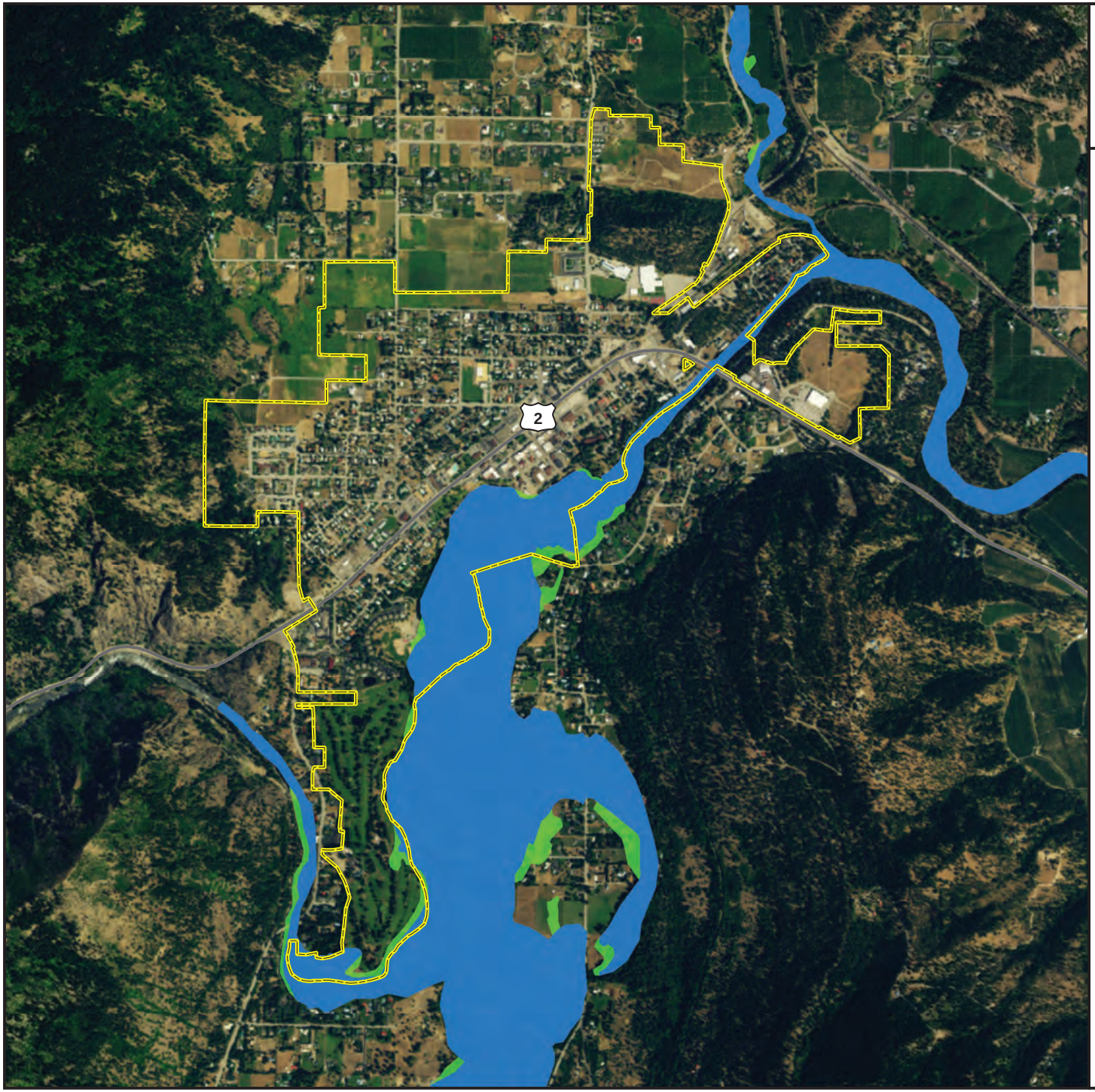
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

Flood Boundaries

City Limits

Chelan County Boundary

FEMA DFIRM Boundaries

FEMA 100-Year Flood Boundary

FEMA 500-Year Flood Boundary

FEMA Flood Hazard Boundaries are a combination of FEMA DFIRM Detailed Study Areas and FEMA Digitized Q3 Data. These data were compiled for the Chelan County Comprehensive Flood Hazard Management Plan (July 2017).

Mass Zone A (MZA), or basic approximate, analyses are used by FEMA to address program challenges including the validation of Zone A studies and the availability of flood risk data in the early stages of a Risk Mapping, Assessment, and Planning (Risk MAP) project. The STARR team conducted a MZA analysis for the Wenatchee watershed in July 2016. Data downloaded from the Washington Department of Ecology's RiskMAP website in June 2018.

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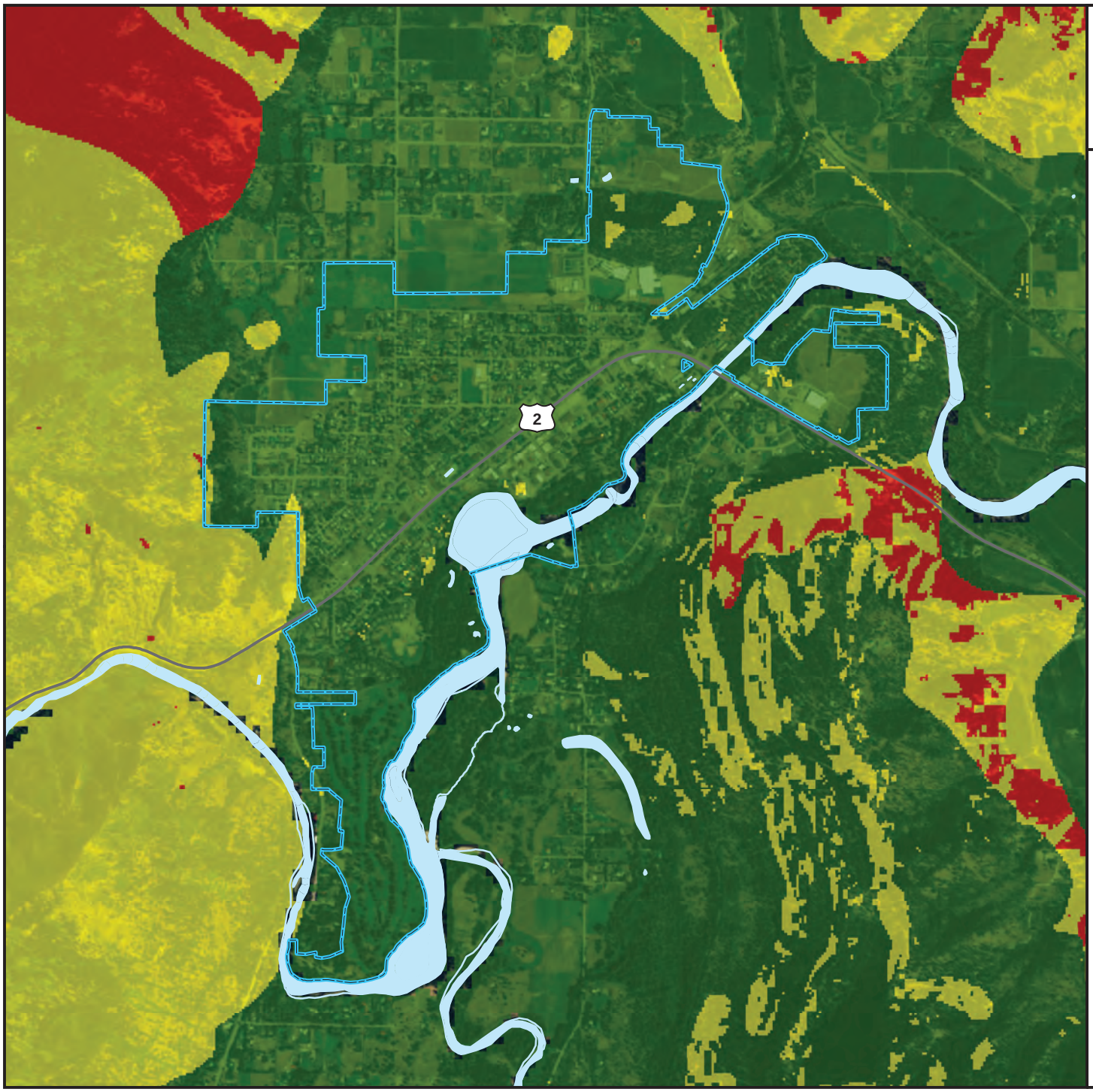
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

Deep-seated Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Deep-seated landslides occur on a failure plane below the rooting depth of vegetation, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

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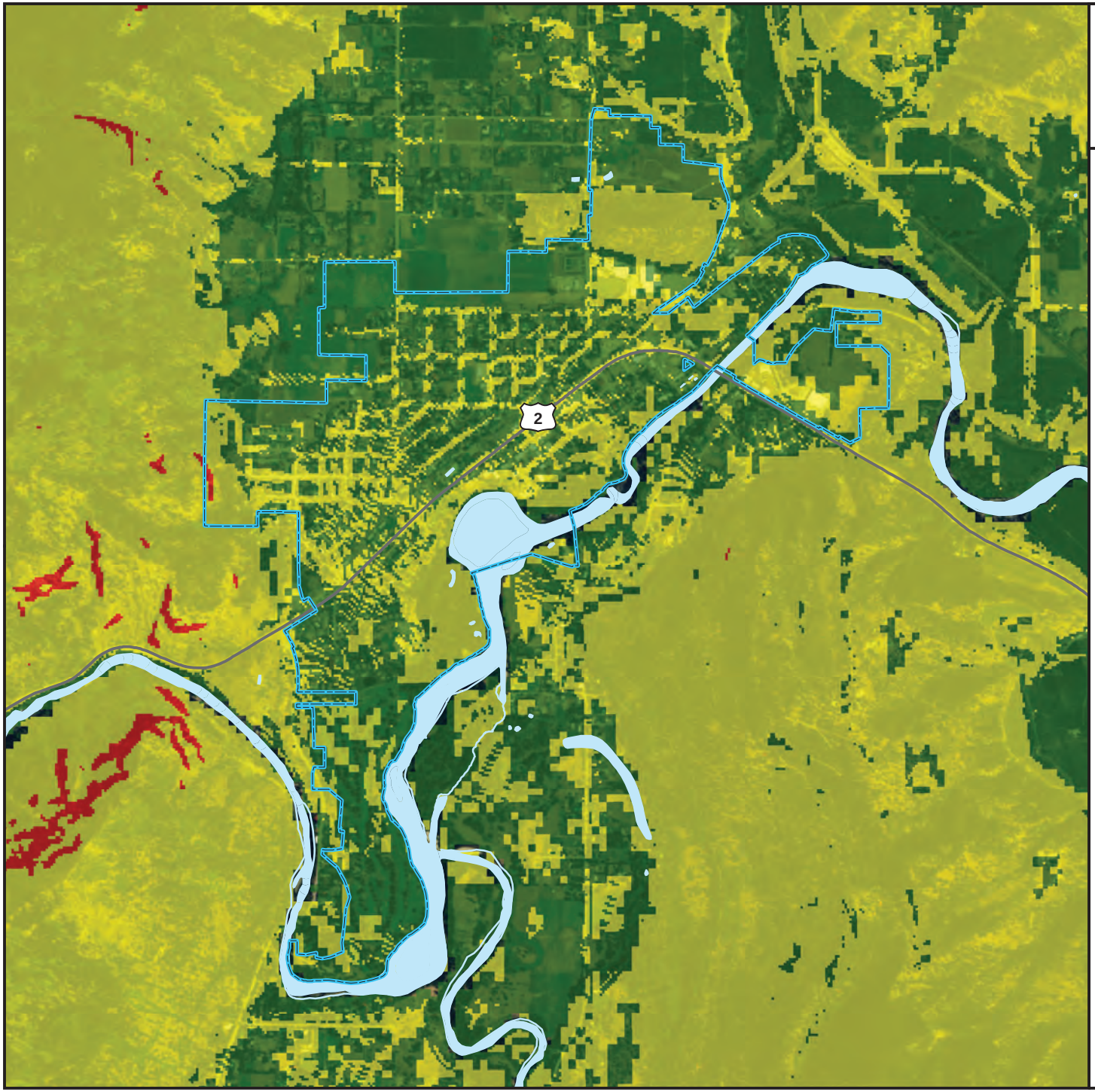
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

Shallow Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Shallow landslides typically affect only the uppermost part of the soil column, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

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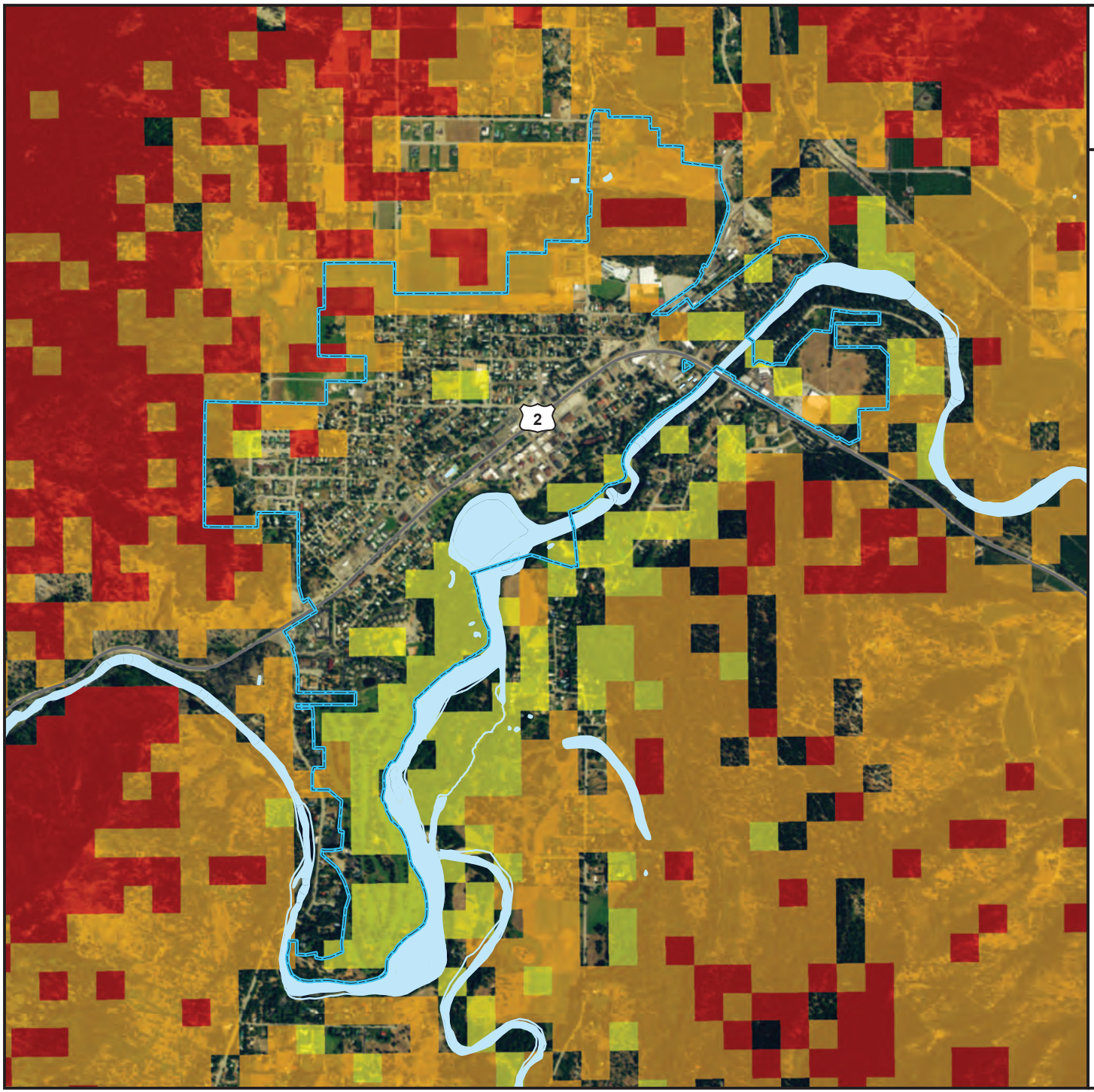
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Leavenworth

Landscape Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

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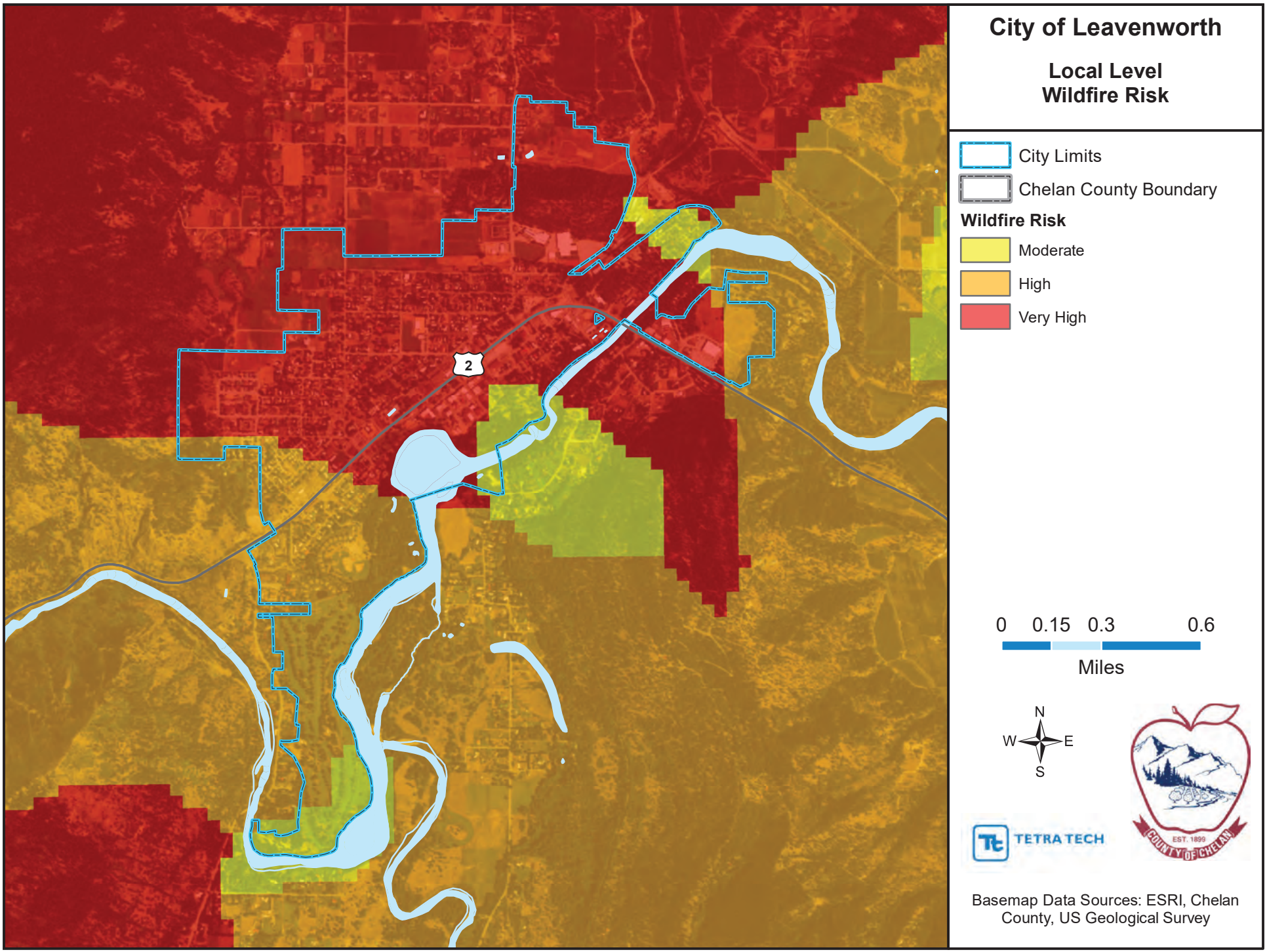
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey


City of Leavenworth
Local Level
Wildfire Risk
City Limits
Chelan County Boundary
Wildfire Risk
Moderate
High
Very High
2
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EST. 1899
COUNTY OF CHELAN
Basemap Data Sources: ESRI, Chelan County, US Geological Survey

6. CITY OF WENATCHEE

6.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
John Ricardi, Utilities Manager
1350 McKittrick St., P.O. Box 519
Wenatchee, WA 98801
Telephone: 509-888-3287
e-mail Address: jricardi@wenatcheewa.gov

Alternate Point of Contact
Cliff Burdick, Building Official
1350 McKittrick St., P.O. Box 519
Wenatchee, WA 98801
Telephone: 509-888-3257
e-mail Address: cburdick@wenatcheewa.gov

6.2 JURISDICTION PROFILE

6.2.1 Location and Description

The City of Wenatchee was incorporated on January 7, 1893. Its 2017 population was 33,962, a one-year growth of 0.26 percent (88 people).

Situated in a fertile valley in Central Washington at the confluence of the Wenatchee and Columbia Rivers, Wenatchee is the second most populous city in the central part of the state and serves as the Chelan County seat. To the south and west, mountains provide a dramatic backdrop for the City. The city's total area is

6.2.2 Brief History

Wenatchee's First Peoples and Euro-American Settlement

For thousands of years before Euro-American settlement, the area was inhabited by indigenous peoples who lived on the land. The Wenatchee were a nomadic culture and were closely bound to nature. They subsisted on salmon, roots, berries and nuts and interacted with other tribes.

The considerable amount of picturesque land available slowly attracted newcomers to the area. Beginning in ca. 1811, prior to permanent white settlement, nomadic fur traders of the British Northwest Fur Company (which later became part of the Hudson's Bay Company) traveled through the upper Columbia River region, plying the waters of the great river and exploring the rugged wilderness for fur trapping and trading opportunities. The first non-Native American settlers were gold prospectors, Chinese miners, cattlemen, and missionaries.

The first "business house" was established in ca. 1867 by two men named Ingram and McBride. They operated a trading post in what is now Rock Island and conducted trading with the Indians. Other small businesses and a hotel soon followed.

Wenatchee's population was 108 in May of 1891. By January of 1892, the population had increased to 300. The year 1892 was of great significance because of the Great Northern Railway's decision to build its train depot about one mile south of Wenatchee, thus creating a new town.

The Great Northern Railway and the Wenatchee Development Company Build a New Town

Although located as a mid-point between Spokane and Seattle, the Wenatchee Valley was largely inaccessible because it is surrounded by mountains. Despite topographical limitations, the City's great potential as a productive agricultural region and business center did not go unnoticed. With this vision in mind, a group of Seattle businessman formed the Wenatchee Improvement Company in December 1890 to acquire property and build a town.

The Great Northern Railway would eventually help spur development of new towns and provide important transcontinental service for many communities along its vast route through the upper Midwest, northern Great Plains, and the Pacific Northwest. In early 1892, the Wenatchee Development Company, in close consultation with the Great Northern Railway, surveyed and platted the present site of Wenatchee. On May 6, 1892, this plat was filed with Kittitas County (Chelan County had not yet been created), and lots were placed on the open market the same month. Within five days, $100,000 worth of property was sold.

By the late 1890s, Wenatchee was growing considerably and the need for a new county became clear. Ellensburg was the Kittitas County seat but was separated from the Wenatchee Valley by a range of mountains. It proved inaccessible during the winter except via Spokane or Seattle by railroad, making it difficult for Wenatchee citizens to make the trek to Ellensburg for business purposes. The state legislature created Chelan County in 1899, carving it out of the existing Kittitas and Okanogan Counties.

Wenatchee: Apple Capital of the World

By the late 1890s, the stage was set for Wenatchee's economic and population boom. The Wenatchee Valley's arid climate, rich volcanic soil, and proximity to the Columbia and Wenatchee Rivers proved to be an excellent combination for agricultural success.

Within a few years, the Valley was covered with row upon row of young fruit trees. Apples were shipped to all parts of the world, and more and more people, learning of 'the valley of the apples,' came here to stay. Within 25 years, Wenatchee became the center of the greatest apple-producing region in the world.

6.2.3 Climate

Wenatchee experiences a semi-arid climate with cold winters and hot, dry summers; nestled in the rain shadow of the Cascade Mountains, there are blue skies 300 days of the year.

6.2.4 Governing Body Format

The City of Wenatchee is led by an elected Mayor and City Council. The Mayor's Office includes the Mayor, Executive Services Director, City Clerk and Public Information Officer.

Serving as the highest elected official in the municipal government, the Mayor holds administrative authority, including veto power. As such, the Mayor provides the necessary leadership and direction to implement the goals and strategies of the City.

6.3 DEVELOPMENT TRENDS

The City of Wenatchee, with a current tax valuation of $1,894,796,901, anticipates a decline in agricultural land use, modest gains in commercial and industrial land uses, and an increase in residential land uses. The City estimates that by 2023 there will be no agriculturally used land, or, any unused land within the City limits. In general, development trends for the City of Wenatchee indicate that 10% of the jurisdiction is still open for development, development is occurring rapidly and somewhat faster than planned, and expansion, redevelopment,

and/or construction is occurring to some properties in a few locations. The City of Wenatchee has also recently adopted new mixed-use zoning districts along the Columbia River, and that will provide both residential and commercial opportunities, while increasing access to existing recreational facilities.

Table 6-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 6-1. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	Yes 1513 Acres; currently 678 parcels
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	Yes Any areas within the Wenatchee Urban Growth Area could potentially be annexed into the City assuming the proposed annexation area meets the applicable requirements for contiguity. Most of these areas are of a residential or rural nature and are zoned residential. Two exceptions to this include an area south of City Limits along S Wenatchee Ave/Malaga Alcoa Highway which is used and zoned commercial/industrial. Another is an area near the intersection of School St and Easy St where there is zoning for neighborhood commercial but the current use is of a residential/rural nature. Chelan County has permitting authority in the unincorporated areas of the Urban Growth Area.
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	Yes The areas targeted for development include redevelopment of the commercial and residential districts in the urban core, a large tract of land in the western foothills currently in orchard, and infill development/densification in the existing residential neighborhoods. The Western Foothills developments are in hazard areas including wildfire and critical areas for slope stability and drainage. Infill development is anticipated in the existing neighborhoods located in the flood zone areas.
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	

	2014	2015	2016	2017	2018
Single Family	36	74	72	33	38
Multi-Family	4	7	8	12	11
Other (commercial, mixed use, etc.)	12	8	6	23	13

Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: Data not available • Landslide: Data not available • High Liquefaction Areas: N/A • Tsunami Inundation Area: N/A • Wildfire Risk Areas: 357, considering the whole city to be within the Wildfire Risk Area
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City of Wenatchee's Land Capacity Analysis indicates that land supply is sufficient to accommodate the necessary new housing units in the 20 year horizon. Not including the potential for redevelopment of underutilized land, the analysis identifies a capacity to accommodate 4,458 new housing units, which exceeds the projected new 2,497 housing units which need to be accommodated in the 20 year planning period.

6.4 CAPABILITY ASSESSMENT

City of Wenatchee has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 6-2.
- Development and permitting capabilities are presented in Table 6-3.
- An assessment of fiscal capabilities is presented in Table 6-4.
- An assessment of administrative and technical capabilities is presented in Table 6-5.
- An assessment of education and outreach capabilities is presented in Table 6-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 6-7.
- Classifications under various community mitigation programs are presented in Table 6-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 6-9.

Table 6-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
Comment: The 2015 International Building Code published by the International Code Council, Inc. (ICC), with amendments as set forth in Chapter 51-50 WAC as the same exists now or may hereafter be amended. (Ord. 2016-12 § 1; Ord. 2013-17 § 1; Ord. 2010-13 § 1; Ord. 2007-30 § 1; Ord. 2004-25 § 2) The 2015 International Residential Code published by the International Code Council, Inc. (ICC), with amendments as set forth in Chapter 51-51 WAC as the same exists now or may hereafter be amended (Ord. 2016-12 § 1; Ord. 2013-17 § 1; Ord. 2010-13 § 1; Ord. 2007-30 § 1; Ord. 2004-25 § 2) The 2015 International Mechanical Code published by the International Code Council, Inc. (ICC), with amendments as set forth in Chapter 51-52 WAC as the same exists now or may hereafter be amended. (Ord. 2016-12 § 1; Ord. 2013-17 § 1; Ord. 2010-13 § 1; Ord. 2007-30 § 1; Ord. 2004-25 § 2) the 2015 Uniform Plumbing Code (UPC), including Appendices A, B and I, and Uniform Plumbing Code Standards, published by the International Association of Plumbing and Mechanical Officials, with amendments as set forth in Chapter 51-56 WAC as the same exists now or may hereafter be amended (Ord. 2016-12 § 1; Ord. 2013-17 § 1; Ord. 2010-13 § 1; Ord. 2007-30 § 1; Ord. 2004-25 § 2)			
Zoning Code	Yes	No	Yes	Yes
Comment: Use Districts City of Wenatchee Code Chapter 10.6 Ord. 2010-03 § 1 (Exh. A); Ord. 2007-34 § 2 (Exh. A)				
Subdivisions	Yes	No	Yes	Yes
Comment: Subdivisions City of Wenatchee Code Title 11 The Wenatchee Urban Area Comprehensive Plan shall guide the use of all land within the city. The type and intensity of land use as shown on the comprehensive plan shall be used as a guide to determine the character of land division, including lot size and arrangement and the type and extent of streets and roads, highways, dedications, improvements, services, and other utilities and public facilities. Ord. 2010-24 § 1; Ord. 3080 § 104, 1994 Wenactchee City Code Chapter 11.12 Short Subdivisions Ord. 2012-11 § 3 (Exh. A); Ord. 2010-24 § 1; Ord. 98-9 § 3; Ord. 3080 § 300, 1994 Wenatchee City Code Chapter 11.15 Major Subdivisions Ord. 2012-11 § 3 (Exh. A); Ord. 2010-24 § 1; Ord. 3080 § 404, 1994 Wenatchee City Code Chapter 11.20 Subdivision Design Standards Ord. 2018-13 § 1 (Exh. B); Ord. 2017-16 § 2 (Exh. B); Ord. 2013-41 § 1 (Exh. B); Ord. 2010-24 § 1; Ord. 99-38 §§ 1, 2; Ord. 3080 § 502, 1994 Wenacthee City Code Chapter 11.32 Cluster Subdivisions, Binding Site Plans and Unit Lot Subdivisions Ord. 2017-16 § 2 (Exh. B); Ord. 2010-24 § 1; Ord. 98-40 § 4; Ord. 3080 § 800, 1994			

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Stormwater Management	Yes	No	Yes	Yes
Comment: Stormwater Illicit Discharge Detection and Elimintion Ord. 2018-38 § 1; Ord. 2009-12 § 1 Stormwater Ord. 2018-38 § 1; Ord. 2009-29 § 1; Ord. 2009-12 § 1 Construction and Post Construction Ord. 2017-22 § 1; Ord. 2010-01 § 1				
Post-Disaster Recovery	No	Yes	No	Yes
Comment: State and FEMA				
Real Estate Disclosure	No	No	No	No
Comment:				
Growth Management	Yes	No	Yes	Yes
Comment: City of Wenatchee Code Chapter 12.08 pertains to following the State of Washington Growth Management Act Ord. 2018-16 § 2 (Exh. B)				
Site Plan Review	Yes	No	No	Yes
Comment: Planned Development Review (Ord. 2010-03 § 1 (Exh. A); Ord. 2007-34 § 2 (Exh. A)) Residential Planned Development (RPD). Ord. 2017-16 § 2 (Exh. B); Ord. 2010-03 § 1 (Exh. A); Ord. 2007-34 § 2 (Exh. A) Hospital Planned Development (HPD) Ord. 2010-03 § 1 (Exh. A); Ord. 2007-34 § 2 (Exh. A)				
Environmental Protection	Yes	No	Yes	Yes
Comment: Critical Areas City of Wenatchee Code Chapter 12.08 Ord. 2018-16 § 2 (Exh. B)				
Flood Damage Prevention	Yes	Yes	Yes	Yes
Comment: FLOOD HAZARD PREVENTION City of Wenatchee Code Chapter 2.05, Ord. 2016-02 § 1; Ord. 2004-18 § 1				
Emergency Management	Yes	Yes	No	Yes
Comment: EMERGENCY MANAGEMENT ORGANIZATION (Ord. 2000-18 § 1) Director Ord. 2015-14 § 1; Ord. 2000-18 § 2 The emergency management organization shall have all powers granted under Chapter 38.52 RCW as now or hereafter amended and as may otherwise be provided by law. Ord. 2000-18 § 3				
Climate Change	No	No	No	No
Comment:				
Planning Documents				
General Plan	Yes	No	Yes	Yes
Comment: Resolution 2017-35				
Capital Improvement Plan	Yes	No	Yes	Yes
How often is the plan updated? Yearly				
Comment: Resolution 2018-51				
Disaster Debris Management Plan	No	No	No	No
Comment:				
Floodplain or Watershed Plan	Yes	Yes	No	Yes
Comment: WCC Chap. 2.05 Flood Hazard Prevention Ordinance, , Chelan County Flood Hazard Management Plan				
Stormwater Plan	Yes	No	No	Yes
Comment:				
Urban Water Management Plan	No	No	No	No
Comment:				
Habitat Conservation Plan	Yes	No	Yes	Yes
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Economic Development Plan	No	No	No	No
Comment:				
Shoreline Management Plan	Yes	No	Yes	Yes
Comment:				
Community Wildfire Protection Plan	Yes	Yes	No	Yes
Comment: Currently in Draft Form				
Forest Management Plan	No	No	No	NO
Comment: City of Wenatchee not in a forest environment				
Climate Action Plan	No	No	No	No
Comment:				
Comprehensive Emergency Management Plan	Yes	Yes	Yes	Yes
Comment: Chelan County Plan				
Threat & Hazard Identification & Risk Assessment	Yes	Yes	Yes	Yes
Comment: Chelan County Assessment				
Post-Disaster Recovery Plan	No	No	No	Yes
Comment:				
Continuity of Operations Plan	No	No	No	Yes
Comment:				
Public Health Plan	No	No	No	No
Comment:				

Table 6-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Yes Community Development
Does your jurisdiction have the ability to track permits by hazard area?	No, could work toward having this capability with GIS
Does your jurisdiction have a buildable lands inventory?	Yes

Table 6-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes, Water, Sewer & Stormwater
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

Table 6-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Glen DeVries, Community Development Director, GDeVries@WenatcheeWA.Gov, (509) 888-3252
Engineers or professionals trained in building or infrastructure construction practices	Yes	Donald Nelson, Development Review Engineer, DNelson@WenatcheeWA.Gov, (509) 888-3255
Planners or engineers with an understanding of natural hazards	Yes	Contract Support
Staff with training in benefit/cost analysis	Yes	Jacob Huylar, JHuylar@WenatcheeWA.Gov, (509) 888-3224
Surveyors	Yes	Contract Support
Personnel skilled or trained in GIS applications	Yes	Matt Collins, MCollins@WenatcheeWA.Gov, (509) 888-3237
Scientist familiar with natural hazards in local area	Yes	Contract Support
Emergency manager	Yes	Contract with Chelan County Emergency Management Department, Stan Smoke, Stan.Smoke@CO.CHELAN.WA.US
Grant writers	Yes	Glen DeVries, Community Development Director, GDeVries@WenatcheeWA.Gov, (509) 888-3252
Other	No	

Table 6-6. Education and Outreach Capability

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, briefly describe.**	Yes Canyon drain flooding
Do you use social media for hazard mitigation education and outreach? • **If yes, briefly describe.**	No N/A
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, briefly describe.**	Yes Chelan County Flood Control Zone District Plan
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, briefly describe.**	Yes Utility programs code enforcement
Do you have any established warning systems for hazard events? • **If yes, briefly describe.**	Yes Chelan County Emergency Management.

Table 6-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	City of Wenatchee
Who is your floodplain administrator? (department/position)	Cliff Burdick, Building and Fire Code Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	2016
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	Meets N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	2016
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, state what they are.**	NO N/A
Are any RiskMAP projects currently underway in your jurisdiction? • **If so, state what they are.**	Yes FEMA is studying Flood Zones Currently
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, state why.**	Yes N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	No N/A
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving its CRS Classification?** • **If no, is your jurisdiction interested in joining the CRS program?**	No No No
How many flood insurance policies are in force in your jurisdiction?[a] • **What is the insurance in force?** • **What is the premium in force?**	347 $83,852,400 $267,736
How many total loss claims have been filed in your jurisdiction?[a] • **How many claims are still open or were closed without payment?** • **What were the total payments for losses?**	Unknown Unknown Unknown

a. According to FEMA statistics as of January 1, 2016

Table 6-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No		
Building Code Effectiveness Grading Schedule	Yes	4/3	4/07/2010
Public Protection	No		
Storm Ready	No		
Firewise	No		

Table 6-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Low
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:*** *Resolution 2010-44 Greenhouse Gas Reduction Policy*	Medium
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Low
Local residents support of adaptation efforts ***Comment:***	Low
Local residents' capacity to adapt to climate impacts ***Comment:***	Low
Local economy current capacity to adapt to climate impacts ***Comment:***	Low
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Low

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

6.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

6.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, City of Wenatchee made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Capital Improvement Plan**—The capital improvement plan includes projects can help mitigate potential hazards. The City will act to ensure consistency between the hazard mitigation plan and the current and future capital improvement plans. The hazard mitigation plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on results of the risk assessment.
- **Building Code and Other Reference Codes**—The City or Wenatchee utilizes Chapter 2.04 in the City of Wenatchee's Municipal Code that referenced all the adopted building codes with incorporated local modifications to account for the climatic, topographic and geographic conditions that exist in the City.

6.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, City of Wenatchee will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

Wenatchee Urban Area Comprehensive Plan

The City of Wenatchee Comprehensive Plan is the governing document providing guidance and direction to City Government in its actions and implementation of principles for community development. People often associate community development with increases in population and the expansion of municipal boundaries. The City of Wenatchee's Comprehensive Plan does specifically address population growth, but of equal importance it addresses improvements to the community in terms of quality of life. The City of Wenatchee's approach to community development is to reach across the entire community to look at social and economic issues, historical assets, cultural values, the sustainability of the community, condition of housing, and impacts to neighborhoods including infrastructure, community facilities, transportation networks, and safety, among others.

Since Wenatchee does not have great expanses of land to grow outward, much of the focus of the plan is to address improvements of what we have. We see this land area constraint as both a challenge and opportunity as Wenatchee has unique values that make our city a special place to those who do business here and to those who call it home.

In 2016 – 2017, the Comprehensive Plan went through a major update that was adopted in 2017 as required by the Growth Management Act. The plan, however, is a living document and may be updated with minor edits annually. The next major plan review and update is due in 2025. We welcome input and participation regarding all of our adopted plans.

Comprehensive Stormwater Plan

The City of Wenatchee has proactively addressed stormwater runoff in the urban area for decades. Some of the first stormwater mains were installed over 70 years ago. Today the stormwater conveyance system stretches across the city and includes thousands of catch basins and close to seventy-five miles of pipe. In 1994, the City established a stormwater utility to protect property, provide urban flood control, and fund maintenance and improvements to the stormwater system. A Stormwater Management Plan was completed in 2000 to plan for future development and growth. Since 2000, the City has made significant improvements throughout the stormwater system. New developments have also added stormwater infrastructure as the city has grown west up the hills and canyons. In addition, regulations have changed, thus increasing the level of administration, maintenance, and adding treatment requirements for stormwater. The City has hired consultants to update the Comprehensive Stormwater Plan in 2010 and is currently updating the Plan in 2019. The Comprehensive Stormwater Plan includes planning and engineering strategies to meet stormwater capacity for the next 6 to 10 years as well as upcoming water quality requirements.

Water System Plan

This Water System Plan (WSP) is separated into two volumes. Volume 1 (this document) describes the City of Wenatchee (City's) distribution system within its service area. Volume 2 describes the Regional Water System wholesale supply and transmission system, which provides water to the City, Public Utility District No. 1 of Chelan County (PUD), and the East Wenatchee Water District (EWWD). The City's domestic water system serves approximately 28,000 people within 3,200 acres. The service area population is estimated to increase to 37,000 people in 50 years. The City's water system provides service to approximately 80 percent of the population within the City limits. The other 20 percent is served by the PUD. The City's service area adjoins that of the PUD and is not expected to change in the foreseeable future. Growth in the service area occur on a small amount of remaining undeveloped land (3 percent of the service area), and redevelopment of occupied land to high density residential use.

The City's WSP provides an in-depth evaluation of the City's supply and distribution systems to determine improvements that are necessary to meet the water system demands in the service area. The improvements are intended to provide the level of service required by the City's *Comprehensive Land Use Plan* prepared in accordance with the requirements of the Growth Management Act (GMA), and to meet the State mandate that municipal water systems supply adequate, safe, and reliable water to their customers. The WSP evaluation has the following broad objectives; supply, storage, distribution, water quality, system operation and maintenance, financial capacity, design and construction standards.

Sewer Comprehensive Plan

The Sewer Comprehensive Plan for the City of Wenatchee (City) addresses the City's planning needs for wastewater collection, transmission, treatment, and disposal for the 20-year planning period. The 2017 Plan was prepared in accordance with the provisions of the Revised Code of Washington (RCW) Section 90.48, Water Pollution Control, Washington Administrative Code (WAC) Section 173-240-050, General Sewer Plan, and WAC 173-240-060, Engineering Report. Development of the 2017 Plan was coordinated with the City of Wenatchee's Comprehensive Water System Plan (2012) and the 2016 Wastewater Treatment Plant Facilities Plan. The 2017 Plan provides proposed conceptual designs, cost estimates, a schedule, and a financing plan for recommended major system improvements. The projects described in the Plan are consistent with Washington State regulations

relating to the prevention and control of discharge of pollutants into waters of the state, anti-degradation of existing and future beneficial uses of groundwater, and anti-degradation of surface water.

Wastewater Treatment Plant Facilities Plan

The primary purposes of this plan are to update the facility flow and loading projections that correlate to more recent data collected following the recent upgrades to the wastewater treatment facility that included a new Screenings Building; Evaluate facility unit process capacity and to show that adequate capacity exists to treat the projected influent flows and loads through the planning period; and Recommend process improvements to provide for needed process unit redundancy and to assure capacity is available for future wastewater flows. The planning period for the plan is years 2015 through 2035 (20 years).

Capital Facilities Plan

The Capital Facilities Plan provides a comprehensive project list and schedule guiding the investment of City resources in infrastructure. These resources are made up of local revenues as well as State and Federal grants. The CFP identifies those projects which have secured funding as well as a list of projects which have not yet been funded. The funded projects relating to the sewer collection system within this Plan include the Princeton Sewer Extension, Sewer Infill Extension projects, and projects at the WWTP such as grit removal and UV disinfection system improvements, as well as the Digester No. 4 project and a third secondary clarifier. There were also various annual sewer system repair and replacement projects. These were funded from either revenue bonds or reserves.

Wenatchee Valley Stormwater Management Program

The Wenatchee Valley Stormwater Technical Advisory Committee (WVSTAC) was formed in January 2004 through a memorandum of understanding between Chelan County, Douglas County, the City of East Wenatchee and the City of Wenatchee. The goal of this committee is to develop a regional stormwater program and meet the requirements of the Eastern Washington Phase II Municipal Stormwater Permit.

6.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 6-10 lists past occurrences of natural hazards for which specific damage was recorded in City of Wenatchee. Other hazard events that broadly affected the entire planning area, including City of Wenatchee, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 6-10. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Horselake Fire *(Human caused)*	NA	09/04/2016	$50,000; Historical Barn Lost / Unk acreage
Cranmer Road Landslide *(Natural event)*	NA	05/06/2016	$400,000; 2 residences affected
Whispering Ridge Landslide *(Natural event)*	NA	03/17/2016	$400,000; 1 residence damaged
Sleepy Hollow Fire *(Arson cause)*	FM-5087-WA	06/28/2015	$22,000,000+; DESTROYED: 29 Residences; 4 Commercial Businesses; 1 Outbuilding; 2,950 acres
Wenatchee Complex Fires—*Peavine Fire; Poison Cyn Fire; Canyons Fire; Twin Peaks Fire* *(Lightning strikes)*	FM-5012-WA	09/08/2012	$20,000; DESTROYED: 1 outbuilding; 56,478 acres

Type of Event	FEMA Disaster #	Date	Damage Assessment
Byrd Canyon Fire *(Lightning strike caused)*	NA	09/08/2012	No known structures damaged; 14,119 acres
Wenatchee River Complex—*Nahahun Cyn Fire; Tripp Cyn Fire; Devils Gulch Fire (Lightning Strikes)*	NA; No FMAG declared	07/30/2010	$100,000; DESTROYED: Building supplies; 2,065 acres
Easy Street Fire *(Unknown cause)*	FM-2711-WA	07/07/2007	$60,000; DESTROYED: 3 outbuildings; 2,500+ acres
Wind Storm – Wenatchee *(Natural event)*	NA	12/472006	$3,292,842; DESTROYED: fire station; DAMAGED: Numerous homes, outbuildings, power poles/lines, trees
Tyee Fire – COMPLEX—*Tyee Fire; Hatchery Creek Fire: Round Mountain Fire* **(***lightning caused)*	FSA-2103-WA *(includes Hatchery Creek Complex Fire)*	07/24/1994	$17,711,728 - total complex; DESTROYED: 37 Structures (residences / outbuildings); 135,000 acres
Castle Rock Fire *(Human caused)*	NA	09/26/1992	$5,000,000 (estimate); DESTROYED: 24 residences; 6 outbuildings; 3,500 acres
Mount St Helens Ash Fallout	DR-623	05/18/1980	Unknown Damage Estimate

6.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include the following areas, which reference the Stormwater Comprehensive Plan:

- Love's Court - Problem area A, Section 8.4.1.3
- Peachey Street, Section 8.4.1.9
- South Miller Street, Section 8.4.1.13
- 1st Street - Problem Area D, Section 8.4.1.14
- Canal Boulevard, Section 8.4.1.27
- Springwater Street, Section 8.4.1.28
- Princeton Street, Secton 8.4.1.30
- Pershing Street, Section 8.4.1.31
- Springwater Street, Section 8.4.1.45
- Michael Place S. of Fifth St. and W. of Miller St - Problem Area E, Section 8.4.1.49
- Ringold Street, East of WVC - Problem Area F, Section 8.4.1.50
- Fifth St. Outfall East of Wenatchee Avenue - Problem Area J, Section 8.4.1.52
- Cedarwood Lane Area, North of 5th Street - Problem Area K, Section 8.4.1.43
- Walnut Place, S. of Walnut Street - Problem Area N, Section 8.4.1.55
- Western Ave Drainage Improvements, Section 9.2.3
- Pershing Drainage Improvements, Section 9.2.4
- Filbeck Drainage Improvements, Section 9.2.5
- Seattle Drainage Improvements, Section 9.2.6

- Romana and Sunset Drainage Improvements, Section 9.2.8
- Kenaston and Linville Drainage Improvements, Section 9.2.10
- Poplar Drainage Improvements, Section 9.2.15
- Day Road Drainage Improvements, Section 9.2.17
- North Wenatchee Stormwater Facility Improvements, Section 9.2.18
- Linden Tree Phase 2 Facility Improvements, Section 9.2.29

6.8 HAZARD RISK RANKING

Table 6-11 presents a local ranking for City of Wenatchee of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 6-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Severe Weather	45	High
3	Flooding	42	High
4	Earthquake	34	High
5	Landslide	18	Medium
6	Dam Failure	12	Low
7	Drought	6	Low
8	Avalanche	n/a	Low

6.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 6-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 6-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Wild Fire Priority 1. Continue enforcement of planning, zoning, and building codes within wildland urban interface areas of the City.			X	W-6
Comment: Change wording to, "Continue enforcement of and look for opportunity to update the planning, zoning, and building codes within wildland urban interface areas of the City"				
Wild Fire Priority 2. Continue public education programs that emphasize fire defensible space through FireWise landscaping.			X	W-7
Comment:				
Wild Fire Priority 3. Continue emphasis of automatic and mutual aid agreements to ensure efficient fire response and use of resources.		X		
Comment: *No longer have a fire department, delete this action*				
Severe Storm Priority 1. Early warning from the National Weather Service and public notification from the emergency alert system.			X	W-8
Comment:				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Severe Storm Priority 2. Community public education and preparedness for disasters.			X	W-9
Comment:				
Severe Priority 3. Maintain emergency response plans that include warning, evacuation, emergency shelters, and other emergency procedures.			X	W-10
Comment:				
Flood Priority 1. Strict floodplain zoning / regulations both in the current city limits and the urban growth area.			X	W-11
Comment:				
Flood Priority 2. Public education to alert the public of flooding hazards.			X	W-12
Comment:				
Flood Priority 3. Maintain emergency response plans that include warning, evacuation, emergency shelters, and other emergency procedures.		X		
Comment: *Repeat of Severe Priority 1*				
Flood Priority 4. Encourage and support watershed monitoring and rehabilitation practices for fire burn areas surrounding the city.			X	W-13
Comment:				
Earthquake Priority 1. Continued enforcement of building and fire code requirements.		X		
Comment: *Repeat and part of normal day to day operations*				
Earthquake Priority 2. Community public education and preparedness for disasters.		X		
Comment: *Repeat of Severe Storm Priority 2*				
Earthquake Priority 3. Maintain emergency response plans that include warning, evacuation, emergency shelters, and other emergency procedures.		X		
Comment: *Repeat of Severe Priority 3*				
Earthquake Priority 4. Maintain emergency response readiness through disaster training and exercises.			X	W-14
Comment:				
Landslide Priority 1. Development of appropriate land use controls as City expands into Wenatchee Foothills and No. 1 and No. 2 Canyons.			X	W-15
Comment:				

6.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 6-13 lists the actions that make up the City of Wenatchee hazard mitigation action plan. Table 6-14 identifies the priority for each action. Table 6-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 6-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
W-1 – Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	4, 5, 8, 11	Community Development Department	Public Works	High	HMGP, PDM, FMA	Short-term
W-2 – Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including Wenatchee Urban Area Comprehensive Plan, Comprehensive Stormwater Plan, Water System Plan, Sewer Comprehensive Plan, Wastewater Treatment Plant Facilities Plan, Capital Facilities Plan, Wenatchee Valley Stormwater Management Program							
New and Existing	All Hazards	1, 7	Community Development Department	Public Works	Low	Staff Time, General Funds	Ongoing
W-3 – Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	1, 2, 5, 7, 9, 10, 11	Public Works	Community Development Department	Low	Staff Time, General Funds	Short-term
W-4 Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flooding	2, 4, 6, 7, 08, 09, 11	Community Development Department	Public Works	Low	Staff Time, General Funds	Ongoing
W-5 —Conduct a seismic risk assessment on all City of Wenatchee facilities							
New and Existing	Earthquake	4, 6, 7	Community Development Department	Public Works	High	General Funds	Mid-Term
W-6 – Continue enforcement of and look for opportunity to update the planning, zoning, and building codes within wildland urban interface areas of the City							
New and Existing	Fire	3, 5, 6, 8, 11	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing
W-7 —Continue public education programs that emphasize fire defensible space through FireWise landscaping.							
New and Existing	Fire	3, 5, 6, 8, 11	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing
W-8 – Enhance **e**arly warning systems from the National Weather Service and public notification from the emergency alert system.							
New and Existing	Severe Weather	1, 9	TBD	TBD	Low	Staff time, General Funds	Ongoing
W-9—Community public education and preparedness for disasters.							
New and Existing	Severe Weather	1, 2, 5, 9 10	TBD	TBD	Low	Staff time, General Funds	Ongoing
W-10 —Maintain emergency response plans that include warning, evacuation, emergency shelters, and other emergency procedures.							
New and Existing	Severe Weather	1, 2	TBD	TBD	Low	Staff time, General Funds	Ongoing
W-11 —Adopt strict floodplain zoning / regulations both in the current city limits and the urban growth area.							
New and Existing	Flooding	4, 6, 8	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing
W-12 —Public education to alert the public of flooding hazards							
New and Existing	Flooding	1, 7	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
W-13 – Encourage and support watershed monitoring and rehabilitation practices for fire burn areas surrounding the city.							
New and Existing	Flooding	1, 7	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing
W-14 – Maintain emergency response readiness through disaster training and exercises.							
New and Existing	Earthquake	1, 9	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing
W-15 – Development of appropriate land use controls as City expands into Wenatchee Foothills and No. 1 and No. 2 Canyons.							
New and Existing	Earthquake	7, 11	Community Development Department	Public Works	Low	Staff time, General Funds	Ongoing

Table 6-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
W-1	4	High	High	Yes	Yes	No	Medium	High
W-2	2	Medium	Low	Yes	No	Yes	High	Low
W-3	7	Low	Low	Yes	No	Yes	High	Low
W-4	7	Medium	Low	Yes	No	Yes	High	Low
W-5	3	High	High	Yes	Yes	No	Medium	High
W-6	5	Medium	Low	Yes	No	Yes	Medium	Low
W-7	5	Medium	Low	Yes	No	Yes	Medium	Low
W-8	2	Medium	Low	Yes	No	No	Low	Low
W-9	5	Medium	Low	Yes	Yes	No	Medium	Low
W-10	2	Medium	Low	Yes	Yes	No	Medium	Low
W-11	3	Medium	Low	Yes	Yes	Yes	Medium	Low
W-12	2	Medium	Low	Yes	Yes	Yes	Medium	Low
W-13	2	Medium	Low	Yes	No	Yes	Medium	Low
W-14	2	Medium	Low	Yes	No	Yes	Medium	Low
W-15	2	Medium	Low	Yes	No	Yes	Medium	Low

a. See the introduction to this volume for explanation of priorities.

Table 6-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	W-1, 6	W-1, 6	W3, 6, 7, 9, 14	W13,	W7,	W6,	W3,	W2, 6,
Severe Weather	W-1,	W-1,	W3, 8, 9, 14		W8, 10		W3,	W2,
Flooding	W-1, 4,	W-1, 4,	W3, 9, 11, 12, 14	W4,	W11,		W3,	W2, 11
Earthquake	W-1, 5	W-1, 5,	W3, 9, 14			W5, 15	W3,	W2, 15
Landslide	W-1,	W-1,	W3, 9, 14			W5,	W3,	W2,
Dam Failure	W-1,	W-1,	W3, 9, 14				W3,	W2,
Drought	W-1,	W-1,	W3, 9, 14				W3,	W2,

a. See the introduction to this volume for explanation of mitigation types.

6.11 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Wenatchee Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **City of Wenatchee Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.

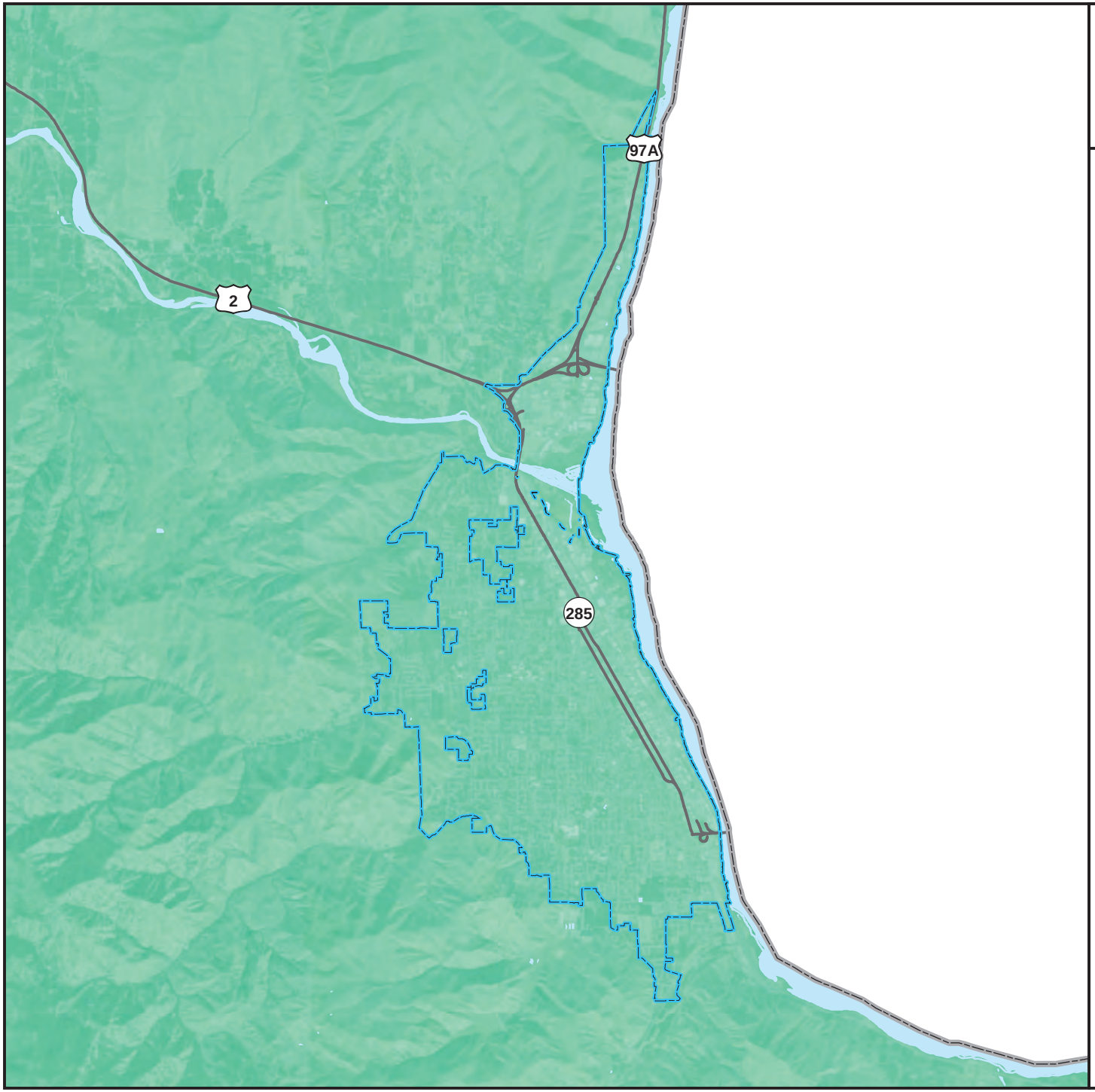
The following **o**utside resources and references were reviewed:

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
- **Stormwater Comprehensive Plan**—Projects are as follows:

  - Love's Court - Problem area A, Section 8.4.1.3
  - Peachey Street, Section 8.4.1.9
  - South Miller Street, Section 8.4.1.13
  - 1st Street - Problem Area D, Section 8.4.1.14
  - Canal Boulevard, Section 8.4.1.27
  - Springwater Street, Section 8.4.1.28
  - Princeton Street, Secton 8.4.1.30
  - Pershing Street, Section 8.4.1.31
  - Springwater Street, Section 8.4.1.45
  - Michael Place S. of Fifth St. and W. of Miller St - Problem Area E, Section 8.4.1.49
  - Ringold Street, East of WVC - Problem Area F, Section 8.4.1.50
  - Fifth St. Outfall East of Wenatchee Avenue - Problem Area J, Section 8.4.1.52
  - Cedarwood Lane Area, North of 5th Street - Problem Area K, Section 8.4.1.43
  - Walnut Place, S. of Walnut Street - Problem Area N, Section 8.4.1.55
  - Western Ave Drainage Improvements, Section 9.2.3
  - Pershing Drainage Improvements, Section 9.2.4
  - Filbeck Drainage Improvements, Section 9.2.5

  - Seattle Drainage Improvements, Section 9.2.6
  - Romana and Sunset Drainage Improvements, Section 9.2.8
  - Kenaston and Linville Drainage Improvements, Section 9.2.10
  - Poplar Drainage Improvements, Section 9.2.15
  - Day Road Drainage Improvements, Section 9.2.17
  - North Wenatchee Stormwater Facility Improvements, Section 9.2.18
  - Linden Tree Phase 2 Facility Improvements, Section 9.2.29

- Comprehensive Sewer Plan



City of Wenatchee

Cascadia M9.0 (2016) ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

V (Very Light/Moderate)

0 0.5 1 2

Miles

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W E
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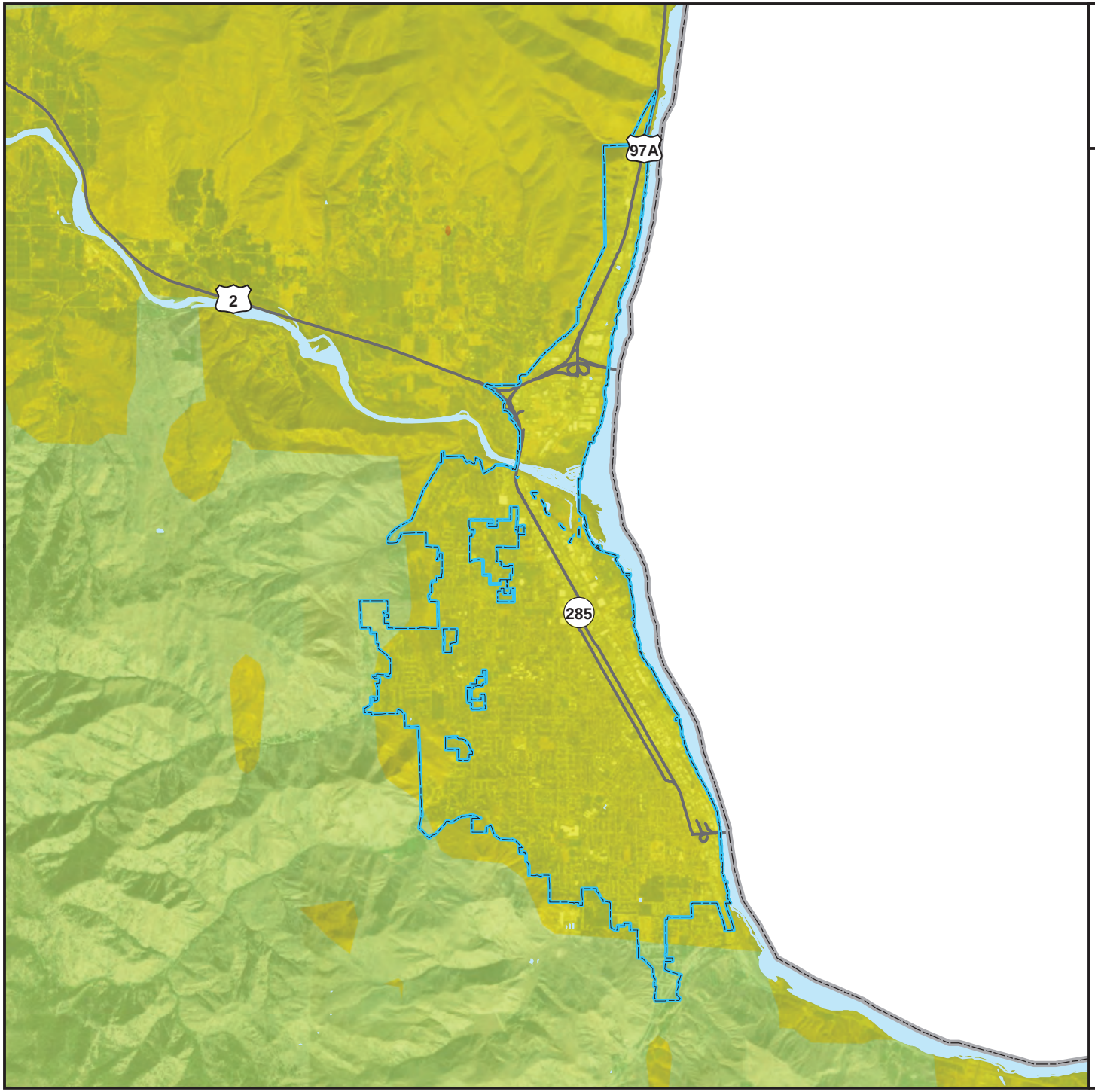
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Wenatchee

Chelan M7.2 ShakeMap Scenario

City Limits

Chelan County Boundary

Instrumental Intensity Scale (Potential Damage/Perceived Shaking)

VI (Light/Strong)

VII (Moderate/Very Strong)

VIII (Moderate-Heavy/Severe)

0 0.5 1 2

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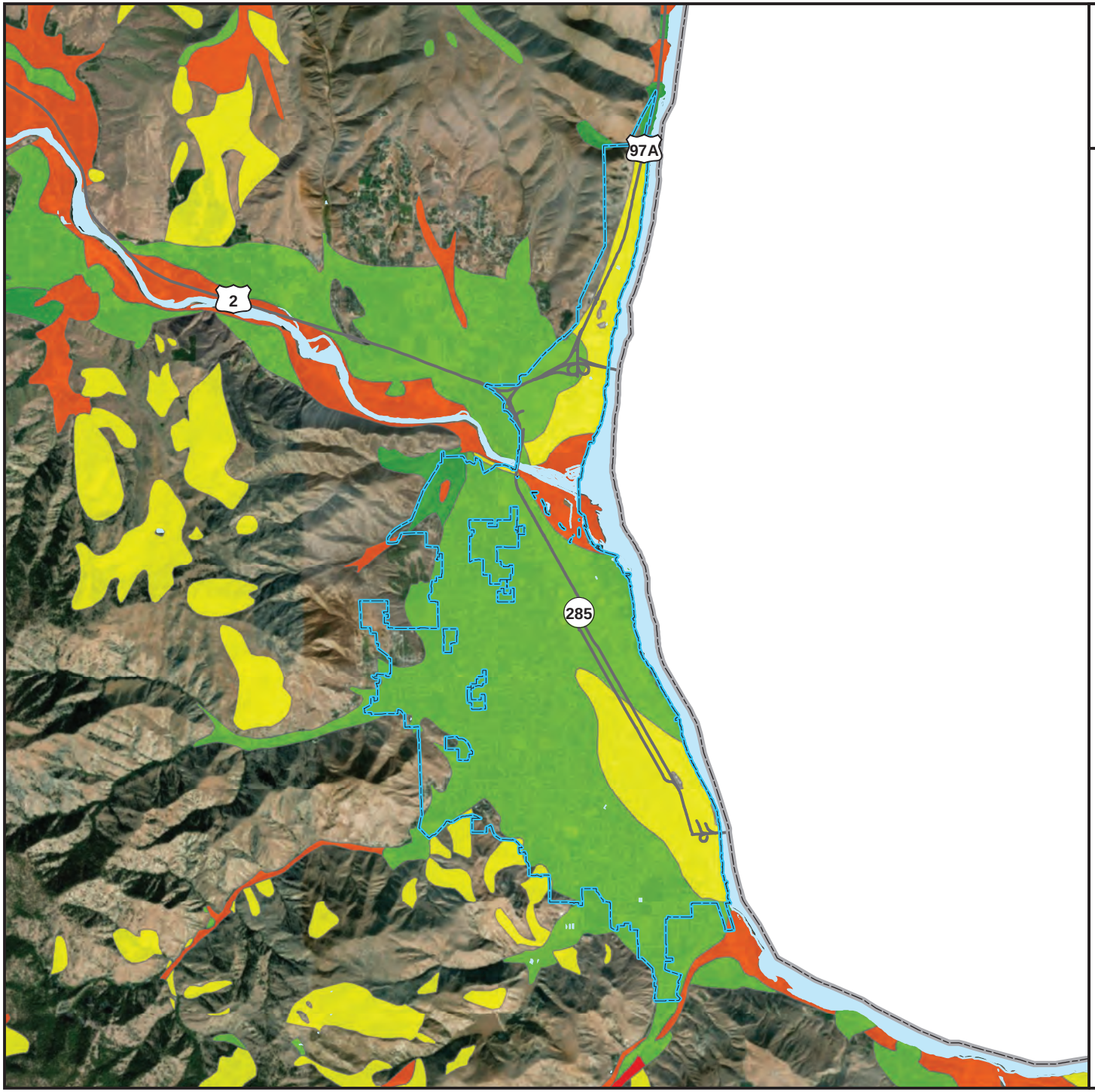
TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Wenatchee

Liquefaction Susceptibility

City Limits

Chelan County Boundary

Liquefaction Susceptibility

- High
- Moderate to High
- Low to Moderate
- Low
- Very Low to Low
- Very Low

These data contain polygons that provide information regarding the relative liquefaction potential for Washington State. This data is part of a geodatabase that contains statewide seismic ground response data. Liquefaction is a natural phenomenon in which saturated, sandy soils lose their strength and behave as liquid.

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

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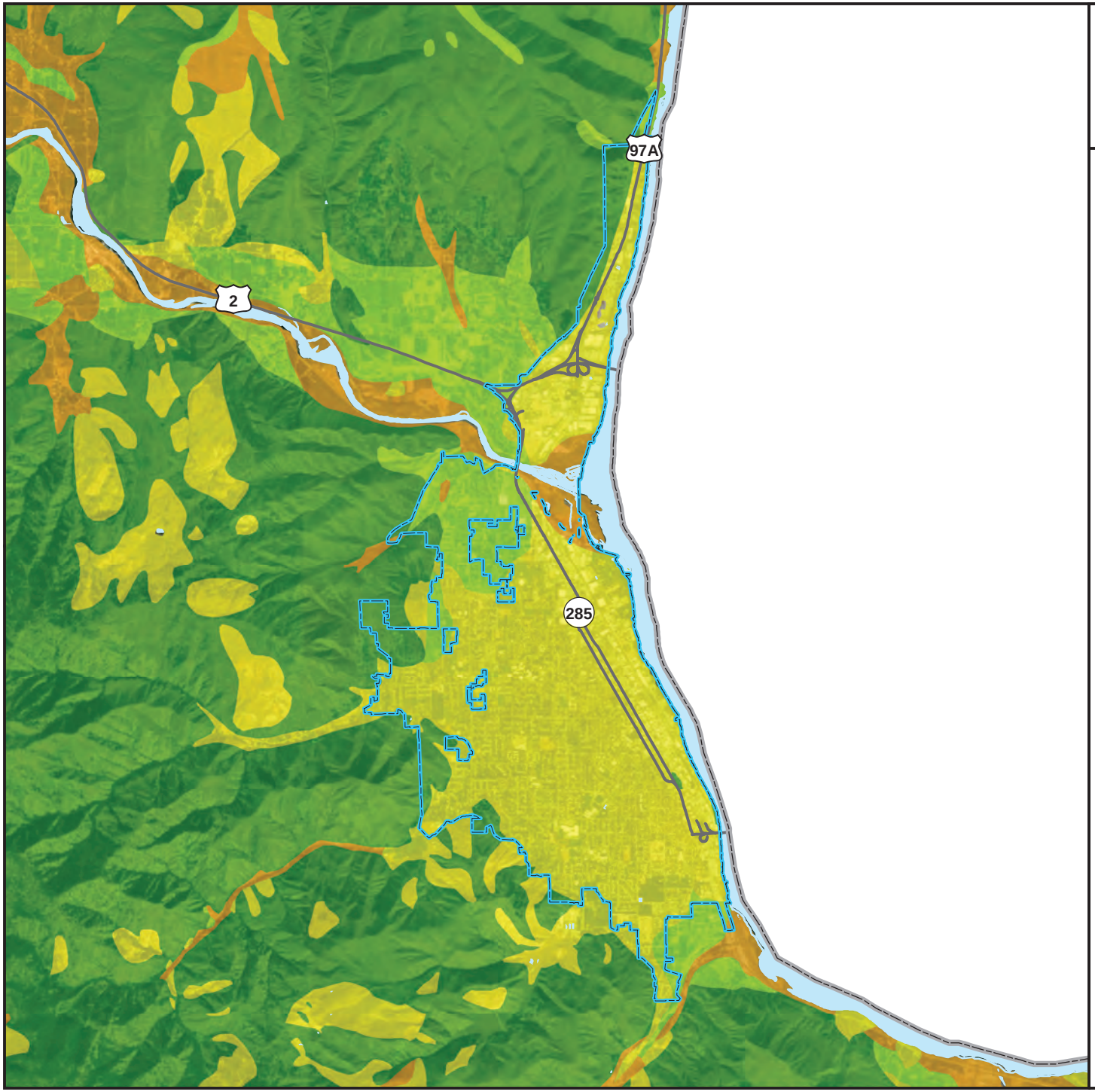
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Wenatchee

National Earthquake Hazards Reduction Program (NEHRP) Soil Classes

City Limits

Chelan County Boundary

Soil Type

- B / Rock
- C / Very Dense Soil - Soft Rock
- D / Stiff Soil
- E / Soft Soil

The seismic ground response geodatabase (version 2.0 published June 2010) was downloaded from the Washington State Department of Natural Resources' Geology GIS Data and Databases website [https://www.dnr.wa.gov/ programs-and services/geology/publications-and-data/gis-data-and-databases] in June 2018.

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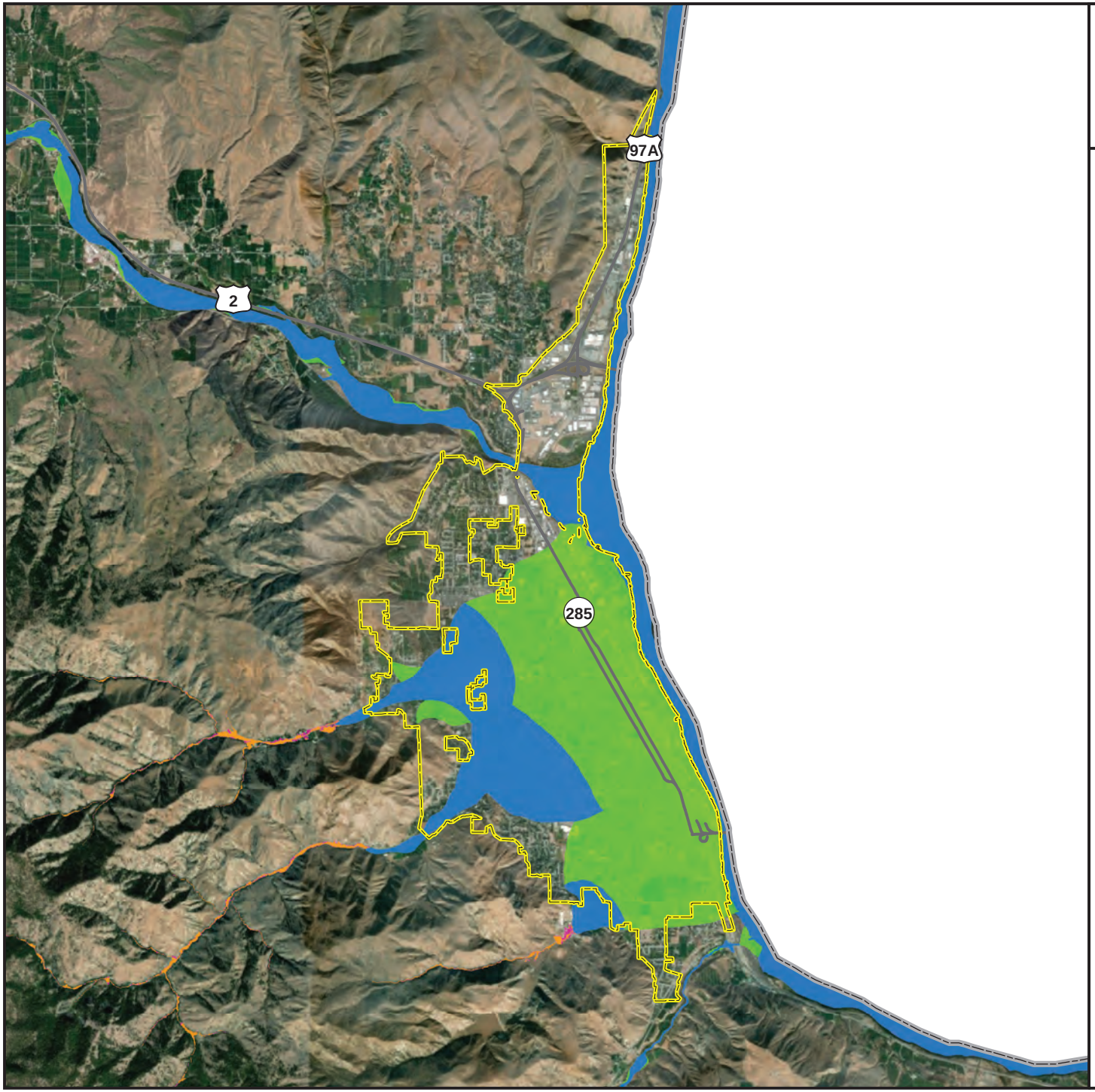
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Wenatchee

Flood Boundaries

City Limits

Chelan County Boundary

FEMA DFIRM Boundaries

FEMA 100-Year Flood Boundary

FEMA 500-Year Flood Boundary

Hazus Modeled Boundaries

100-Year Flood Boundary

500-Year Flood Boundary

FEMA Flood Hazard Boundaries are a combination of FEMA DFIRM Detailed Study Areas and FEMA Digitized Q3 Data. These data were compiled for the Chelan County Comprehensive Flood Hazard Management Plan (July 2017).

Hazus Modeled Flood Boundaries were generated using a combination of Hazus (v3.1) Hydrology and Hydraulics output and 1-meter LiDAR Digital Elevation Model data. These data were generated for the Chelan County Comprehensive Flood Hazard Management Plan (July 2017).

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EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

City of Wenatchee

Deep-seated Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Deep-seated landslides occur on a failure plane below the rooting depth of vegetation, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

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TETRA TECH

EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

City of Wenatchee

Shallow Landslide Susceptibility

City Limits

Chelan County Boundary

Susceptibility to Landslides

Low

Moderate

High

Shallow landslides typically affect only the uppermost part of the soil column, and may be triggered by an earthquake and/or extreme rain events. This landslide susceptibility data was generated by experts based on landslide risk factors such as geology, slope angle, topographic aspect, distance to road, distance to river, and land cover. A multi-criteria decision-making method called Analytic Hierarchy Process (AHP) was used to produce this data. This data was provided by the Washington Geological Survey in July 2018.

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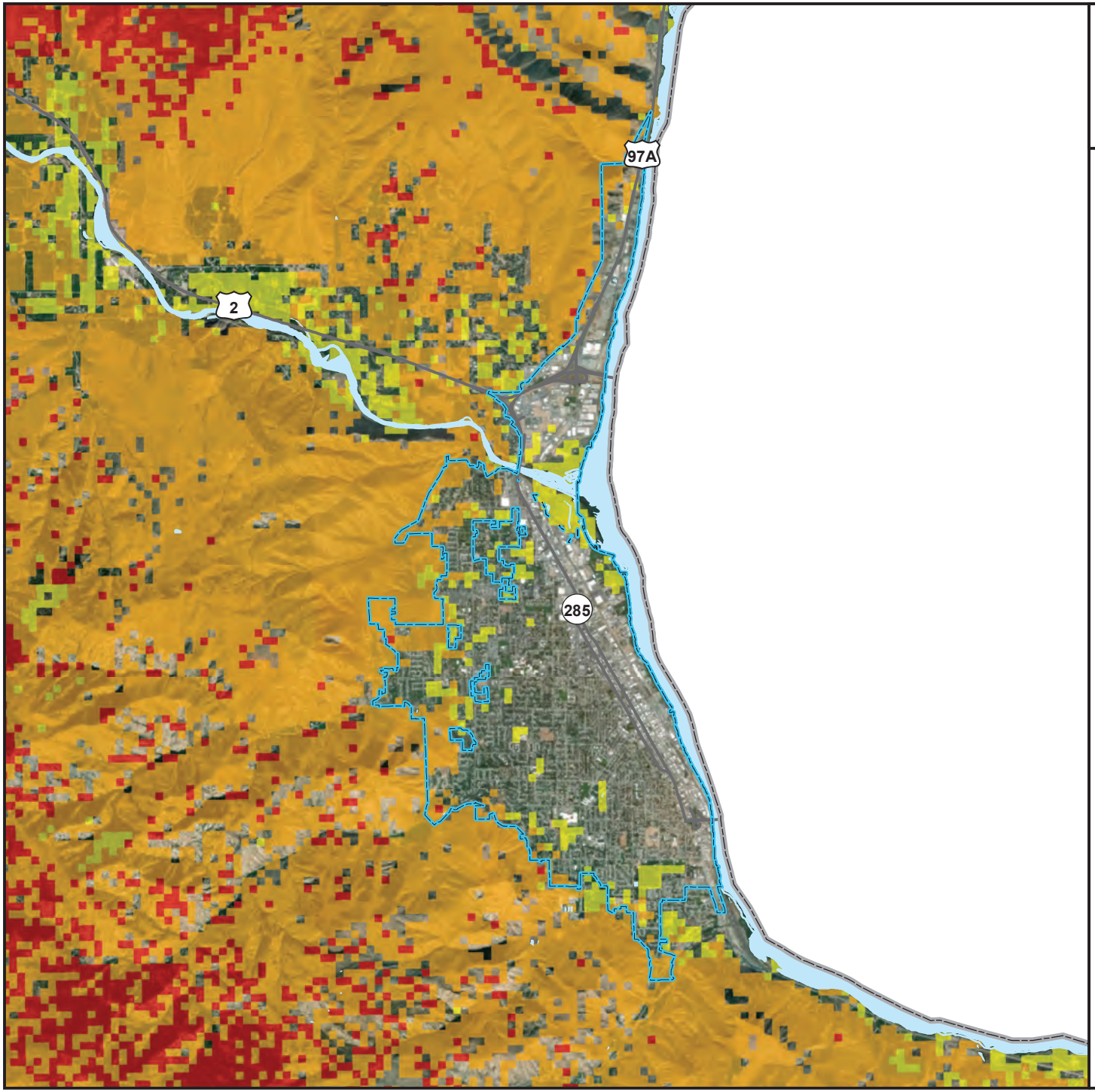
EST. 1899 COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Wenatchee

Landscape Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

0 0.5 1 2

Miles

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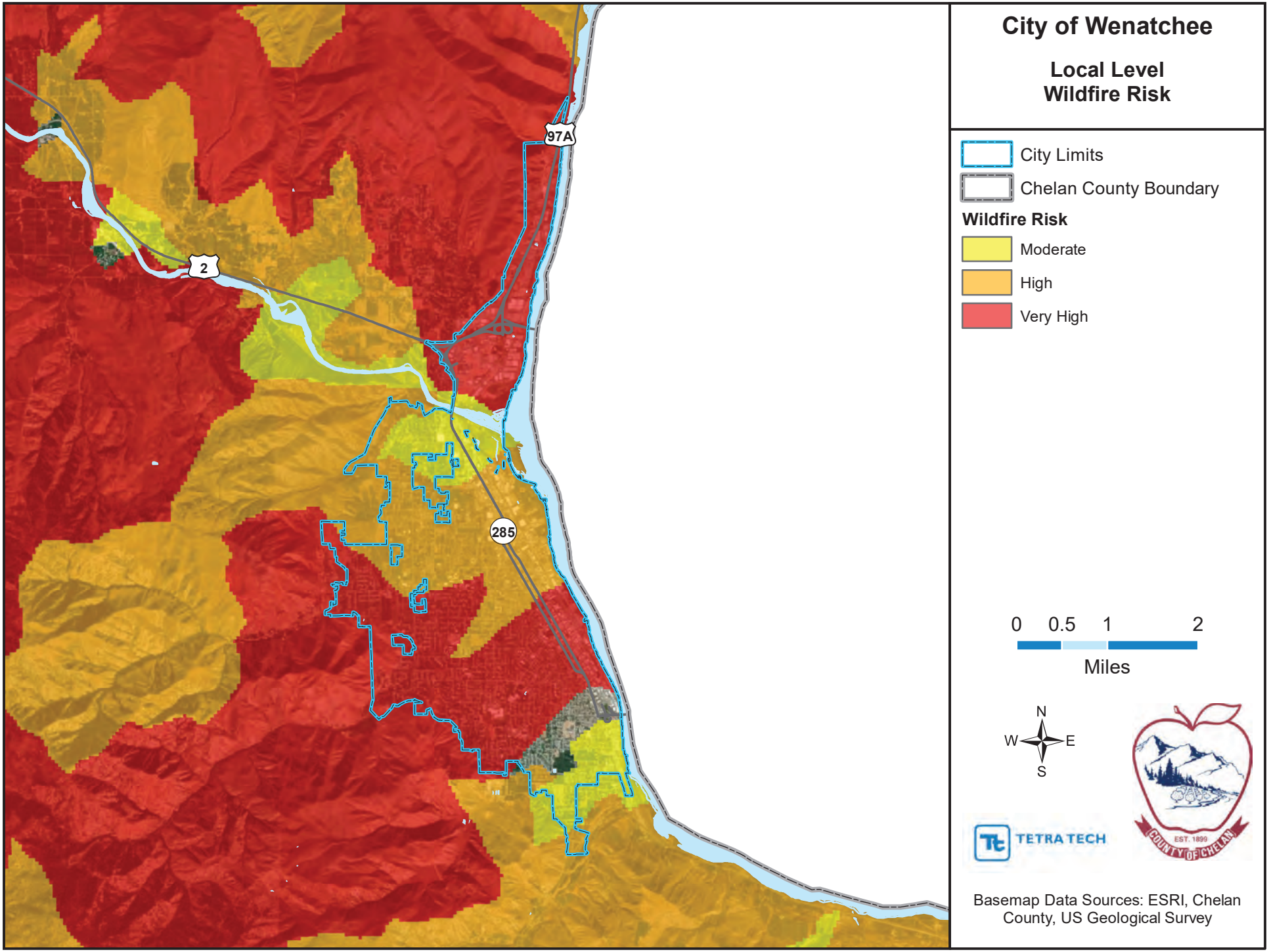
TETRA TECH

EST. 1899
COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey



City of Wenatchee

Local Level Wildfire Risk

City Limits

Chelan County Boundary

Wildfire Risk

Moderate

High

Very High

0 0.5 1 2

Miles

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TETRA TECH

EST. 1899
COUNTY OF CHELAN

Basemap Data Sources: ESRI, Chelan County, US Geological Survey

7. CASCADIA CONSERVATION DISTRICT

7.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Michael M. Cushman, Program Director
14 N. Mission St.
Wenatchee, WA 98801
Telephone: 509-436-1601
e-mail Address: MikeC@Cascadiacd.org

Alternate Point of Contact
Patrick Haggerty, Project Coordinator II
14 N. Mission St.
Wenatchee, WA 98801
Telephone: 509-436-1601
e-mail Address: PatrickH@Cascadiacd.org

7.2 JURISDICTION PROFILE

7.2.1 Overview

Cascadia Conservation District (Cascadia) was created in 1944 as part of a national response to the Dust Bowl and was known as Chelan County Conservation District until 2007. Cascadia has worked for 75 years to assist local land managers to address the many challenges to long term natural resource sustainability. Cascadia serves the citizens of its community (county, state, country) to ensure the long-term use of natural resources in an economically, socially, and environmentally sustainable manner using non-regulatory, voluntary approaches.

Cascadia is primarily grant funded, and averages approximately 20 open grants at any time. The grants are secured predominantly from state and federal sources such as the Washington State Conservation Commission, Department of Natural Resources, Department of Ecology, Salmon Recovery Funding Board, US Bureau of Reclamation, Bonneville Power Administration, and the U.S. Natural Resources Conservation Service. Over the last seven years, the state and federal grants have accounted for 94% of the revenue received. The remaining revenue is from local and private sources, including a local parcel-based fee system and private organizations (e.g. The Community Foundation). The local funding is used to secure many of the state and federal grants, so although the local funds are a small part of the overall revenue, they are critical to obtaining those grants.

Cascadia and other conservation districts are the ONLY organizations in Washington State that routinely design and apply on-the-ground solutions to nonpoint water quality problems on privately owned resource lands. Further, the technical help provided by conservation districts to private landowners is free for the asking. Each conservation district is led by a five-member board of volunteer supervisors - three elected locally and two appointed by the state's conservation agency, the Conservation Commission. These individuals serve three-year terms, during which time they keep informed of locally important natural resource or environmental issues and decide what projects their district will undertake each year. Also, Cascadia has eleven paid staff that work to implement the annual and long-range plans of the Board of Supervisors, each managing several natural resource concerns ranging from agriculture, water quality, soil erosion, botany, forestry and wildfire. Cascadia serves all of Chelan County, including the unincorporated areas as well as the cities of Wenatchee, Chelan, Leavenworth, Cashmere, and Entiat, and communities such as Plain, Peshastin, Dryden, Monitor, Malaga, Ardenvoir, Manson,

Lucerne, and Stehekin. The Cascadia Conservation District Board of Supervisors assumes responsibility for the adoption of this plan, and their staff will oversee its implementation

7.2.2 Service Area and Trends

Cascadia serves a population of approximately 76,533 (2013 Census) in Chelan County. Its service area covers an area of 2,994 square miles, of which 2,921 square miles is land and 73 square miles (2.5%) is water. Chelan County is the third-largest county in Washington by area.

Chelan County population is expected to increase by 15% by the year 2037 to a total of 88,206, according to the Washington State Office of Financial Management.

With the increased population, flooding, wildfire and other natural resource concerns will put more residences and private properties at risk.

7.2.3 Assets

Cascadia Conservation District does not own land in Chelan County and does not maintain equipment or other assets that would be of particular value for emergency management, other than vehicles for transportation of staff to assist in plan activities.

7.3 CAPABILITY ASSESSMENT

7.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 7-1 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan. It is important to note that Conservation District are non-regulatory organization. Cascadia serves in an economically, socially, and environmentally sustainable manner using non-regulatory, voluntary approaches.

Table 7-1. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
Cascadia Conservation District Annual Plan	March 2018	Update conducted annually in March
Cascadia Conservation District Long-Range Plan	March 2018	Update conducted annually in March
Post-Disaster Recovery		Cascadia is a participant and facilitator in post-disaster recovery working with landowners and their natural resource concerns. Cascadia is a non-regulatory voluntary special purpose district.
Special Purpose (flood management, critical area)		Cascadia works with private landowners and their natural resource concerns and participated in the formation of the Chelan County FCZD. Cascadia is a non-regulatory voluntary special purpose district.
Emergency Response Plan		Cascadia works with private landowners and their emergency preparedness and evacuation plans. Cascadia is a non-regulatory voluntary special purpose district.
Cascadia Conservation District RCW 89.08 (enabling legislation)		Cascadia has authority to work on all natural resource issues as well as to partner with others to accomplish this work.

7.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 7-2. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 7-3.

Table 7-2. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	No
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	No
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	No

Table 7-3. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Cascadia Conservation District/ Program Director, Regional Engineer, Resource Specialists, Project Coordinators
Engineers or professionals trained in building or infrastructure construction practices	Yes	Cascadia Conservation District/ Regional Engineer
Planners or engineers with an understanding of natural hazards	Yes	Cascadia Conservation District/ Program Director, Regional Engineer, Resource Specialists, Project Coordinators
Staff with training in benefit/cost analysis	Yes	Cascadia Conservation District/ Project Coordinators, Resource Specialists
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Cascadia Conservation District/ Project Coordinators, Resource Specialists
Scientist familiar with natural hazards in local area	Yes	Cascadia Conservation District/ Program Director
Emergency manager	No	
Grant writers	Yes	Cascadia Conservation District/ Program Director, Project Coordinators, Resource Specialists
Other	Yes	Cascadia Conservation District/ District Administrator, and Administrative Assistant

7.3.3 Education and Outreach Capabilities

Outreach and education capabilities identify the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 7-4.

Table 7-4. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	Yes Landowner information and partner links to wildfire preparedness and post-fire recovery
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes Post informational content related to flooding, landslide hazards, fire-recovery, and share partner posts
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	Quarterly newsletter to inform residents of available programs and services
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	No Other than sharing partner warnings on social media

7.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 7-5 summarizes the jurisdiction's adaptive capacity for climate change.

Table 7-5. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High
Comment: *Cascadia participates in a broad level of programs where Climate Change mitigation is a focus*	
Jurisdiction-level monitoring of climate change impacts	N/A
Comment: *Cascadia is a non-regulatory voluntary special purpose district working with private landowners*	
Technical resources to assess proposed strategies for feasibility and externalities	High
Comment: *Cascadia partners with local, state, federal, tribal, and nongovernmental organizations*	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	N/A
Comment: *Cascadia is a non-regulatory voluntary special purpose district working with private landowners*	
Capital planning and land use decisions informed by potential climate impacts	N/A
Comment: *Cascadia is a non-regulatory voluntary special purpose district working with private landowners*	
Participation in regional groups addressing climate risks	High
Comment: *Cascadia partners with local, state, federal, tribal, and nongovernmental organizations*	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: *Our volunteer-led stewardship organization can consider all resource concerns in its processes. Some funding sources have specific requirements or provisions to consider these impacts in project development.*	
Identified strategies for greenhouse gas mitigation efforts	N/A
Comment: *Cascadia is a non-regulatory voluntary special purpose district working with private landowners*	
Identified strategies for adaptation to impacts	N/A
Comment: *Would be included in any resource concerns addressed while assisting private landowners with their desired work.*	

Criterion	Jurisdiction Rating[a]
Champions for climate action in local government departments	N/A
Comment: *Cascadia is a non-regulatory voluntary special purpose district working with private landowners*	
Political support for implementing climate change adaptation strategies	N/A
Comment: *Cascadia does not set public policy, but supports science-based methods to promote agricultural viability and sustainability.*	
Financial resources devoted to climate change adaptation	N/A
Comment: *Not specifically, however all resource programs are focused on the wise stewardship of resources*	
Local authority over sectors likely to be negative impacted	N/A
Comment: *Cascadia is a non-regulatory voluntary special purpose district working with private landowners*	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment: *Chelan County has a long history of fruit production and agriculture reliant on its natural resources and interested in managing for viable and sustainable operations.*	
Local residents support of adaptation efforts	Medium
Comment: *Chelan County has a long history of fruit production and agriculture reliant on its natural resources and interested in managing for viable and sustainable operations.*	
Local residents' capacity to adapt to climate impacts	N/A
Comment: *Cascadia programs do not measure this criterion.*	
Local economy current capacity to adapt to climate impacts	N/A
Comment: *Cascadia does not assess economic data.*	
Local ecosystems capacity to adapt to climate impacts	Unsure
Comment: *This is a developing area of science that will require further monitoring and testing to accurately assess. Local natural resource professionals are aware of the need to observe and respond to current trends.*	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

7.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

7.4.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- **Cascadia Conservation District Annual and Long Range Plans, Programs and funding applications** address known and potential risks.
- **WRIA 46 Entiat Watershed Action Plan** includes consideration of hazards such as fire and flooding.
- **Individual Conservation Plans** consider site-specific risks and responses to hazards and anticipated changed conditions.

7.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Cascadia will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- Cascadia responds to events and requests for assistance

7.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 7-6 lists past occurrences of natural hazards for which specific damage was recorded in Cascadia Conservation District. Other hazard events that broadly affected the entire planning area, including Cascadia Conservation District, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 7-6. Past Natural Hazard Events

Type of Event	Cause	FEMA Disaster #	Date	Damage Assessment
Navarre Fire	Human Caused – Undetermined	NA	07/31/2018	No structures damaged; 165 acres
25 Mile Creek Fire	Human Caused	NA	07/29/2018	$250,000; DESTROYED: 1 garage; power poles; guardrail; 22 acres
Cougar Creek Fire	Lightning	FM-5270-WA	07/28/2018 *(declaration 08/1/2018)*	$ in progress; 42,712 acres
Rocky Reach Fire	Electrical Wires	NA	07/23/2018	No structures damaged; 3,386 acres
Fields Point Fire	Arson	NA	07/20/2018	No structures damaged; 60 acres
Little Camas Creek Fire	Unknown cause	NA	07/05/2018	No structures damaged; 317 acres
Eight Mile Lake Dam	Potential dam failure	NA	03/13/2018	No structures damaged
Monitor Fire	Vehicle caused	NA	11/01/2017	No structures damaged; 1,100 acres
Uno Peak Fire	Unattended campfire	NA	08/30/2017	$25,000; DESTROYED: 1 cabin; 7,879 acres
Jack Creek Fire	Lightning	NA	08/11/2017	No structures damaged; 4,606 acres
Spartan Fire	Lightning	NA	06/26/2017	Power poles damaged; 1,800 acres
Spromberg Fire	Unknown cause	FM-5182-WA	05/23/2017	$ in progress; Cedar log decks destroyed; 42 acres
Horselake Fire	Human caused	NA	09/04/2016	$50,000; Historical Barn Lost / Unk acreage
Suncrest Fire	Undetermined electrical cause	FM-5152-WA	08/27/2016	$ in progress; $2,000 damage estimated.; Cell Tower Damage / 496 acres
Antilon Lake Fire	Motor vehicle caused	NA	07/29/2016	1 vehicle destroyed; 540 acres
Cranmer Road Landslide	Natural event	NA	05/06/2016	$400,000; 2 residences affected
Ribbon Cliff Fire	Unknown Cause	NA	05/08/2016	No structures damaged; 25 acres
Whispering Ridge Landslide	Natural event	NA	03/17/2016	$400,000; 1 residence damaged
Severe Storms, Landslides	Natural event	4249-DR-WA	01/15/2016	$1,320,000; Yodelin Road Damage

Type of Event	Cause	FEMA Disaster #	Date	Damage Assessment
Chelan Complex Fires—Chelan Butte Fire; Deer Mtn Fire; Antoine Crk Fire; First Crk Fire	Lightning Strikes	4243-DR-WA	08/14/2015	$23,513,366; DESTROYED: 30 Residences; 3 Commercial Businesses; 25 Other Structures Destroyed; 54,500 acres
Sleepy Hollow Fire	Arson cause	FM-5087-WA	06/28/2015	$22,000,000+; DESTROYED: 29 Residences; 4 Commercial Businesses; 1 Outbuilding; 2,950 acres
Wolverine Fire	Lightning	NA	07/03/2015	$100,000; 62,167 acres 20
Chiwaukum Complex Fires	Lightning caused	FM-5061-WA	07/15/2014	$100,000; DESTROYED: 3 Cabins; 1 Outbuildings; 17,935 acres
Mills Canyon Fire	Human Caused – accidental	FM-5061-WA	07/08/2014	$15,000; 3 Outbuildings 22,571 acres
Eagle Fire	Unknown cause	FM-5048-WA	08/19/2013	$2,273,317; No structures damaged; 14,076 acres
Milepost 10 Fire	Lightning Strike	FM-5042-WA	08/09/2013	$1,200,000; 5,554 acres
Colockum Tarps	Electrical fault caused	FM-5038-WA	07/27/2013	$1,000,000+; DESTROYED: 3 residences; 1 commercial property; 1 outbuilding; 80,184 acres
North Shore Fire—Lake Wenatchee	Unattended campfire cause	NA	07/19/2013	$1,200,000+; DESTROYED: 3 residences; DAMAGED: 1 residence; 6 acres
Ice Storm – Lake Wenatchee	Natural event	NA *(State Emergency Declaration Denied)*	12/20/2012	$500,000+; 60+ residences damaged; 2 fatalities in vehicle accidents; 4 severely injured in vehicle accidents
Wenatchee Complex Fires—Peavine Fire; Poison Cyn Fire; Canyons Fire; Twin Peaks Fire	Lightning strikes	FM-5012-WA	09/08/2101 2	$20,000; DESTROYED: 1 outbuilding; 56,478 acres
Byrd Canyon Fire	Lightning strike caused	NA	09/08/2012	No known structures damaged; 14,119 acres
Rainbow Bridge Fire	Lightning strike cause	NA	07/29/2010	No structures damaged; 3,710 acres
Wenatchee River Complex—Nahahun Cyn Fire; Tripp Cyn Fire; Devils Gulch Fire	Lightning Strikes	NA No FMAG declared	07/30/2010	$100,000; DESTROYED: Building supplies; 2,065 acres
Union Valley Fire	Lightning cause	FM-2823-WA	08/01/2009	$640,027; No structures lost; 768 acres
Severe Winter Storms—Entiat River, Mission Creek	Natural event	1817-DR-WA	01/06/2009	(Unknown Damage Assessment)
Kahler Glen Avalanche	Natural event	NA	02/07/2008	$240,000; DESTROYED: 1 residence
Easy Street Fire	Unknown cause	FM-2711-WA	07/07/2007	$60,000; DESTROYED: 3 outbuildings; 2,500+ acres
Wind Storm – Wenatchee	Natural event	NA	12/472006	$3,292,842; DESTROYED: fire station; DAMAGED: Numerous homes, outbuildings, power poles/lines, trees
Flooding – Leavenworth Area	Natural event	1671-DR-WA	11/02/2006	$92,000;
Flick Creek Fire	Lightning caused	FM-2674-WA	07/26/2006	$80,510; Homes threatened – ; No structures lost; 7,883 acres
Tinpan Fire	Lightning caused	NA	07/20/2006	No structures damaged; 9,247 acres
Dirty Face Fire	Started as residential fire	FM-2572-WA	07/31/2005	$1,061,643; 73 residences threatened; 1,150 acres

Type of Event	Cause	FEMA Disaster #	Date	Damage Assessment
Fischer Fire	Unknown cause	FM-2543-WA	08/11/2004	$3,033,966; DESTROYED: 1 residence / 1 other; 300 residences threatened; 16,513 acres
Deep Harbor Fire—Aka: Pot Peak Complex Fires-	Pot Peak Fire & Sisi Fire	FM-2537-WA	07/30/2004	$47,179; DESTROYED: 3 cabins; 29,700 acres
Deer Point Fire	Unattended campfire caused	FSA-2449-WA	07/20/2002	$2,573,214; DESTROYED: 5 minor structures; 43,375 acres
Icicle Complex Fires	Lightning causes	FSA-2374-WA	08/14/2001	$1,186,851; 7,696 acres
Rex Creek Complex Fires	Lightning caused	FSA-2379-WA	08/13/2001	$1,0008,947; (No known structures damaged); 55,913 acres
Union Valley Fire	Human caused	FSA-2368-WA	07/28/2001	$1,121,445; DESTROYED: 3 residences; 4,700 acres
Tyee Fire – COMPLEX—Tyee Fire; Hatchery Creek Fire: Round Mountain Fire	lightning caused	FSA-2103-WA *(includes Hatchery Creek Complex Fire)*	07/24/1994	$17,711,728 - total complex; DESTROYED: 37 Structures (residences / outbuildings); 135,000 acres
Hatchery Creek - COMPLEX	Rat Creek Fire human caused; Alpine Lakes Fire; Hatchery Creek Fire lightning caused	(see Tyee Complex Fire)	07/23/1994	(See Tyee Fire for Damage Totals); Additional 43,000 acres
Castle Rock Fire	Human caused	(No Known FEMA #)	09/26/1992	$5,000,000 (estimate); DESTROYED: 24 residences; 6 outbuildings; 3,500 acres
Dinkleman Fire	Unknown cause	FSA-2070	09/06/1988	Unknown. Damage Assessment; DEATH: 1 person killed; DESTROYED: 1 residence; 50,000 acres
Mount St Helens Ash Fallout		DR-623	05/18/1980	Unknown Damage Estimate
Christmas Floods	Stehekin River; Entiat River	Unknown if Disaster Declaration Granted	12/26/1980	Unknown Damage Estimate; Roadway damage, bridge damage
Lightning Burst Fires—Mitchell Creek Fire; Slide Peak Fire; Entiat River Fire	Lightning caused	FSA-2002	07/17/1970	Unknown Damage Estimate; 188,000 acres

7.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

Cascadia, primarily grant funded, has worked for 75 years to assist local land managers to address the many challenges to long term sustainability. Cascadia serves the citizens of its community (county, state, country) to ensure the long-term use of natural resources in an economically, socially, and environmentally sustainable manner using non-regulatory, voluntary approaches. For this reason, Cascadia will support noted vulnerabilities of the various agencies and private citizens throughout Chelan County, if and where possible.

7.7 HAZARD RISK RANKING

Table 7-7 presents a local ranking for Cascadia of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 7-7. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Severe Weather	45	High
3	Earthquake	34	High
4	Flooding	27	Medium
5	Landslide	27	Medium
6	Dam Failure	12	Low
7	Drought	9	Low

7.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 7-8 lists the actions that make up the Cascadia Conservation District hazard mitigation action plan. Table 7-9 identifies the priority for each action. Table 7-10 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 7-8. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #CCD-01—Continue to develop and implement public education programs which increase public awareness of the risks associated with hazards/disasters and emergency preparedness**.**							
New	All Hazards	1, 3, 5, 10	Cascadia Staff	TBD	Low	Grants	Ongoing
Action #CCD-02—Encourage residents to participate in the National Flood Insurance Program							
New	Flood, Dam Failure, Severe Weather	5, 6	Cascadia Staff	FCZD, Cities	Low	Staff Time, General Funds	Ongoing
Action #CCD-03—Obtain resources and materials to develop a National Flood Insurance Program outreach program for local residents.							
New	Flood, Dam Failure, Severe Weather	5, 6	Cascadia Staff	FCZD, Cities	Low	Staff Time, Grants	Ongoing
Action #CCD-04—Conduct individual property and community-wide wildfire risk assessments and evaluate potential mitigation projects.							
New	Wildfire	1, 3, 4, 5, 6, 7, 8, 10	Cascadia Staff	Chelan County, Fire Districts	Medium	Grants	Ongoing
Action #CCD-05—Continue to work on actions items and proposed projects in the Chelan County Community Wildfire Protection Plan							
New	Wildfire	1, 3, 4, 5, 6, 7, 8, 10	Cascadia Staff	Chelan County, Fire Districts	High	Grants	Ongoing
Action #CCD-06—Prepare and maintain a prioritized list of existing undersized culverts that are in need of replacing.							
New	Flood	4, 5, 6, 7, 8	Cascadia Staff	CCFEG, USFS	Low	Grants	Ongoing
Action #CCD-07—Continue to work on action items and proposed projects in the Upper Columbia Salmon Recovery Plan and prioritization strategy that require stream bank and channel stabilization and/or restoration							
New	Flood, Landslide	4, 5, 6, 8	Cascadia Staff	TBD	Medium/High	Grants	Ongoing
Action #CCD-08—Continue to develop and implement public education programs and projects which increase public awareness of water use, irrigation efficiency, and irrigation water management strategies							
New	Drought	4, 5, 6, 8	Cascadia Staff	Natural Resources Conservation Service	Medium/ High	Grants	Ongoing

Table 7-9. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
CCD-01	4	High	Medium	Yes	Yes	No	High	High
CCD-05	8	High	High	Yes	Yes	No	High	High
CCD-02	2	High	Medium	Yes	Yes	No	High	High
CCD-03	2	High	Low	Yes	Yes	No	High	High
CCD-04	8	High	Medium	Yes	Yes	No	High	High
CCD-07	4	High	High/Medium	Yes	Yes	No	Medium	Medium
CCD-06	5	Medium	Medium	Yes	Yes	No	Medium	Medium
CCD-08	5	High	Low/High	Yes	Yes	No	Medium	Medium

a. See the introduction to this volume for explanation of priorities.

Table 7-10. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	CCD-1, 4, 5	CCD-1, 4, 5	CCD-1, 4, 5	CCD-5	CCD-5	CCD-4, 5	CCD-4, 5	CCD-4, 5
Severe Weather	CCD-1, 2, 6, 7	CCD-1, 6, 7	CCD-1, 2, 3, 4, 5, 6	CCD-1, 5, 6, 7, 8	CCD-5	CCD-5, 6	CCD-1, 4, 5, 6, 7, 8	CCD-1, 3, 4, 5, 7, 8
Earthquake	CCD-1	CCD-1	CCD-1		CCD-1		CCD-1	CCD-1
Flooding	CCD-1, 2, 3, 6, 7	CCD-1, 2, 3, 6, 7	CCD-1, 2, 3, 5, 7	CCD-1, 5, 6, 7	CCD-1	CCD-6, 7	CCD-1, 5, 6, 7	CCD-1, 5
Landslide	CCD-1	CCD-1, 5	CCD-1, 5	CCD-1, 5			CCD-1, 5	CCD-1, 5
Dam Failure	CCD-1		CCD-1				CCD-1	CCD-1
Drought	CCD-1, 8	CCD-1, 8	CCD-1, 8	CCD-1, 8		CCD-8	CCD-1, 8	CCD-1, 8

a. See the introduction to this volume for explanation of mitigation types.

7.9 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

7.9.1 Disaster Mitigation Act

The DMA is the current federal legislation addressing hazard mitigation planning. It emphasizes planning for disasters before they occur. It specifically addresses planning at the local level, requiring plans to be in place before Hazard Mitigation Grant Program funds are available to communities. This plan is designed to meet the requirements of DMA, improving the planning partners' eligibility for future hazard mitigation funds.

7.9.2 Endangered Species Act

The 1973 federal Endangered Species Act (ESA) was enacted to conserve species facing depletion or extinction and the ecosystems that support them. The act sets forth a process for determining which species are threatened and endangered and requires the conservation of the critical habitat in which those species live. The ESA provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species. It is the enabling legislation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Criminal and civil penalties are provided for violations of the ESA and the Convention. Federal agencies must seek to conserve endangered and threatened species. The ESA defines three fundamental terms:

- **Endangered** means that a species of fish, animal or plant is "in danger of extinction throughout all or a significant portion of its range." (For salmon and other vertebrate species, this may include subspecies and distinct population segments.)
- **Threatened** means that a species "is likely to become endangered within the foreseeable future." Regulations may be less restrictive than for endangered species.
- **Critical habitat** means "specific geographical areas that are…essential for the conservation and management of a listed species, whether occupied by the species or not."

The following are critical sections of the ESA:

- **Section 4: Listing of a Species**—The National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) is responsible for listing marine species; the U.S. Fish and Wildlife Service is responsible for listing terrestrial and freshwater aquatic species. The agencies may initiate reviews for listings, or citizens may petition for them. A listing must be made "solely on the basis of the best scientific and commercial data available." After a listing has been proposed, agencies receive comment and conduct further scientific reviews, after which they must decide if the listing is warranted. Economic impacts cannot be considered in this decision, but it may include an evaluation of the adequacy of local and state protections.
- **Section 7: Consultation**—Federal agencies must ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed or proposed species or adversely modify its critical habitat. This includes private and public actions that require a federal permit. Once a final listing is made, non-federal actions are subject to the same review, termed a "consultation." If the listing agency finds that an action will "take" a species, it must propose mitigations or "reasonable and prudent" alternatives to the action; if the proponent rejects these, the action cannot proceed.
- **Section 9: Prohibition of Take**—It is unlawful to "take" an endangered species, including killing or injuring it or modifying its habitat in a way that interferes with essential behavioral patterns, including breeding, feeding or sheltering.
- **Section 10: Permitted Take**—Through voluntary agreements with the federal government that provide protections to an endangered species, a non-federal applicant may commit a take that would otherwise be prohibited as long as it is incidental to an otherwise lawful activity (such as developing land or building a road). These agreements often take the form of a "Habitat Conservation Plan."
- **Section 11: Citizen Lawsuits**—Civil actions initiated by any citizen can require the listing agency to enforce the ESA's prohibition of taking or to meet the requirements of the consultation process. With the listing of salmon and trout species as threatened or endangered, the Pacific Coast states have been impacted by mandates, programs and policies based on the presumed presence of listed species. Most West Coast jurisdictions must now take into account the impact of their programs on habitat.

7.9.3 The Clean Water Act

The federal Clean Water Act (CWA) employs regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's surface waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." Evolution of CWA programs over the last decade has included a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach, equal emphasis is placed on protecting healthy waters and restoring impaired ones. A full array of issues are addressed, not just those subject to CWA regulatory authority. Involvement of stakeholder groups in the development and implementation of strategies for achieving and maintaining water quality and other environmental goals is a hallmark of this approach.

7.9.4 National Flood Insurance Program

The National Flood Insurance Program (NFIP) provides federally backed flood insurance in exchange for communities enacting floodplain regulations. Participation and good standing under NFIP are prerequisites to grant funding eligibility under the Robert T. Stafford Act. The County and most of the partner cities for this plan participate in the NFIP and have adopted regulations that meet the NFIP requirements. At the time of the preparation of this plan, all participating jurisdictions in the partnership were in good standing with NFIP requirements. Cascadia is non-regulatory but will ensure that projects it proposes under the plan meet any NFIP requirements.

7.9.5 Washington State Enhanced Mitigation Plan

The Washington State Enhanced Hazard Mitigation Plan approved by FEMA in 2010 provides guidance for hazard mitigation throughout Washington. The plan identifies hazard mitigation goals, objectives, Chelan County Hazard Mitigation Plan; Volume 1—Planning-Area-Wide Elements… 5-18 actions and initiatives for state government to reduce injury and damage from natural hazards. By meeting federal requirements for an enhanced state plan (44 CFR parts 201.4 and 201.5), the plan allows the state to seek significantly higher funding from the Hazard Mitigation Grant Program following presidential declared disasters (20 percent of federal disaster expenditures vs. 15 percent with a standard plan)

7.9.6 Growth Management Act

The 1990 Washington State Growth Management Act (Revised Code of Washington (RCW) Chapter 36.70A) mandates that local jurisdictions adopt land use ordinances protect the following critical areas:

- Wetlands
- Critical aquifer recharge areas
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas.

The Growth Management Act (GMA) regulates development in these areas, and therefore has the potential to affect hazard vulnerability and exposure at the local level.

7.9.7 Shoreline Management Act

The 1971 Shoreline Management Act (RCW 90.58) was enacted to manage and protect the shorelines of the state by regulating development in the shoreline area. A major goal of the act is to prevent the "inherent harm in an

uncoordinated and piecemeal development of the state's shorelines." Its jurisdiction includes the Pacific Ocean shoreline and the shorelines of Puget Sound, the Strait of Juan de Fuca, and rivers, streams and lakes above a certain size. It also regulates wetlands associated with these shorelines.

7.9.8 Washington State Building Code

Chelan County adopts the following codes, as amended by the Washington State Building Code Council pursuant to RCW 19.27 for the purpose of establishing rules and regulations for the construction, alteration, removal, demolition, equipment, use and occupancy, location and maintenance of buildings and structures. International Building Code (IBC), International Residential Code (IRC), International Mechanical Code), International Fire Code (IFC), Uniform Plumbing Code (UPC), Washington State Energy Code, International Property Maintenance Code (IPMC) and possibly the future adoption of the International Wildland Urban Interface Code, all either 2015 edition or most current published code. The Washington State Building Code is comprised of national model codes adopted by reference and amended at the state level and others, such as the Washington State Energy Code, are state-written state-specific code.

7.9.9 Comprehensive Emergency Management Planning

Washington's Comprehensive Emergency Management Planning law (RCW 38.52) establishes parameters to ensure that preparations of the state will be adequate to deal with disasters, to ensure the administration of state and federal programs providing disaster relief to individuals, to ensure adequate support for search and rescue operations, to protect the public peace, health and safety, and to preserve the lives and property of the people of the state. It achieves the following:

- Provides for emergency management by the state and authorizes the creation of local organizations for emergency management in political subdivisions of the state.
- Confers emergency powers upon the governor and upon the executive heads of political subdivisions of the state.
- Provides for the rendering of mutual aid among political subdivisions of the state and with other states and for cooperation with the federal government with respect to the carrying out of emergency management functions.
- Provides a means of compensating emergency management workers who may suffer any injury or death, who suffer economic harm including personal property damage or loss, or who incur expenses for transportation, telephone or other methods of communication, and the use of personal supplies as a result of participation in emergency management activities.
- Provides programs, with intergovernmental cooperation, to educate and train the public to be prepared for emergencies.

It is policy under this law that emergency management functions of the state and its political subdivisions be coordinated to the maximum extent with comparable functions of the federal government and agencies of other states and localities, and of private agencies of every type, to the end that the most effective preparation and use may be made of manpower, resources, and facilities for dealing with disasters.

7.9.10 Washington Administrative Code 118-30-060(1)

Washington Administrative Code (WAC) 118-30-060 (1) requires each political subdivision to base its comprehensive emergency management plan on a hazard analysis, and makes the following definitions related to hazards:

- Hazards are conditions that can threaten human life as the result of three main factors:

  - Natural conditions, such as weather and seismic activity
  - Human interference with natural processes, such as a levee that displaces the natural flow of floodwaters
  - Human activity and its products, such as homes on a floodplain.

- The definitions for hazard, hazard event, hazard identification, and flood hazard include related concepts:

  - A hazard may be connected to human activity.
  - Hazards are extreme events. Hazards generally pose a risk of damage, loss, or harm to people and/or their property.

7.9.11 Washington State Floodplain Management Law

Washington's floodplain management law (RCW 86.16, implemented through WAC 173-158) states that prevention of flood damage is a matter of statewide public concern and places regulatory control with the Department of Ecology. RCW 86.16 is cited in floodplain management literature, including FEMA's national assessment, as one of the first and strongest in the nation. A major challenge to the law in 1978, Maple Leaf Investors v. Ecology, is cited in legal references to floodplain management issues. The court upheld the law, declaring that denial of a permit to build residential structures in the floodway is a valid exercise of police power and did not constitute a taking. RCW Chapter 86.12 (Flood Control by Counties) authorizes county governments to levy taxes, condemn properties and undertake flood control activities directed toward a public purpose.

7.9.12 Flood Control Assistance Account Program

Washington's first flood control maintenance program was passed in 1951 and was called the Flood Control Maintenance Program (FCMP). In 1984, RCW 86.26 (State Participation in Flood Control Maintenance) established the Flood Control Assistance Account Program (FCAAP), which provides funding for local flood hazard management. FCAAP rules are found in WAC 173-145. Ecology distributes FCAAP matching grants to cities, counties and other special districts responsible for flood control. This is one of the few state programs in the U.S. that provides grant funding to local governments for floodplain management. The program has been funded for $4 million per Biennium since its establishment, with additional amounts provided after severe flooding events.

To be eligible for FCAAP assistance, flood hazard management activities must be approved by Ecology in consultation with the Washington Department of Fish and Wildlife (WDFW). A comprehensive flood hazard management plan must have been completed and adopted by the appropriate local authority or be in the process of being prepared in order to receive FCAAP flood damage reduction project funds. This policy evolved through years of the FCMP and early years of FCAAP in response to the observation that poor management in one part of a watershed may cause flooding problems in another part.

Local jurisdictions must participate in the NFIP and be a member in good standing to qualify for an FCAAP grant. Grants up to 75 percent of total project cost are available for comprehensive flood hazard management planning. Flood damage reduction projects can receive grants up to 50 percent of total project cost and must be consistent with the comprehensive flood hazard management plan. Emergency grants are available to respond to unusual flood conditions. FCAAP can also be used for the purchase of flood prone properties, for limited flood mapping and for flood warning systems. Funding currently is running about 60 percent for planning and 40 percent for projects.

7.10 STAFF AND LOCAL STAKEHOLDER INVOLVEMENT IN ANNEX DEVELOPMENT

This annex was developed over the course of several months with input from Cascadia staff and the Board of Supervisors. Short and long-term planning, operations and financial considerations contributed to Cascadia's decision to annex, as well as its assessment of available assets and capacity. Local stakeholders contribute to Cascadia's plans and proposed actions in a variety of ways, including annual planning meetings, landowner committees, the Entiat Planning Unit, and various public events. Citizens are always welcome to attend monthly board meetings to bring requests, questions, or comments. An action development meeting was held on February 19, 2019 and was attended by Cascadia staff as well as the General Manager and representatives from the Board of Supervisors.

8. CHELAN COUNTY FLOOD CONTROL ZONE DISTRICT

8.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Eric Pierson, P.E., FCZD Administrator
Flood Control Zone District
C/O Chelan County Public Works Department
316 Washington Street, Suite 402
Wenatchee, WA 98801
Telephone: 509-667-6415
e-mail Address: Eric.Pierson@co.chelan.wa.us

Alternate Point of Contact
Jason Detamore, Environmental Manager
Flood Control Zone District
C/O Chelan County Public Works Department
316 Washington Street, Suite 402
Wenatchee, WA 98801
Telephone: 509-667-6415
e-mail Address: Jason.Detamore@co.chelan.wa.us

8.2 JURISDICTION PROFILE

8.2.1 Overview

In 2014, Chelan County formed a Flood Control Zone District to provide a dedicated program and funding source for flood hazard management. In 2017, the county adopted the *Chelan County Comprehensive Flood Hazard Management Plan*, which identifies resources, information, and strategies for reducing risk from flood hazards and will help guide and coordinate mitigation activities. The three-member Board of Supervisors assumes responsibility for the adoption of the Hazard Mitigation Plan and the county's Flood Control Zone District will oversee its implementation. Funding is through an annual property tax of $0.07 per $1000 assessed value.

8.2.2 Service Area and Trends

Chelan County's Flood Control Zone District is implemented countywide, including the cities of Cashmere, Chelan, Entiat, Leavenworth, and Wenatchee. The District serves a population of approximately 77,000 and the service area covers 2,994 square miles.

8.2.3 Assets

Table 8-1 summarizes the critical assets of the district and their value.

Table 8-1. Special Purpose District Assets

Asset	Value
Property	
2.63 acres of land (No. 1 Canyon Debris Facility)	$400,000
Critical Infrastructure and Equipment	
None	$0
Critical Facilities	
None	$0

8.3 CAPABILITY ASSESSMENT

An assessment of the district's current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 8.7 identifies these as community capacity building mitigation actions.

8.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 8-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 8-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
Chelan County Flood Control Zone District	2014	Formation of FCZD
Comprehensive Flood Hazard Management Plan	2017	Covers a 5-year timeframe

8.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 8-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 8-4.

Table 8-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	No

Table 8-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Chelan County Public Works Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Chelan County Public Works Department
Planners or engineers with an understanding of natural hazards	Yes	Chelan County Public Works Department
Staff with training in benefit/cost analysis	Yes	Consultant services
Surveyors	Yes	Chelan County Public Works Department
Personnel skilled or trained in GIS applications	Yes	Chelan County Public Works Department
Scientist familiar with natural hazards in local area	Yes	Chelan County Public Works Department
Emergency manager	Yes	Chelan County Sherriff's Office – Emergency Management Division
Grant writers	Yes	Chelan County Public Works Department
Other	No	

8.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 8-5.

Table 8-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	No
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes www.co.chelan.wa.us/flood-control-zone-district
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	Yes Comprehensive Flood Hazard Management Plan Steering Committee
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	Yes Email ListServe, social media, U.S. Postal Service
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Yes Emergency Management AlertSense

8.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 8-6 summarizes the jurisdiction's adaptive capacity for climate change.

Table 8-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Medium
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Medium
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Medium
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Medium
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Medium
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Medium
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Medium
Identified strategies for adaptation to impacts ***Comment:***	Medium
Champions for climate action in local government departments ***Comment:***	Medium
Political support for implementing climate change adaptation strategies ***Comment:***	Medium
Financial resources devoted to climate change adaptation ***Comment:***	Medium
Local authority over sectors likely to be negative impacted ***Comment:***	Medium
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Medium
Local residents support of adaptation efforts ***Comment:***	Medium
Local residents' capacity to adapt to climate impacts ***Comment:***	Medium
Local economy current capacity to adapt to climate impacts ***Comment:***	Medium
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Medium

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

8.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 8-7 lists past occurrences of flood and fire events with presidential declarations for which specific damage was recorded in the countywide Flood Control Zone District. Other hazard events that broadly affected the entire planning area, including Flood Control Zone District, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 8-7. History of Chelan County Flood and Fire Events With Presidential Disaster Declarations

Disaster Number	Event Dates	Declaration Date	Description
FM-5087	6/28/2015	6/29/2015	Sleepy Hollow Fire
FM-5100	8/13/2015 – 9/10/2015	8/14/2015	Chelan Fire Complex
DR4243	8/13/2015 – 9/10/2015	10/20/2015	Washington Wildfires and Mudslides
FM-5048	8/20/2013 – 8/28/2013	8/21/2013	Eagle Fire ($2.23 million in public assistance grants)
FM-5042	8/10/2013-8/14/2013	8/10/2013	Milepost 10 Fire ($908,893 in public assistance grants)
FM-5038	7/27/2013 -8/14/2013	7/30/2013	Colockum Tarps Fire ($6.8 million in public assistance grants)
FM-5020	9/19/2012	9/20/2012	Table Mountain Fire ($3.03 million in public assistance grants)
FM-5018	9/12/2012	9/13/2012	Peavine Fire ($285,252 in public assistance grants)
FM-5017	9/12/2012-10/31/2012	9/12/2012	Poison Fire ($684,418 in public assistance grants)
FM-5015	9/10/2012-9/19/2012	9/10/2012	Byrd Canyon Fire ($219,571 in public assistance grants)
FM-5012	9/9/2012 – 9/19/2012	9/9/2012	1st Canyon Fire ($528,668 in public assistance grants)
FM-2823	7/28/2009 – 8/2/2009	7/29/2009	Union Valley Fire ($640,028 in public assistance grants)
DR-1817	1/6/2009 – 1/16/2009	1/30/2009	Severe winter storm, landslides, mudslides, and flooding
FM-2711	7/8/2007 – 7/10/2007	7/8/2007	Easy Street Fire ($1.104 million in public assistance grants)
DR-1671	11/2/2006 – 11/11/2006	12/12/2006	Severe storms, flooding, landslides, and mudslides
FM-2674	9/9/2006 -9/16/2016	9/11/2006	Flick Creek Fire ($80,510 in public assistance grants)
FM-2572	7/31/2005 – 8/18/2005	8/1/2005	Dirty Face Fire ($1.061 million in public assistance grants)
FM-2543	8/11/2004 – 8/26/2004	8/11/2004	Fischer Fire ($3.033 million in public assistance grants)
FM-2537	7/30/2004 – 8/5/2004	7/30/2004	Deep Harbor Fire ($47,180 in public assistance grants)
DR-1499	10/15/2003 – 10/23/2003	11/7/2003	Severe storms and flooding
FM-2449	7/20/2002 – 7/27/2002	7/20/2002	Deer Point Fire ($2.573 in public assistance grants)
FM-2379	8/13/2001 – 8/31/2001	8/17/2001	Rex Creek Fire Complex ($1.008 million in Public Assistance grants)
DR-1159	12/26/1996 – 2/10/1997	1/17/1997	Severe winter storms, land & muds slides, flooding
DR-1079	11/7/1995 – 12/18/1995	1/3/1996	Severe storms, high wind, and flooding
DR-883	11/9/1990 – 12/20/1990	11/26/1990	Severe storms & flooding
DR-334	6/10/1972	6/10/1972	Severe storms & flooding

Source: FEMA, 2015b

Stage flooding events have been the most common type of recorded flood events to occur within the County in the past 25 years. Episodes in 1990 and 1995 far exceeded the predicted 100-year flood events. These floods have caused extensive damage along the Wenatchee River and Icicle Creek drainages; however, no fatalities have been recorded as a result of stage flooding in Chelan County. In October 2003, substantial flooding occurred in the Stehekin River, destroying public and private property and infrastructure.

Notable Stage Flooding Events

The following are notable stage flooding events in Chelan County (Chelan County, 2011):

- May/June 1948—Snowmelt flooding broke lake and river records countywide.
- May/June 1972—Snowmelt flooding combined with heavy rains affected rivers countywide, particularly the Entiat River.
- November 1990—Severe storms and flooding occurred during Veteran's Day and Thanksgiving weekend countywide, particularly along the Wenatchee River.
- November/December 1995—Extensive rains caused record-setting flood stages countywide, particularly in the Wenatchee River.
- December 1996/January 1997—Saturated ground combined with snow, freezing rain, rain, rapid warming and high winds within a five-day period combined to cause flooding.
- October 2003—A rain-on-snow event in the upper Cascades caused a flood-of-record in the Stehekin River.
- May 2006—Rapid spring thaw caused flooding in the Entiat River, Chatter Creek and Icicle Creek.
- November 2006—A rain-on-snow event caused extensive flooding in the Stehekin River and limited flooding in Icicle Creek.
- January 2009—A rain-on-snow event caused limited flooding in the Mad River, Mill Creek and Icicle Creek, particularly in the Leavenworth area.

Historical Flash Flooding Events

The following flash flood events in Chelan County have resulted in fatalities:

- 1925, Squilchuck Creek—14 fatalities
- 1942, Tenas Gorge—8 fatalities
- 1972, Preston Creek/Entiat River—4 fatalities.

8.5 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

An analysis using Hazus model demographic data (based on 2010 U.S. Census data) identified populations vulnerable to the flood hazard as follows:

- **Economically Disadvantaged Populations**—An estimated 16.3 percent of the people within the households in the census blocks that intersect the 100-year floodplain are economically disadvantaged, defined as having annual household incomes of $20,000 or less.
- **Population over 65 Years of Age**—An estimated 20.5 percent of the population in the census blocks that intersect the 100-year floodplain are over 65 years of age. Approximately 28 percent of the over-65 population in the floodplain also have incomes considered to be economically disadvantaged and are considered to be extremely vulnerable.
- **Population under 16 Years of Age**—An estimated 23.1 percent of the population within census blocks that intersect the 100-year floodplain are under 16 years of age.

In addition, persons with disabilities or others with access and functional needs are more likely to have difficulty responding to a flood or other hazard event than the general population. Local government is the first level of response to assist these individuals. Coordination of efforts to meet their access and functional needs is paramount to life safety efforts. It is important for emergency managers to distinguish between functional and medical needs

in order to plan for incidents that require evacuation and sheltering. Knowing the percentage of population with a disability allows emergency management personnel and first responders to have personnel available who can provide services needed by those with access and functional needs. According to the U.S. Census Bureau 2015 American Community Survey estimates, there are 10,164 individuals in Chelan County with some form of disability, representing 13.6 percent of the county population. Approximately 62 percent (6,290 individuals) are under the age of 65 (U.S. Census, 2015).

8.6 HAZARD RISK RANKING

Table 8-8 presents a local ranking for the Flood Control Zone District of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 8-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Severe Weather	45	High
2	Wildfire	36	High
3	Earthquake	34	High
4	Landslide	33	High
5	Flooding	18	Medium
6	Dam Failure	12	Low
7	Drought	9	Low
8	Avalanche	n/a	Low

8.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 8-9 lists the actions that make up the Flood Control Zone District hazard mitigation action plan. Table 8-10 identifies the priority for each action. Table 8-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 8-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Flood Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Action #FCZD-1—Define regional flood hazard management consistency pursuant to RCW 86.12 for the planning area. This definition will strive to exceed minimum NFIP standards and will be developed thru a facilitated planning effort with all cities within Chelan County.						
New and Existing	Any floodplain	2, 9, 10	FCZD, Community Development, All Chelan County Cities	Medium	FCZD	Short-term
Action # FCZD-2—Chelan County will continue with the Community Rating System (CRS) application and classification process and will mentor Chelan County cities that show interest in CRS participation.						
New and Existing	All floodplains	5	FCZD, Community Development, All Chelan County Cities	Low	FCZD, Chelan County Cities	Short-term

Applies to new or existing assets	Flood Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Action # FCZD-3—Define floodplain mapping criteria that takes into account future flood hazard conditions and/or expected worst case conditions to be applied to all future flood studies within the planning area.						
New and Existing	All floodplains	7, 11	Public Works, FCZD, Stormwater Utility	Low	FCZD, Stormwater Utility	Long-term
Action # FCZD-4—Identify alternative sources of funding to leverage FCZD funding to perform new flood studies in identified areas of need based on risk.						
New and Existing	All areas of known flood risk	4, 10	FCZD	Low	FCZD, identified alternative funding sources, HUD	Long term
Action # FCZD-5—Inform all future mapping by maintaining a database on known flood risk that tracks historical flood conditions to include, but not limited to: high water marks, recorded damages, photos, observed flood conditions, etc.						
New and Existing	All areas of known flood risk	1, 6, 7, 10	FCZD, Public Works, Stormwater Utility	Medium	FCZD	Short term
Action # FCZD-6—Continue to implement the Stormwater Management Program that includes facility identification, design, construction and maintenance within the stormwater utility jurisdictional authority.						
New and Existing	Surface water flooding	4, 6, 8, 10, 11	Stormwater Utility	Low	Stormwater Utility	Short-term, ongoing
Action # FCZD-7—For areas outside of the Stormwater Utility, clearly define the stormwater management program based on existing programs and capabilities.						
New and Existing	Surface water flooding	4, 6, 8, 10, 11	Public Works	Medium	Road Fund	Short-Term
Action # FCZD-8—Develop a facility maintenance operations and maintenance protocol for FCZD funded facilities as they are developed.						
New	All flooding	2	FCZD	High	FCZD	Long-term
Action # FCZD-9—Investigate solutions to issues associated with modification to the landscape that increase runoff, including sediment, to adjacent properties and infrastructure.						
New	Erosion based flooding	7	Public Works, Community Development, Conservation District, Cities, USFS	Medium	Responsible entities	Short-term
Action # FCZD-10—When requested, FCZD may act as the applicant agent for mitigation grant opportunities for private property requesting to participate in the grant program.						
Existing	All flooding	10	FCZD	Medium	Grant funding with private property owner contribution	Short-term, ongoing
Action # FCZD-11—Develop a flood informational website on the FCZD web page.						
New and Existing	All flooding	7, 10	FCZD	Low	FCZD	Short-term
Action # FCZD-12—Deploy public information and outreach program targeting at risk properties within the planning area.						
New and Existing	All flooding	7, 10	FCZD	Low	FCZD	Short-term
Action # FCZD-13—Coordinate with FEMA Region X on deploying flood insurance workshops for agents, lenders and citizens within the performance period for this plan.						
New and Existing	All FEMA mapped flooding	10	FCZD, FEMA	Low	FCZD, FEMA Region X	Short-Term
Action # FCZD-14—Investigate feasible, cost-effective solutions to flood issues within No. 1 Canyon.						
New	Alluvial fan flooding	4	FCZD, Stormwater Utility, City of Wenatchee	Medium	FCZD, City of Wenatchee, possible grant funding	Short-term

Applies to new or existing assets	Flood Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Action # FCZD-15—Identify a feasible, cost-effective solution to Slide Ridge debris flow issues.						
New and Existing	Alluvial fan flooding	4, 6, 7, 8, 10, 11	FCZD	High	FCZD, possible grant funding	Long-term
Action # FCZD-16—Investigate feasible, cost-effective solutions to flood issues within No. 2 Canyon.						
New and Existing	Alluvial fan, post-fire flooding	4, 6, 7, 8, 10, 11	FCZD, Stormwater Utility, City of Wenatchee	High	FCZD, City of Wenatchee, possible grant funding	Long-term
Action # FCZD-17—Investigate feasible, cost-effective solutions to flood issues within Dry Gulch (south of City of Wenatchee).						
New and Existing	Alluvial fan, post-fire flooding	4, 6, 7, 8, 10, 11	FCZD, Stormwater Utility, City of Wenatchee	High	FCZD, City of Wenatchee, possible grant funding	Long-term
Action # FCZD-18—Investigate feasible, cost effective solutions to flood issues within Mission Creek.						
New and Existing	Riverine flooding	4, 6, 7, 8, 10, 11	FCZD, City of Cashmere	High	FCZD, City of Cashmere, possible grant funding	Long-term
Action # FCZD-19—Investigate feasible solutions to flood issues within Ski Hill Basin.						
New and Existing	All flooding	4, 6, 7, 8, 10, 11	FCZD, Public Works	Medium	Public Works	Short-tem
Action # FCZD-20—Coordinate with City of Cashmere on options for the maintenance and management of the levee system within the City.						
Existing	Riverine	4, 6, 7, 8, 10	FCZD, City of Cashmere	High	FCZD, City of Cashmere, possible grant funding	Long-term
Action # FCZD-21—Maintain database of flood control needs within the planning area as needs become identified for incorporation into future updates and progress reporting to this plan.						
New and existing	All flooding	7	FCZD	Low	FCZD	Short-tem, ongoing
Action # FCZD-22—Mitigate flood related risk to publicly owned county bridges.						
Existing	All flooding	4, 6, 7, 8	Public Works, FCZD	High	FCZD, Public Works, possible grant funding	Long-term
Action # FCZD-23—Maintain the county Critical Areas Ordinance (CAO) pursuant to the requirements of the State Growth Management Act.						
New and existing	Frequently flood areas under jurisdiction of CAO	11	Community Development	Low	Community Development	Ongoing
Action # FCZD-24—Identify feasible opportunities with like goals for natural resource protection within identified flood risk areas based on available funding.						
New and existing	All flooding	4, 6, 7, 8, 10	FCZD, Natural Resource Department (County), Conservation District, fisheries enhancement groups	Low	Grants	Long-term
Action # FCZD-25—Coordinate with watershed planning and program implementation to identify opportunities to leverage available funding for like goals between watershed and FCZD plans and programs.						
New and existing	All flooding	4, 6, 7, 8, 10	FCZD, Watershed Planning Groups	Low	FCZD	Short-term

Applies to new or existing assets	Flood Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Action # FCZD-26—Utilizing the best available data, science and technology, enhance the existing flood notification program, striving to identify a notification protocol within systems that have real-time flood threat recognition capability.						
New and existing	All flooding	1, 2, 7, 9	FCZD, Emergency Management	High	FCZD, Emergency Management, possible grant funding	Long-term
Action # FCZD-27—Update the County emergency response plan to reflect any changes to flood notification protocol within the County.						
New and existing	All flooding	1, 2, 7, 9	FCZD, Emergency Management	Medium	FCZD, Emergency Management, possible grant funding	Short-term, ongoing
Action # FCZD-28—Conduct annual exercises of the County Emergency Operations Plan in compliance with NIMS standards, such that flood response actions of the County are reviewed, evaluated, and adapted based on observations from the exercises.						
New and existing	All flooding	1, 2, 7, 9	FCZD, Cities, Public Works, Emergency Management, Sherriff's Office	Low	FCZD, Public Works, Emergency Management	Short-term, ongoing
Action # FCZD-29—Draft a prioritized list of road segments and bridges that should be elevated above the 100-year flood hazard area and culverts that will fail under flood flow. Upgrade these structures if funding become available.						
Existing	All flooding	4, 6, 7, 8	FCZD, Public Works, Natural Resource Department (County)	High	FCZD, Public Works, possible grant funding	Long-term
Action # FCZD-30—Integrate the Chelan County Comprehensive Flood Hazard Management Plan into other appropriate plans and programs that can support or enhance the County's efforts to reduce flood risk as these plans and programs are updated. Examples of such plans/programs would include but are not limited to: Chelan County Hazard Mitigation Plan, Chelan County Comprehensive Plan, and Chelan County Shorelines Master Plan.						
New and existing	All flooding	7, 10	FCZD, Community Development, All Cities	Medium	FCZD, Community Development	Long-term
Action #3 FCZD-1—Utilizing the best available data, science and technology, maintain and enhance as data becomes available the Level 2, user-defined HAZUS-MH model that was constructed to support this planning effort.						
New and existing	All flooding	7	FCZD, Public Works	Medium	FCZD	Short-term, ongoing
Action # FCZD-32—Establish a sediment management program that includes expanded channel monitoring, establishment of thresholds to trigger actions, and analysis of sediment management action alternatives.						
New and existing	Sediment transport flooding	7	FCZD, Public Works, Natural Resource Department (County), applicable Cities	Medium	FCZD	Long-term
Action # FCZD-33—As FCZD projects are constructed, monitor projects using identified performance measures and adaptive management to track the effectiveness of completed projects to inform the design and implementation of future projects.						
New	All flooding	7	FCZD, Public Works	Medium	FCZD	Ongoing, Long-term
Action # FCZD-34—Respond to inquiries and complaints from citizens and other public and private agencies and tracking per Community Rating System requirements.						
New and existing	All flooding	5, 7	FCZD, Public Works, All Cities	Low	FCZD, Public Works	Short-term, ongoing
Action # FCZD-35—Maximize federal, state, and local funding opportunities through grant application submittals in support of capital improvement projects, technical studies, and other flood hazard management activities.						
New and existing	All flooding	7	FCZD, Public Works, All Cities	Medium	FCZD, Public Works	Long-term

Applies to new or existing assets	Flood Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Action # FCZD-36—Continue to provide flood hazard management technical support to all Chelan County departments and cities proposing activities or projects that affect floodplain functions.						
New and existing	All flooding	7, 9, 10	FCZD, Community Development, Natural Resource Department (County), All Chelan County Cities	Low	FCZD, Public Works	Short-term, ongoing
Action # FCZD-37—Continue to maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum NFIP requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on flood hazard requirements and impacts.						
New and Existing	All FEMA mapped Flood Hazards	11	FCZD, Community Development, All Chelan County Cities	Low	FCZD, Chelan County Cities	Short-term, ongoing
Action # FCZD-38—Develop and implement a stand-alone floodplain development permit for all new development and/or substantial improvements within the unincorporated County regulated floodplain.						
New and Existing	All regulated flood hazards	11	Public Works, Community Development	Low	Public Works	Short-term

Table 8-10. Mitigation Action Priority

Action	# of Objectives Met	Benefits	Costs	Do Benefits equal or exceed Costs?	Is project Grant eligible?	Can Project be funded under existing programs/ budgets?	Priority (High, Med., Low)
# FCZD-1	3	Medium	Medium	Yes	No	Yes	High
# FCZD-2	1	Medium	Low	Yes	No	Yes	High
# FCZD-3	2	Medium	Low	Yes	No	Yes	High
# FCZD-4	2	Low	Low	Yes	No	Yes	High
# FCZD-5	4	Medium	Medium	Yes	Yes	No	Medium
# FCZD-6	5	Medium	Low	Yes	Yes	Yes	High
# FCZD-7	5	Medium	Medium	Yes	Yes	No	Medium
# FCZD-8	1	High	High	Yes	No	No	Medium
# FCZD-9	1	Medium	Medium	Yes	No	No	Medium
# FCZD-10	1	Medium	Medium	Yes	Yes	No	Medium
# FCZD-11	2	Low	Low	Yes	No	Yes	High
# FCZD-12	2	Low	Low	Yes	No	Yes	High
# FCZD-13	1	Low	Low	Yes	No	Yes	High
# FCZD-14	1	High	Medium	Yes	Yes	Yes	High
# FCZD-15	6	High	Medium	Yes	Yes	Yes	High
# FCZD-16	6	High	Medium	Yes	Yes	Yes	High
# FCZD-17	6	High	Medium	Yes	Yes	Yes	High
# FCZD-18	6	High	Medium	Yes	Yes	Yes	High
# FCZD-19	6	High	Medium	Yes	Yes	Yes	High
# FCZD-20	5	Low	Low	Yes	No	Yes	High
# FCZD-21	1	High	High	Yes	Yes	No	Medium
# FCZD-22	4	High	Low	Yes	No	Yes	High
# FCZD-23	1	Medium	Low	Yes	Yes	Yes	High

Action	# of Objectives Met	Benefits	Costs	Do Benefits equal or exceed Costs?	Is project Grant eligible?	Can Project be funded under existing programs/ budgets?	Priority (High, Med., Low)
# FCZD-24	5	High	Low	Yes	Yes	Yes	High
# FCZD-25	5	High	High	Yes	Yes	No	Medium
# FCZD-26	4	High	Medium	Yes	Yes	Yes	High
# FCZD-27	4	High	Low	Yes	Yes	Yes	High
# FCZD-28	4	High	High	Yes	Yes	No	Medium
# FCZD-29	4	Medium	Medium	Yes	No	No	Medium
# FCZD-30	2	Medium	Medium	Yes	Yes	No	Medium
# FCZD-31	1	High	Medium	Yes	Yes	No	Medium
# FCZD-32	1	High	Medium	Yes	No	Yes	High
# FCZD-33	1	Medium	Low	Yes	No	Yes	High
# FCZD-34	2	Medium	Medium	Yes	Yes	Yes	High
# FCZD-35	1	Medium	Low	Yes	No	Yes	High
# FCZD-36	3	Medium	Low	Yes	No	Yes	High
# FCZD-37	1	Medium	Low	Yes	No	Yes	High
# FCZD-38	1	Medium	Medium	Yes	Yes	Yes	High

a. See the introduction to this volume for explanation of priorities.

Table 8-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Flood	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 22, 23, 24, 25, 29, 30, 33, 34, 35, 36, 37, 38	2, 21, 28, 36	2, 11, 12, 13, 30, 33, 36	2, 22, 23, 24, 36	2, 25, 26, 27, 30, 36	14, 15, 16, 17, 18, 20, 31, 32, 38		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38

a. See the introduction to this volume for explanation of mitigation types.

8.8 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- Chelan County Comprehensive Flood Hazard Mitigation Plan
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

9. CHELAN COUNTY FIRE DISTRICT #1

9.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Brian Brett, Fire Chief
136 S. Chelan Ave.
Wenatchee, WA 98801
Telephone: 509-662-4734
e-mail Address: Bbrett@Chelancountyfire.com

Alternate Point of Contact
Jon Riley, Community Wildfire Liaison
136 S. Chelan Ave.
Wenatchee, WA 98801
Telephone: 509-662-4734
e-mail Address: Jriley@chelancountyfire.com

9.2 JURISDICTION PROFILE

9.2.1 Overview

Chelan County Fire District #1 (CCFD1) was created in 1943, and currently operates as a combination department with 43 full-time employees, 44 volunteers, and three seasonal wildland staff. CCFD1 provides emergency response to structure fires, wildland fires, medical emergencies, hazardous material incidents, and technical rescues to the 43,500 citizens of our 72 square mile response area. The district is funded primarily through levy rates, bonds, protection contracts and is governed by a 3-member elected board of commissioners. Chelan County Fire District #1 assumes responsibility for the adoption of this plan; Fire Chief, Brian Brett will oversee its implementation. The District participates in the Public Protection Class Rating System and currently has a rating of 5.

9.2.2 Service Area and Trends

The district serves a population of 43,500 residing in the City of Wenatchee, Malaga, and unincorporated areas of Chelan County. Our service area covers 72 square miles and includes urban, suburban, industrial, agricultural, forested and shrub type landscapes. Nearly all the land area within the City of Wenatchee has been developed, forcing new construction onto unincorporated county parcels with steep topography, and potential water supply and access issues. Department operations are conducted from four, 24-hour staffed stations as well as three auxiliary stations housing volunteer resident firefighters and additional apparatus. The district responds to roughly 2,600 calls per year including EMS, structure fire, wildland fire, hazardous materials and technical rescue.

9.2.3 Assets

Table 9-1 summarizes the critical assets of the district and their value.

Table 9-1. Special Purpose District Assets

Asset	Value
Property	
8.75 acres of land	$0.00
Total	**$0.00**
Critical Infrastructure and Equipment	
Unit 101 2011 Ford F-150	$45,000
Unit 102 2008 Ford F-250	$45,000
Unit 103 2006 Ford F-250	$45,000
Unit 105 2006 Ford Explorer	$7,500
Unit 108 2008 Chev Trailblazer	$45,000
Unit 109 2008 Ford F-250 Diesel	$45,000
Unit 110 2004 Ford F-350 Gas	440,000
Unit 111 2007 Chevy 1500	$45,000
Unit 112 2017 Ford F-250	$50,000
Unit 113 2017 Ford F-250	$50,000
Unit 114 2018 Chevy Tahoe	$50,000
Unit 201 2007 KME Predator	$450,000
Unit 203 1995 Int/E-One 4800	$200,000
Unit 204 2007 KME Predator	$450,000
Unit 205 2007 KME Predator	$450,000
Unit 206 2002 E-One Typhoon	$450,000
Unit 207 2001 H&W 13	$450,000
Unit 209 1984 Seagraves	$125,000
Unit 210 2013 HME Model 18	$450,000
Unit 211 2004 American LaFrance	$450,000
Unit 212 2004 American LaFrance	$450,000
Unit 301 1995 International 4800	$195,000
Unit 302 1996 Ford F-350	$70,000
Unit 303 2004 Humvee M1113	$70,000
Unit 304 2004 Humvee M1113	$70,000
Unit 305 2004 Humvee M1113	$70,000
Unit 306 1995 International 4800	$195,000
Unit 307 1996 Ford F-350	$70,000
Unit 309 2012 Ford F-550 Rescue	$225,000
Unit 310 2018 Ford F-550 Brush/Rescue	$75,000
Unit 401 1995 E-One Cyclone 75’	$675,000
Unit 402 1995 E-One Cyclone 100’	$800,000
Unit 501 1995 International 4800	$230,000
Unit 502 2008 Kenworth T-370	$230,000
Unit 503 1985 AMG	$230,000
Unit 601 1994 F-350 Plow	$20,000
Unit 602 1994 F-350 Shop	$3,500
Unit 603 1985 Chev Plow	$1,000
Unit 701 2009 Wells Cargo	$5,000
Unit 702 1991 Light Plant	$1,000
Unit 703 1975 GMC	$1,000
Unit 704 1971 International	$1,000

Asset	Value
Unit 705 1946 Chevy	$40,000
Unit 706 2016 Morbark Chipper M12R	$35,000
(Out of service) Unit 208 1994 E-One/Mac	$350,000
(Out of service) Unit 308 1987 Ford F-350	$70,000
Total:	**$8,125,000**
Critical Facilities	
Station 10	$250,000
Station 11	$2,112,171
Station 12	$784,717
Station 13	$1,850,000
Station 14	$225,122
Station 15	$250,000
Station 17	$3,079,761
Total:	**$8,701,771**

9.3 CAPABILITY ASSESSMENT

An assessment of the district's current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 9.8 identifies these as community capacity building mitigation actions.

9.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 9-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 9-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
Capital Replacement Plan	2018	Updated annually
Community Wildfire Protection Plan Chelan County	2008	Currently being updated
Community Wildfire Area Protection Plan Squilchuck Valley	2015	Amended in 2015

9.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 9-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 9-4.

9.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 9-5.

Table 9-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	No
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	Yes Private Foundation Grants/Donations

Table 9-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	City/County Planning-Building Departments
Engineers or professionals trained in building or infrastructure construction practices	Yes	City/County Planning-Building, Engineering Departments
Planners or engineers with an understanding of natural hazards	Yes	City/County Planning-Building, Engineering Departments
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Rivercom/City/County Planning-Building Departments
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Chelan County Emergency Management
Grant writers	No	
Other	No	

Table 9-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	Yes Linked mitigation information on the CCFD1 wildfire website
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	No
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Yes

9.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 9-6 summarizes the jurisdiction's adaptive capacity for climate change.

Table 9-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts *Comment:*	Low
Jurisdiction-level monitoring of climate change impacts *Comment:*	Low
Technical resources to assess proposed strategies for feasibility and externalities *Comment:*	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory *Comment:*	Low
Capital planning and land use decisions informed by potential climate impacts *Comment:*	Low
Participation in regional groups addressing climate risks *Comment:*	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes *Comment:*	Low
Identified strategies for greenhouse gas mitigation efforts *Comment:*	Low
Identified strategies for adaptation to impacts *Comment:*	Low
Champions for climate action in local government departments *Comment:*	Low
Political support for implementing climate change adaptation strategies *Comment:*	Low
Financial resources devoted to climate change adaptation *Comment:*	Low
Local authority over sectors likely to be negative impacted *Comment:*	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk *Comment:*	Unsure
Local residents support of adaptation efforts *Comment:*	Unsure
Local residents' capacity to adapt to climate impacts *Comment:*	Unsure
Local economy current capacity to adapt to climate impacts *Comment:*	Unsure
Local ecosystems capacity to adapt to climate impacts *Comment:*	Unsure

a. High = Capacity exists and is in use; Medium = Capacity may exist but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

9.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

For hazard mitigation planning, "integration" means that hazard mitigation information is used in other relevant planning mechanisms, such as capital facilities planning, and that relevant information from those sources is used in hazard mitigation. This section identifies where such integration is already in place, and where there are opportunities for further integration in the future. Resources listed in Section 9.11 were used to provide information on integration. The progress reporting process described in Volume 1 will document the progress of hazard mitigation actions related to integration and identify new opportunities for integration.

9.4.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- **Squilchuck Community Wildfire Protection Plan-** Originally drafted in 2005 and updated in 2015. Identifies wildfire risk, mitigation and response activities for the Squilchuck Valley.
- **Chelan County Fire Plan-** CWPP drafted in 2008. Currently, in process of being updated with a completion date in 2019. The plan identifies wildfire risk, hazards and mitigation actions.
- **Chelan County Comprehensive Emergency Management Plan-** Updated in 2015. The plan addresses specific emergency responses information inclusive of natural hazards.

9.4.2 Opportunities for Future Integration

The capability assessment presented in this annex identified the following plans and programs that do not currently integrate hazard mitigation information but provide opportunities to do so in the future:

- **City of Wenatchee Urban Area Comprehensive Plan-** Drafted in 2017 to incorporate and adopt various city and county plans, studies and technical documents. While cited in the plan, wildfire hazard is not specifically addressed with action items.
- **City of Wenatchee Community Wildfire Protection Plan-** The city does not have a CWPP; however, intends to develop one with cooperation from local agencies including Chelan County Fire District #1. The Wenatchee CWPP will integrate into the Urban Area Comprehensive Plan and address wildfire related issues through action items developed by the planning committee.
- **Chelan County Fire District #1 Capital Replacement Plan-** The fire district is in the process of relocating fire stations to better serve the entire fire district; which includes the city of Wenatchee. Additionally, replacement of capital items (e.g. apparatus) are identified on a replacement schedule to meet the needs of the district and minimize deficiency points, that may be levied, by Washington State Survey and Rating.

9.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 9-7 lists past occurrences of natural hazards for which specific damage was recorded in Chelan County Fire District #1. Other hazard events that broadly affected the entire planning area, including Chelan County Fire District #1, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 9-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Easy Street Fire		07/11/2007	$50,000
Swakane Fire		07/10/2010	$Undetermined
Colockum-Tarps Fire		07/27/2013	$Undetermined
Milepost 10 Fire		08/09/2013	$Undetermined
Sleepy Hollow Fire		06/28/2015	$Undetermined
Castlerock Fire		09/26/1992	$5,000.000
Dinkleman Fire		09/06/1988	$Undetermined
Wenatchee Complex		09/08/2012	$20,000
Cramner Road Landslide		05/06/2016	$400,000
Horselake Fire		09/04/2016	$50,000
Monitor Fire		11/01/2017	$Undetermined

9.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Wildfire.
- Post fire flooding.
- Air quality issues from wildfire smoke.

9.7 HAZARD RISK RANKING

Table 9-8 presents a local ranking for Chelan County Fire District #1 of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 9-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	n/a	High
2	Severe Storm	n/a	High
3	Flooding	n/a	Medium
4	Drought	n/a	Medium
5	Earthquake	n/a	Low
6	Dam Failure	n/a	Low
7	Avalanche	n/a	Low
8	Seiche	n/a	Low

9.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 9-9 lists the actions that make up the Chelan County Fire District #1 hazard mitigation action plan. Table 9-10 identifies the priority for each action. Table 9-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 9-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action FD-1—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	7, 10		CCFD1	Low	Staff Time, General Funds	Short-term
Action FD-2—Integrate the hazard mitigation plan into other plans, ordinances and programs within the community.							
New		10	Chelan County	CCFD1			
Action FD-3—Purchase backup generators.							
New	All Hazards	2	CCFD1				
Action FD-4—Create a fuels reduction zone with land owners in collaboration with other fire service agencies along all roadways identified as evacuation routes.							
	Wildfire	3, 4, 5, 6, 8	CCFD1				
Action FD-5—Provide landowners with training pertaining to fuels management and secure matching grants to provide financial assistance to those private landowners in need of reducing fire risk on their properties.							
	Wildfire	3, 4, 5, 8	CCFD1, Chelan County, CCD				
Action FD-6—Seek funding for and maintain address signage to identify residence locations.							
	All Hazards	4	CCFD1				
Action FD-7—Work with interagency partners and private landowners to Identify emergency water sources and locations, seek funding for development of emergency water access or storage facilities at identified locations.							
	Wildfire	8	CCFD1				
Action FD-8—Equip trailer for mobile incident command post.							
	All Hazards	2	CCFD1				
Action FD-9—Improve early notification of emergencies and subsequent evacuation plans.							
	All Hazards	1, 6					
Action FD-10—Adopt a county wide WUI code to reduce the impact on homes during wildfire events.							
	Wildfire	8, 10	Chelan County	CCFD1			
Action FD-11—Coordinate with Washington State Department of Transportation to designate alternate evacuation routes.							
	All Hazards	3, 10	CCFD1, Chelan County				
Action FD-12—Develop alternative egress routes for communities limited to single ingress and egress points, or major fuel reduction along paths of egress.							
	All Hazards / Wildfire	3, 10	CCFD1, Chelan County, Cities				
Action FD-13—Develop sub-planning areas within the fire district to determine probable resource needs for wildfire response.							
		1, 2, 4, 5, 6, 8	CCFD1				
Action FD-14—Collect data to rate the vulnerabilities of structures and utilize the data to engage property owners to take action as well as provide data to Incident Management Teams.							
	All Hazards	7, 10	CCFD#1	City/County GIS	High	Grant, staff	Short-long term
Action FD-15—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	2, 6, 8	Chelan County	FD1	High	HMGP, PDM, FMA	Short-term

Table 9-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
1	2	High	Med	Yes	Yes	No	Medium	High
2	1	Low	Low	Yes	No	Yes	High	Low
3	1	High	High	Yes	Yes	No	High	High
4	5	High	High	Yes	Yes	No	Medium	Med
5	4	High	Med	Yes	Yes	No	High	Med
6	1	High	Low	Yes	Yes	Yes	High	Med
7	1	High	Med	Yes	Yes	No	Medium	Med
8	1	High	Med	Yes	Yes	No	Medium	Med
9	2	High	Med	Yes	Yes	No	High	High
10	2	High	Low	Yes	No	Yes	High	N/A
11	2	High	Med	Yes	Yes	No	High	Med
12	2	High	High	Yes	Yes	No	High	High
13	6	High	Low	Yes	No	Yes	High	Low
14	2	High	High	Yes	Yes	No	High	High
15	3	High	High	Yes	Yes	No	Med	Med

a. See the introduction to this volume for explanation of priorities.

Table 9-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	4, 5	6, 7, 10	2, 5, 6, 9, 12, 13	5	3, 8, 11, 12	11, 12, 15	-	-
Flood			9, 12		3, 8			
Landslide			9, 12		3, 8			
Earthquake			9, 12		3, 8			
Drought	7				3, 8			
Severe Storm			9, 12		3, 8			
Dam Failure			9, 12		3, 8			
Avalanche			9, 12		3, 8			
Seiche					3, 8			

a. See the introduction to this volume for explanation of mitigation types.

9.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Action item #7 reflects the desire for a pictometry program to assess structures based on their current built characteristics, surrounding fuels and topography. This will assist us in quantifying risk/vulnerability.

9.10 ADDITIONAL COMMENTS

Fire District #1's planning area is connected to various private/public ownership. The goal of being annexed into the HMP is to enhance our collaboration to reduce risk to all stakeholders.

9.11 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

10. CHELAN COUNTY FIRE DISTRICT #3

10.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Dave Nalle, Deputy Chief
228 Chumstick Hwy
Leavenworth, WA 98826
Telephone: 509-548-7711
e-mail Address: dave@chelanfd3.org

Alternate Point of Contact
Alex Roberts, Firefighter
228 Chumstick Hwy
Leavenworth, WA 98826
Telephone: 509-548-7711
e-mail Address: alex@chelanfd3.org

10.2 JURISDICTION PROFILE

10.2.1 Overview

Chelan County Fire District #3 was formed in 1947 to provide fire protection to the unincorporated area surrounding the City of Leavenworth. In 2013, the City of Leavenworth was annexed in to the District. CCFD3 is a combination department with six full-time staff and 40 volunteers. The District is funded primarily through the collection and distribution of property taxes.

Chelan County Fire District #3 is governed by a three-member board of Commissioners. Each Commissioner is elected to a six-year term. The Commissioners terms are staggered at two-year increments. The Board of Commissioners of Chelan County Fire District #3 assumes responsibility for the adoption of this plan; the Fire Chief will oversee its implementation.

The District participates in the Public Protection Class Rating System and currently has a rating of 5 in the City limits and 6 in the District.

10.2.2 Service Area and Trends

The district service area covers 28 square miles serving a population of 4,861. The boundaries are generally the City of Leavenworth, the Icicle Valley, and the Chumstick Valley with the adjacent canyons. The population of the City of Leavenworth has been relatively stable over the last 10 years. However, tourism to the area has continued to grow with as many as 30,000 to 50,000 visitors per weekend for festivals. Development of previously undeveloped land has continued to fuel the construction industry.

CCFD3 is the primary/first due response for the area adjacent to 11 miles of Burlington Northern Santa Fe rail line. This line is a major shipping route between the east and west sides of Washington State and sees more than 25 trains per day, including twice daily passenger train with service to Seattle and Chicago.

In 2017, CCFD3 responded to 636 incidents. CCFD3 has experiences in single and multiple major weather-related events (areas of flooding, snow or wind). CCFD3 also routinely experiences wildfire incidents. Wildland and interface responses can easily escalate into a significant wildfire if these fires are not extinguished

immediately from July through September. The last several seasons have seen multiple Type 1 and 2 wildfires within our jurisdiction. According to the Leavenworth Area Community Wildfire Protection Plan, 98% of the forest in our jurisdiction has a higher than normal fuel load. Headwaters Economics ranks Chelan County in the top 8% for wildfire risk when compared to counties in 11 western states. Over the past 20 years, 33% of Chelan County's total land area has been impacted by wildfire, requiring State Mobilization of structure protection resources and trained and safely equipped structural firefighters. CCFD3 feels the trend of more frequent and longer duration weather-related incidents will continue.

10.2.3 Assets

Table 10-1 summarizes the critical assets of the district and their value.

Table 10-1. Special Purpose District Assets

Asset	Value
Property	
2 acres of land	$250,000
Equipment	
Command Vehicles	$105,000
1 Rescue Vehicle	$110,000
3 Engines	$700,000
2 Tenders	$370,000
2 Brush Trucks	$220,000
1 Ladder Truck	$250,000
Total:	***$1,755,000***
Critical Facilities and Infrastructure	
Station 31 228 Chumstick Hwy, Leavenworth, WA 98826	2,500,000
Station 32 15415 Camp 12 Rd., Leavenworth, WA 98826	200,000
Total:	***$2,700,000***

10.3 CAPABILITY ASSESSMENT

An assessment of the district's current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 10.8 identifies these as community capacity building mitigation actions.

10.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 10-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 10-2. Planning and Regulatory Capability

Plan, Study or Program	Date Last Updated
Chelan County has a draft WUI code that is in review for implementation by the County Commissioners	Unknown
Fire Advisory Board tracks weather trends and implements fire restrictions within Chelan County	Unknown
Community Wide Protection Plan (CWPP)	Unknown

10.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 10-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 10-4.

Table 10-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	NO
Authority to Levy Taxes for Specific Purposes	NO
User Fees for Water, Sewer, Gas or Electric Service	NO
Incur Debt through General Obligation Bonds	YES
Incur Debt through Special Tax Bonds	NO
Incur Debt through Private Activity Bonds	NO
State-Sponsored Grant Programs	YES
Development Impact Fees for Homebuyers or Developers	NO
Federal Grant Programs	YES
Other	NO

Table 10-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	NO	
Engineers or professionals trained in building or infrastructure construction practices	NO	
Planners or engineers with an understanding of natural hazards	NO	
Staff with training in benefit/cost analysis	NO	
Surveyors	NO	
Personnel skilled or trained in GIS applications	NO	
Scientist familiar with natural hazards in local area	NO	
Emergency manager	YES	Fire Chief, Assistant Chief, Deputy Chief
Grant writers	YES	Firefighter/Grant Coordinator
Other	NO	

10.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 10-5.

10.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 10-6 summarizes the District's adaptive capacity for climate change.

Table 10-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	YES
Do you have personnel skilled or trained in website development?	YES
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	YES Links to various resources
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	YES Facebook Page/Website
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	NO
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	NO
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	NO

Table 10-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Medium
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Low
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low

Criterion	Jurisdiction Rating[a]
Public Capacity	
Local residents knowledge of and understanding of climate risk	Medium
Comment:	
Local residents support of adaptation efforts	Medium
Comment:	
Local residents' capacity to adapt to climate impacts	Medium
Comment:	
Local economy current capacity to adapt to climate impacts	Unsure
Comment:	
Local ecosystems capacity to adapt to climate impacts	Unsure
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

10.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

10.4.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- FEMA HMGP – Phase 1
- Jointly with Chumstick Wildfire Stewardship Coalition – Fuels reduction, ingress and egress treatment.
- Capital Improvement Plan—The capital improvement plan includes projects can help mitigate potential hazards. The District will act to ensure consistency between the hazard mitigation Plan and the current and future capital improvement plans. The hazard mitigation plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on results of the risk assessment.
- Emergency Operations Plan—The results of the risk assessment were used in the development of the emergency operations plan.
- Facilities Plan—The results of the risk assessment and mapped hazard areas are used in facility planning for the district. Potential sites are reviewed for hazard risks and appropriate mitigation measures are considered in building and site design.

10.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, CCFD3 will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be

identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- FEMA HMGP – Phase 2 approval
- Capital Improvement Projects—Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization
- Fuels Reduction Program
- Home Assessment Program
- WUI code adoption throughout the County

10.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 10-7 lists past occurrences of natural hazards for which specific damage was recorded in Chelan County Fire District #3. Other hazard events that broadly affected the entire planning area, including Chelan County Fire District #3, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 10-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Wildfire - Cougar Creek		07/28/2018	Not Available
Severe Winter Storm		12/17/17	Not Available
Wildfire – Jack Creek		7/17/17	Not Available
Wildfire – Spromberg Cyn		5/23/17	Not Available
Severe Winter Storm		12/19/16	Not Available
Wildfire – Suncrest		8/27/16	Not Available
Ice Storm		01/03/15	Not Available
Wildfire – Chiwaukum		07/15/14	Not Available
Wildfire – Chumstick		8/19/13	Not Available
Wildfire – Wenatchee Complex		9/1/12	Not Available
Wildfire – Tumwater Canyon		8/17/11	Not Available
Flood		3/31/11	Not Available
Wildfire – Jack Creek		8/10/08	Not Available
Flood		11/7/06	Not Available
Wildfire – Rat Creek		7/29/94	Not Available

10.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Wildfire in the wildland urban interface
- Roads with only one way in and one way out adjacent to areas of grass, brush and thick pine fuels
- Station 32, a critical facility, is not equipped with a generator
- Structural conflagration fire in the downtown corridor
- Landslide or avalanche in Tumwater Canyon
- Flooding in the lowlands of Icicle and East Leavenworth Rd.
- 20+ trains go through the District each day -

- The District serves two major passes which involve a high volume of motor vehicle accidents and potentially hazardous materials
- Severe weather impacts residents traveling to work
- Vulnerable populations not able to heat/cool their home
- High wind events often cause falling limbs and downed power lines
- Acquisition and maintenance of a ladder truck for downtown corridor
- Existing facility becoming inadequate for expanding apparatus and staff

10.7 HAZARD RISK RANKING

Table 10-8 presents a local ranking for Chelan County Fire District #3 of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 10-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Fire	54	High
2	Severe Weather	45	High
3	Avalanche		Medium
4	Landslide	18	Medium
5	Earthquake	32	Medium
6	Flooding	18	Low
7	Dam Failure	12	Low
8	Drought	6	Low

10.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 10-9 lists the actions that make up the Chelan County Fire District #3 hazard mitigation action plan. Table 10-10 identifies the priority for each action. Table 10-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 10-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
CCFD3-1 - Continue fuel reduction and home hardening activities throughout CCFD3 to increase ignition-resistance.							
New and Existing	Wildfire	3	CCFD3	County, City of Leavenworth, Chumstick Wildfire Stewardship Coalition	HIGH	HMGP, PDM	Ongoing
CCFD3-2 – Purchase an Air Curtain Burner to facilitate the clean disposal of fire fuels							
New	Wildfire	3, 5, 6, 8, 10	CCFD3	County, City of Leavenworth	HIGH		Ongoing
CCFD3-3 – Improve District's training grounds to better prepare firefighters to respond to the diverse types of emergencies							
New	ALL	2, 9	CCFD3	County, CCFD6	HIGH	HMGP, PDM	Long-Term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
CCFD3-4 – Purchase ArcGIS license for use in mapping District.							
New	ALL	2, 3, 4, 5, 6, 7, 8, 9	CCFD3	County	Low	General Funding, HMGP, PDA	Ongoing
CCFD3-5 – Provide GIS training to staff							
Existing	ALL	2, 3, 4, 5, 6, 7, 8, 9	CCFD3	County	Low	General Funding	Ongoing
CCFD3-6 – Integrate the hazard mitigation plan into other plans and programs that dictate land use decisions in the community, including the comprehensive plan.							
New	ALL	2, 4, 5, 6, 7, 8, 10, 11	CCFD3	City of Leavenworth, County	Low	Staff Time, General Funding	Ongoing
CCFD3-7 – Asses the need for the WUI code within the City Limits							
Existing	Wildfire	2, 3, 4, 6, 8, 10, 11	City of Leavenworth	CCFD3	Medium	Staff Time, General Funding	Ongoing
CCFD3-8 – Provide incentives to commercial property owners to extend sprinkler systems to the roof tops.							
Existing and New	Wildfire	5, 10, 11	City of Leavenworth	CCFD3	High	HMGP, PDM	Long-term
CCFD3-9 – Improve website content to include links to natural hazard mitigation partners							
Existing and New	All	5, 7, 10	CCFD3		Low	Staff Time, General Funding, HMGP, PDM	Ongoing
CCFD3-10 – Require new hydrants to be placed on a riser, reducing the risk of being buried by snow.							
Existing and New	Fire	3, 5, 10	CCFD3	City of Leavenworth	Low	Staff time, General Funding	Ongoing
CCFD3-11 – Acquire generator for Station 32							
Existing	All	2	CCFD3		Medium	HMGP, PDM	Short-Term
CCFD3 – 12 – Provide additional training and equipment to staff for severe weather response							
Existing and New	Severe Weather	6, 9	CCFD3		Medium	HMGP, PDM, General Funding	Ongoing
CCFD3-13 – Equip trailer for mobile incident command post							
Existing	All	2, 6,	CCFD3		Medium	HMGP, PDM, General Funding	Short-Term
CCFD3-14 – Develop/Enhance community engagement program to increase community risk reduction actions							
Existing	All	2, 3, 4, 5, 10, 11	CCFD3	City of Leavenworth	Low	HMGP, PDM, General Funding	Ongoing
CCFD3-15 – Expand Station 31 for increasing staff and apparatus							
Existing and New	All	2, 9,	CCFD3		High	HMGP, PDM	Long-term
CCFD3-16—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	2, 8, 9, 10	CCFD3	County	Low	Staff Time, General Funds	Short-term
CCFD3-17 – Coordinate with Washington State Department of Transportation to designate alternate evacuation routes.							
Existing	Wildfire, Earthquake, Flood	1, 2, 4, 7, 9, 10	City of Leavenworth	CCFD3, County	Medium	State, HMGP, PDM, FMA, Staff time, General Funds	Ongoing
CCFD3-18 – Identify and stock emergency shelters.							
Existing	All	1, 2, 9, 10	CCFD3	City of Leavenworth	Medium	Staff time, General Funds, HMGP, PDM	Long-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
CCFD3-19 – Schedule and implement Emergency Response Planning, including table top exercises.							
Existing	All	1, 2, 9, 10	CCFD3	City of Leavenworth, County	Low	Staff Time, General Funds, HMGP, PDM	Long-term
CCFD3-20 – Coordinate methods of sharing building plans and construction information with Emergency partner agencies.							
New and Existing	Wildfire, Earthquake	1, 7, 8, 9, 10	City of Leavenworth	CCFD3, County	Medium	Staff Time, General Fund, HMGP, PDM	Ongoing
CCFD3-21 – Participate in programs such as Firewise, Storm Ready and the Community Rating System.							
New and Existing	Wildfire, Flood, Earthquake	5, 7, 8, 9, 10, 11	CCFD3	City of Leavenworth	Medium	Staff time, General Fund, HMGP, PDM	Ongoing

Table 10-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
CCFD3-1	3	High	High	Yes	Yes	No	High	High
CCFD3-2	5	High	High	Yes	Yes	No	High	High
CCFD3-3	2	High	High	Yes	Yes	No	High	High
CCFD3-4	8	Medium	Low	Yes	No	Yes	High	Low
CCFD3-5	8	Medium	Low	Yes	No	Yes	High	Low
CCFD3-6	8	Medium	Low	Yes	No	Yes	High	Low
CCFD3-7	8	Medium	Medium	Yes	No	Maybe	Medium	Low
CCFD3-8	3	Medium	High	No	Yes	Maybe	Medium	Low
CCFD3-9	3	Medium	Low	Yes	Yes	Yes	High	Low
CCFD3-10	3	High	Low	Yes	No	Maybe	High	Low
CCFD3-11	1	High	Medium	Yes	Yes	No	High	High
CCFD3-12	2	High	Medium	Yes	Yes	No	Medium	Low
CCFD3-13	2	High	Medium	Yes	Yes	Maybe	High	Medium
CCFD3-14	6	Medium	Low	Yes	Yes	Maybe	High	Medium
CCFD3-15	2	Low	High	No	Yes	No	Low	Low
CCFD3-16	4	Low	Low	Yes	Yes	Maybe	Medium	Low
CCFD3-17	6	High	Medium	Yes	Yes	Yes	High	Low
CCFD3-18	4	High	Medium	Yes	Yes	No	Medium	Medium
CCFD3-19	4	High	Low	Yes	No	Yes	High	Low
CCFD3-20	5	Medium	Medium	Yes	Maybe	Maybe	Low	Low
CCFD3-21	6	High	Medium	Yes	Yes	Maybe	High	High

a. See the introduction to this volume for explanation of priorities.

Table 10-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	CCFD3-1, 2, 7, 8, 20 21	CCFD3-8, 21	CCFD3-1, 21	CCFD3-1, 2, 7, 21	CCFD3-8, 10, 17, 20, 21	CCFD3-8	CCFD3-1, 2, 21	CCFD3-20, 21
Severe Weather					12			
Avalanche								
Landslide								
Earthquake					17, 20			20
Flood					17			
Dam Failure					17			
Drought								
All Hazards	CCFD3-4, 5, 6, 9, 13, 14, 15, 16, 18		CCFD3-4, 5, 6, 9, 14, 16	CCFD3-4, 5, 6	CCFD3-3, 4, 5, 6, 11, 13 15, 18, 19,			CCFD3-3, 4, 6, 13, 14 16, 18

a. See the introduction to this volume for explanation of mitigation types.

10.9 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
- **Institutional Knowledge** of current staff
- **CWPP**

11. CHELAN COUNTY FIRE DISTRICT #5

11.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Arnold Baker, Chief
PO Box D, 250 W Manson Blvd
Manson, WA 98831
Telephone: 509-687-3222
e-mail Address: arnoldb@mansonfire.org

Alternate Point of Contact
Patty McClellan, District Secretary
PO Box D, 250 W Manson Blvd
Manson, WA 98831
Telephone: 509-687-3222
e-mail Address: pattym@mansonfire.org

11.2 JURISDICTION PROFILE

11.2.1 Overview

The Chelan County Fire District 5 is a special purpose district was formed in 1950 under Revised Code of Washington Title 52, Fire Protection Districts. A three member Board of Commissioners governs the District. The Fire District is funded primarily through property taxes and fees for service to the Fire District areas. The District participates in the Public Protection Class Rating System and currently has a rating of 6. The Fire District's main station is rented from the Lake Chelan Reclamation District (landlord) where both agencies co-locate in the same building and with the Manson Public Library.

11.2.2 Service Area and Trends

The Fire District serves an estimated population of 3,953 based of census data calculated to 2018. Its service area covers an area of 19 square miles. Fire District 5 has tracked data by several methods over the last 15 years. We began tracking fire losses from 2003, fire call types since 2006, when the Fire District only responded to fires. In 2010 we began responding and tracking medical calls as well.

Fire losses from 40 structure fires over 15 years range from a few hundred dollars loss to over a million loss, totaling $3.7 million loss. Fire flow is a critical component to reduce losses. Three of the 40 structure fires were commercial structures with significant losses totaling nearly $2.1 million.

- 2006 incidents by type; 63 Fire responses, 18 EMS assists (Fire District only responded to medical under special circumstances), 81 total
- 2009 incidents by type; 88 Fire responses, 121 Emergency Medical responses, 209 total
- 2010 incidents by type; 71 Fire responses, 183 Emergency Medical responses, 254 total
- 2012 incidents by type; 98 Fire responses, 305 Emergency Medical responses, 403 total
- 2014 incidents by type; 106 Fire responses, 302 Emergency Medical responses, 408 total
- 2017 incidents by type; 105 Fire responses, 329 Emergency Medical responses, 434 total

11.2.3 Assets

Table 11-1 summarizes the critical assets of the district and their value.

Table 11-1. Special Purpose District Assets – Chelan County Fire District 5

Asset	Value
Property	
4.5 acres – 2010 Wapato Lake Rd	$300,000
Critical Infrastructure and Equipment	
Station-52 – 5000 square foot fire station – 2010 Wapato Lake Rd	$1,003,750
1 – 125kw Emergency Generator – 2010 Wapato Lake Rd	$60,000
Structure Engine (E-51) – 1995 E-One – 250 W Manson Blvd	$190,000
Structure Engine (E-52) – 2009 Classic/E-One – 2010 Wapato Lake Rd	$380,000
Structure Engine (E-53) – 1971 FWD Seagrave – 250 W Manson Blvd	$250,000
Interface Structure Engine (E-54) – 2018 International/Odin – 2010 Wapato Lake Rd	$250,000
Wildland Engine (B-51) – 1992 Ford F-350 – 250 W Manson Blvd	$70,000
Wildland Engine (B-52) – 1990 Ford F-350 – 2010 Wapato Lake Rd	$60,000
Water Tender (T-52) – 2015 Int/KME – 2010 Wapato Lake Rd	$305,000
Pickup (U-51) – 2015 Ford F-150 – 2010 Wapato Lake Rd	$37,500
Command/Quick Attack (C-51) – 2016 Chevrolet 3500/Odin – 250 W Manson Blvd	$140,000
Total:	***$3,046,250***
Critical Facilities	
Station-52 – 5000' – owned	$1,363,750
Station-51 – 3100' – rented from LCRD	
Total:	***$1,063,750***

11.3 CAPABILITY ASSESSMENT

11.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 11-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 11-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
Structure Protection Plan for Wildfire on the north shore of Lake Chelan	2017	Developed in conjunction with Uno Peak Fire in 2017 that threatened the north shore. Structure Protection Plan was an update from a plan created in 2002 during the Deer Point Fire.
Community Wildfire Protection Plan	2005	Currently being updated
ICC Wildland Urban Interface Code		Currently being reviewed for implementation
Revised Code of Washington Title 52 – Fire Districts	Current	Administrative Authority
Washington Administrative Code – 296-305	Current	Safety Standard for Firefighters

11.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 11-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 11-4.

Table 11-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	

Table 11-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Chelan County Community Development
Engineers or professionals trained in building or infrastructure construction practices	Yes	Chelan County Building & Planning
Planners or engineers with an understanding of natural hazards	Yes	Chelan County Public Works and Natural Resources Department
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Chelan County Public Works
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Chief and Chelan County Emergency Management
Grant writers	Yes	Chelan County Fire District 5, Chief
Other		

11.3.3 Education and Outreach Capabilities

Outreach and education capabilities identify the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 11-5.

Table 11-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	No
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes Facebook Posts
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	No

11.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 11-6 summarizes the District's adaptive capacity for climate change.

Table 11-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Low
Comment: *Communicate within agency about expected weather events and fire weather forecasts*	
Jurisdiction-level monitoring of climate change impacts	Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment:	
Participation in regional groups addressing climate risks	Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment:	
Identified strategies for adaptation to impacts	Low
Comment:	
Champions for climate action in local government departments	Low
Comment:	
Political support for implementing climate change adaptation strategies	Low
Comment:	

Criterion	Jurisdiction Rating[a]
Financial resources devoted to climate change adaptation	Low
Comment:	
Local authority over sectors likely to be negative impacted	Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	Low
Comment:	
Local residents support of adaptation efforts	Low
Comment:	
Local residents' capacity to adapt to climate impacts	Low
Comment:	
Local economy current capacity to adapt to climate impacts	Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

11.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

11.4.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, Chelan County Fire District 5 made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Comprehensive Operations and Equipment Reserve and Replacement Plan**—This Comprehensive Ops and ER&R plan was implemented in 2005 to replace equipment on a planned cash basis without effecting the operations. The Plan is revisited monthly to maintain current effectiveness.
- **Facilities Plan**—The Fire District is currently consulting with an architect to create a facility plan for long range needs including 3.3 acres purchased in 2018 immediately adjacent to our 2010 Wapato Lake Rd station.

11.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Chelan County Fire District 5 will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the

following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Facilities Plan**—The Fire District is giving the architect some goals for the Facility Plan to reduce risks. With limited tax base it is not in the foreseeable future to afford sufficient staffing. An alternative to full time paid staff is residency; volunteers living station housing in exchange for services (staffing). A dormitory facility is in the plan to provide multiple rooms for residency occupants. The other risk that is requested in the Facilities Plan is a Training Center. This center will be capable of multi-engine company operations and live fire training. An important risk to protect is adequate training of the District personnel.
- **Plan or Program Name**—Description

11.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 11-7 lists past occurrences of natural hazards for which specific damage was recorded in Chelan County Fire District 5 or response involving Fire District 5 resources. Other hazard events that broadly affected the entire planning area, including Chelan County Fire District 5, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 11-7. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
25 Mile Creek Fire (south shore Lake Chelan)		7/29/2018	22 acres, 1 garage, power poles, guardrail
Uno Fire		8/31/17	8726 acres, 1 cabin
Antilon Lake Fire		7/29/16	540 acres
Chelan Complex	4243-DR-WA	8/21/2015	88,985 acres, 30 residential, 3 commercial, 25 other structures, Lost power, water supply
Sleepy Hollow Fire	FM-5087-WA	6/28/2015	2,950 acres, 29 residences, 4 commercial, 1 out-building
Heavy Rain/Flooding		8/2014	Flood downtown Manson
25 Mile Fire – (north shore Lake Chelan)		7/4/2013	2,098 acres
Union Valley Fire	FM-2823-WA	8/1/2009	768 acres
Flick Creek Fire	FM-2674-WA	7/26/2006	7,883 acres
Deer Point Fire	FSA-2449-WA	7/20/2002	43,375 acres, 5 Outbuildings
Rex Creek Fire Complex	FSA-2379-WA	8/13/2001	55,913 acres
Union Valley Fire	FSA-2368-WA	7/28/2001	4,700 acres, 3 residence
Earthquake	1361	3/1/2001	Unknown
Heavy Snow Event		1/1996	Commercial Buildings Collapse
Tyee Fire Complex	FSA-2103-WA	7/24/1994	145,572 acres, 37 structures
Wind Event 100+		3/1988	Homes damaged
Mitchell Creek Fire – Lightning	FSA-2002	07/17/1970	188,000 acres

11.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

11.6.1 Station-51

Station-51 (250 W Manson Blvd) rented fire station space from Lake Chelan Reclamation District. 2-story structure with the fire station in the daylight basement portion of the building. The exterior is constructed of

masonry block. In a 2010 Engineer's Structural Assessment, "the exterior walls are not adequately tied into the building's roof and floor diaphragms." The Engineers conclusion, "Station-51 does not meet the Immediate Occupancy performance objective in a design-level earthquake."

Vulnerability

In a design-level earthquake the Fire District could lose half their fire apparatus, which is insured for replacement. LCRD is under no obligation to rebuild the building to be a fire station, and the Fire District would be out of a downtown facility with no recourse.

11.6.2 Wildfire

The north shore of the Lake Chelan Valley has a frequency of large wildfires. Fire History maps provided by US Forest Service show a number of smaller fires in the 1910s & 1920s. Fire activity was quiet or undocumented till the 1970 Safety Harbor & Mitchell Creek fires. Fire District 5 had a fire in the Grade Creek drainage in 1985. The Castle Fire in 1993 was a threat to the community on Manson. 2002 Deer Point Fire blackened 20,000 acres and the WUI area of Fire District 5. The 25-Mile Fire in 2013 threatened the Fire District but was held in protection lines. The Uno Fire of 2017 in the Safety Harbor drainage created a threat but held in protection lines from heavy efforts of fire crews.

Vulnerability

The 1970 fires and 2002 Deer Point fires were large and intense because of wind driven events. Both fire caused damage in the Fire District 5 WUI area. Farming with irrigated land protected the Fire District WUI leaving only small areas of vulnerability for many years. Farming went through some tough years and many of these border irrigated lands discontinued to be farmed, the land went back to dry land. Wildland fire advisors have told the Fire District that 20 years after a wildfire, the brush will have regrown enough to be mature and fuel devastating fire. Fire District 5 is 17 years since a large wildfire to clear vegetation. The Fire District is nearly at complete maturity of brush to carry high intensity wildfire.

11.6.3 Annexation of unprotected lands

In 2016 Fire District 5 mailed all landowners outside of the Fire District an invitation that the Fire District would receive landowner solicitations to be in the Fire District. Two groups of landowners made the request for annexation. The first group which was an area known as Emerson Acres, 518 aces annexed. The second group known as Santana Drive annexed 120 acres into Fire District 5. These annexed lands are very rural and extreme threat of wildfires. The benefit of them in the Fire District is for the Fire Management Teams to not have "No-Mans-Lands" that is not within a fire protection authority.

Vulnerability

These annexed lands are both a single lane, single access road areas. The risk is critical for fire entrapment. Work needs to be done for building pullouts to allow egressing traffic to pass and fuel mitigation work along the road to lower the flame length and heat for fire crews and egressing residents. Currently these are no response areas for eminent passing wildfire. Too dangerous for crews.

11.7 HAZARD RISK RANKING

Table 11-8 presents a local ranking for Chelan County Fire District 5 of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 11-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	34	High
2	Landslide	33	High
3	Severe Weather	45	High
4	Wildfire	36	High
5	Flooding	18	Medium
6	Dam Failure	12	Low
7	Drought	9	Low

11.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 11-9 lists the actions that make up the Chelan County Fire District #5 hazard mitigation action plan. Table 11-10 identifies the priority for each action. Table 11-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 11-9. Hazard Mitigation Action Plan Matrix-Chelan County Fire District 5

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action # CCFD5-1 WUI Fuels Reduction – As described in 1.6 Vulnerabilities, the Lake Chelan Valley has many areas where responders and residents are at risk of entrapment on the roads in those areas due to moderate to high fuel loading. Fire Managers have to take extra precaution for response into these areas are deemed unsafe for responders, therefore no fire protection is being provided. The whole Lake Chelan Valley is identified because automatic mutual aid response plans engage Fire District 5 resources.							
New and Existing	Wildfire	2, 3, 4, 5, 6, 8, 9	CCFD5	WADNR, CCFD7	Medium	HMGP, WADNR	Short-term
Action # CCFD5-2 Seismic Stabilization of Station-51 – As described in 1.6 Vulnerabilities, the Fire District rents a facility from the Lake Chelan Reclamation District used as Station-51. In 2010 the Fire District hired a Structural Engineer to assess the structure for the Fire District's use as an essential building. The Engineer's findings were that the masonry block walls were not reinforced to wood frame walls. The second level floor diaphragm is not tied to the wall system. The original flat roof system was not removed when a remodel pitched roof system was added, creating double the weight for roof systems. The expected outcome in a design-level earthquake is that the structure would not be immediately habitable. Unacceptable for an essential building.							
Existing	Structural– Earthquake	2, 4, 6, 7, 8, 9, 10	Lake Chelan Reclamation District	CCFD5	High	HMGP	Short-term
Action # CCFD5-3 Road Improvements in Wildfire Areas - As described in 1.6 Vulnerabilities, the Fire District is frequently and predictable impacted by wildfire in the Lake Chelan Valley. Many of the roads in the WUI are single track and unsafe for egressing residents with responding fire resources. This action would add road improvements and pullout areas for vehicles to pass. This action emphasizes safety for residents egressing, fire resources responding and efficiency of those fire resources.							
Existing	Wildfire	1, 2, 4, 5, 6, 10, 11	CCFD5	WADNR	Medium	HMGP	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action # CCFD5-4 Resident Firefighter Quarters – The Fire District purchased an adjacent 3.3 acres to the Station-52 facility in 2018. On this property the Fire District needs a place to house Resident Firefighters for response. The economy in Manson has made it more beneficial for landlords to rent in the short term (vacation rental market) rather than rent long term. This long-term rental shortage is making it difficult for working volunteer firefighters to live in the community. Creating a shortage of volunteer firefighters. The Fire District's solution is to provide bunkhouse residential quarters to increase the availability of volunteer firefighters.							
New	Structural, Wildland Firefighters and Emergency Medical Personnel	1, 2, 4, 9	CCFD5	Lake Chelan Hospital EMS	High	HMGP	Short-term
Action # CCFD5-5 Training Facilities – The Fire District purchased an adjacent 3.3 acres to the Station-52 facility in 2018. The Fire District needs to construct a training facility, specifically a structural live fire training building. This facility will be able to train for structural firefighting, hazardous materials incident, high angle rescue operations.							
New and Existing	Structural Firefighting, Hazardous Materials, Rope Rescue	1, 2, 6, 9	CCFD5	CCFD7	High	HMGP	Short-term
Action #CCFD5-6 Apparatus Facilities – The Fire District purchased an adjacent 3.3 acres to the Station-52 facility in 2018. The Fire District needs to construct more apparatus bays. With the risk identified to Station-51 in **Action # CCFD5-2,** if the facility were to be damaged in a seismic event, the Lake Chelan Reclamation District is under no obligation to rebuild for the Fire District.							
Existing	Structural & Wildland Firefighting facilities	1, 2, 6, 9	CCFD5	CCFD7	High	HMGP	Short-term
Action #CCFD5-7 Community Risk Reduction – Continue to build on Fire District 5's Community Risk Reduction Program. Add more details to the program including; Risk Mapping, Wildfire Structural Assessments, Educating Homeowners to their specific wildfire risks, Community wide FireWise education with emphasis on Landscaping risks – Defensible Space							
New and Existing	Wildfire	1, 2, 3, 5, 6, 7, 8, 10	CCFD5	WADNR, CCFD7, Lake Chelan Hospital EMS, US Forest Service	Low	HMGP, FP&S	Short-term
Action #CCFD5-8 WUI Code – Participate actively in Chelan County's effort to codify IWUI Code. The greatest need in the WUI code effecting Fire District 5 is landscape code. Our experience is for residents with Juniper Tams or Arborvitae within the defensible space, we put all our firefighting efforts in fighting the landscape fire and at times lose a structure due to the landscaping.							
New	Wildfire	3, 4, 5, 6, 7, 10, 11	Chelan County	All Fire Agencies	Low		Short-term
Action #CCFD5-9 Plan Maintenance - Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	4, 5, 6, 8	Chelan County	CCFD5	Low	Staff Time, General Funds	Short-term
Action #CCFD5-10 Structural Protection - Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	2, 7, 10	Chelan County	CCFD5	High	HMGP, PDM, FMA	Short-term

Table 11-10. Mitigation Action Priority – Chelan County Fire District 5

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
CCFD5-1	7	High	Medium	Yes	Yes	No	High	High
CCFD5-2	7	High	High	Yes	Yes	No	High	High
CCFD5-3	7	High	Medium	Yes	Yes	No	High	High
CCFD5-4	4	High	High	Yes	Yes	No	High	High
CCFD5-5	4	High	High	Yes	Yes	No	High	High
CCFD5-6	4	High	High	Yes	Yes	No	High	High
CCFD5-7	8	High	Low	Yes	Yes	No	High	High
CCFD5-8	7	High	Low	Yes	Yes	No	High	High
CCFD5-9	4	Low	Low	Yes	No	Yes	High	Low
CCFD5-10	3	High	High	Yes	Yes	No	Medium	High

a. See the introduction to this volume for explanation of priorities.

Table 11-11. Analysis of Mitigation Actions-Chelan County Fire District 5

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Earthquake	CCFD5-2, 10	CCFD5-2, 10			CCFD5-2, 4, 5, 6	CCFD5-2, 10		CCFD5-4, 5, 6, 9
Landslide	CCFD5-10	CCFD5-10			CCFD5-1, 4, 5, 6	CCFD5-10		CCFD5-4, 5, 6, 9
Severe Weather	CCFD5-10	CCFD5-10			CCFD5-4, 5, 6	CCFD5-10		CCFD5-4, 5, 6, 9
Wildfire	CCFD5-1, 7, 8, 10	CCFD5-1, 3, 7, 8, 10	CCFD5-1, 7, 8	CCFD5-1, 3, 7, 8	CCFD5-1, 3, 4, 5, 6, 7	CCFD5-7, 8, 10	CCFD5-1, 7, 8	CCFD5-4, 5, 6, 8, 9
Flooding	CCFD5-10	CCFD5-10			CCFD5-4, 5, 6			CCFD5-4, 5, 6, 9
Dam Failure	CCFD5-10	CCFD5-10			CCFD5-4, 5, 6	CCFD5-10		CCFD5-4, 5, 6, 9
Drought								

a. See the introduction to this volume for explanation of mitigation types.

11.9 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

12. CHELAN COUNTY FIRE DISTRICT #6

12.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Phil Mosher, Fire Chief
P.O. Box 296
Monitor, Washington 98836
Telephone: 509-663-1678
e-mail Address: p_mosher@ccfd6.net

Alternate Point of Contact
Bob Wildfang, Commissioner
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Monitor, Washington 98836
Telephone: 509-663-1678
e-mail Address: b_wildfang@ccfd6.net

12.2 JURISDICTION PROFILE

12.2.1 Overview

Chelan County Fire District 6 was formed in 1955 and currently operates as a semi-combination department with one fulltime employee, 35 volunteer firefighters, and two seasonal employees working June thru September. Fire District 6 provides emergency response for structure fires, wildland fires, EMS, hazmat, and search and rescue in its 52 square miles. The District is funded through property taxes through an established levy rate with a 3 member elected Board of Commissioners.

Chelan County Fire District 6 assumes responsibility for the adoption of this plan; Fire Chief Phil Mosher will oversee its implementation.

Chelan County Fire District 6 participates in the Public Protection Class Rating System and currently has a rating of 8.

12.2.2 Service Area and Trends

The district serves a population of approximately 9,500 residing in the unincorporated areas of Dryden, Peshastin and outside the city limits of Cashmere. Its service area covers an area that is approximately 52 square miles which includes urban, rural, industrial, agricultural, and shrub steppe as well as forested landscapes. The District is located in the Wenatchee River corridor between the cities of Wenatchee to the east and Leavenworth to the west. Operations are conducted out of four fire stations with volunteer firefighters. Call volume continues to climb with the last 2 years having over 500 responses annually.

12.2.3 Assets

Table 12-1 summarizes the critical assets of the district and their value.

Table 12-1. Special Purpose District Assets

Asset	Value
Property	
9.9 acres of land	$350,000.00
Critical Infrastructure and Equipment	
2012 Ford F-550 Brush Truck	$159,271.00
2012 Ford F-550 Brush Truck	$159,271.00
2015 Ford F-550 Brush Truck	$166,745.00
1994 Ford F-350 Brush Truck	$137,733.00
1994 Ford F-350 Brush Truck	$133,733.00
1995 Freightliner Pumper	$298,226.00
1995 Freightliner Pumper	$298,226.00
1995 Freightliner Pumper	$298,226.00
2001 Kenworth Water Tender	$310,430.00
2000 Ford F-750 Pumper	$303,492.00
2018 KME Pumper	$400,374.00
1992 International Pumper	$10,000.00
2014 Ford F-150 Command Vehicle	$27,000.00
2013 Ford F-150 Command Vehicle	$27,000.00
2008 Ford F-250 Command Vehicle	$30,000.00
Mobile Equipment	$117,936.00
Total:	***$2,881,663.00***
Critical Facilities	
Station 61	$425,541.00
Station 62	$769,729.00
Station 63	$292,560.00
Station 64	$231,545.00
Total:	***$1,719,375.00***

12.3 CAPABILITY ASSESSMENT

An assessment of the district's current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 12.8 identifies these as community capacity building mitigation actions.

12.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 12-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 12-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
CCFD 6 Operating Guidelines	2015	
Forestland Response Agreement WADNR	2017	
Chelan/Douglas Mutual Aid Agreement	2005	
Cooperative Fire Protection Agreement USFS	2014	
Cooperative Fire Protection Agreement BLM	2016	

12.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 12-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 12-4.

Table 12-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	

Table 12-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	No	
Engineers or professionals trained in building or infrastructure construction practices	No	
Planners or engineers with an understanding of natural hazards	No	
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	No	
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Service
Grant writers	No	
Other	No	

12.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 12-5.

Table 12-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	No
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes Facebook
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	Yes Fire Advisory Committee
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	No
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Yes Through Chelan County Emergency Management

12.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 12-6 summarizes the jurisdiction's adaptive capacity for climate change.

Table 12-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Low
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low

Criterion	Jurisdiction Rating[a]
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Low
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Unsure
Local residents support of adaptation efforts ***Comment:***	Unsure
Local residents' capacity to adapt to climate impacts ***Comment:***	Unsure
Local economy current capacity to adapt to climate impacts ***Comment:***	Unsure
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Unsure

a. High = Capacity exists and is in use; Medium = Capacity may exist but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

12.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

For hazard mitigation planning, "integration" means that hazard mitigation information is used in other relevant planning mechanisms, such as capital facilities planning, and that relevant information from those sources is used in hazard mitigation. This section identifies where such integration is already in place, and where there are opportunities for further integration in the future. Resources listed in Section 12.9 were used to provide information on integration. The progress reporting process described in Volume 1 will document the progress of hazard mitigation actions related to integration and identify new opportunities for integration.

12.4.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- Rivercom Dispatch Center—Response Plans
- Chelan County Sheriff's Office—Emergency Management
- Greater Wenatchee EMS Council—Mass Casualty Incident Plan

- Washington Fire Service State Mobilization Plan

12.4.2 Opportunities for Future Integration

The capability assessment presented in this annex identified the following plans and programs that do not currently integrate hazard mitigation information but provide opportunities to do so in the future:

- **Chelan County Comprehensive Plan**
- **CWPP Plan**
- **WUI Code**

12.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 12-7 lists past occurrences of natural hazards for which specific damage was recorded in Chelan County Fire District #6. Other hazard events that broadly affected the entire planning area, including Chelan County Fire District #6, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 12-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Cougar Creek Fire	FM-5270-WA	7/28/2018 (Declaration 8/1/2018)	$In Progress 42,712 Acres
Rocky Reach Fire	NA	7/23/2018	3386 Acres
Monitor Fire	NA	11/1/2017	1100 Acres
Spartan Fire	NA	6/26/2017	1800 Acres
Spromberg Fire	FM-5182-WA	5/23/2017	$In Progress 42 Acres
Suncrest Fire	FM-5152-WA	8/27/2016	496 Acres
Chelan Complex Fires	4243-DR-WA	8/14/2015	$23,513,366 54,500 Acres
Sleepy Hollow Fire	FM-5087-WA	6/28/2015	$22,000,000+ 2,950 Acres
Wenatchee River Complex	FMAG Denied	7/30/2010	2065 Acres
Severe Winter Storms	1817-DR-WA	1/6/2009	Unk. Damage Assessment
Fischer Fire	FM-2543-WA	8/11/2004	$3,033,966

12.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- All 4 of the Fire District's Stations will not withstand a moderate Earthquake as they were built between 1950 and 1970.
- In the event of a power disruption within the Fire District Boundaries all 4 of the District Stations are not equipped with backup generators.

12.7 HAZARD RISK RANKING

Table 12-8 presents a local ranking for Chelan County Fire District 6 of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary

for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 12-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	Qualitatively Ranked	High
2	Sever Weather Event	Qualitatively Ranked	Medium
3	Flood	Qualitatively Ranked	Medium
4	Earthquake	Qualitatively Ranked	Medium

12.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 12-9 lists the actions that make up the Chelan County Fire District #6 hazard mitigation action plan. Table 12-10 identifies the priority for each action. Table 12-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 12-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action FD6-1—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	2, 6, 8	Chelan County	CCFD6	High	HMGP, PDM, FMA	Short-term
Action FD6-2—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	7, 10	CCFD6	Chelan County	Low	Staff Time, General Funds	Short-term
Action FD6-3—Provide landowners with training pertaining to fuels management and secure matching grants to provide financial assistance to those private landowners in need of reducing fire risk on their properties.							
New and Existing	Wildfire	3, 4, 5, 8	CCFD6, Chelan County, CCD		High	HMGP, PDM, FMA	Short-term
Action FD6-4—Create a fuels reduction zone with land owners in collaboration with other fire service agencies along all roadways identified as evacuation routes.							
New and Existing	Wildfire	3, 4, 5, 6, 8	CCFD6, Chelan County, CCD	State agencies	High	HMGP, PDM, FMA	Short-term
Action FD6-5—Purchase backup generators for fire district facilities.							
New and Existing	All Hazards	2	CCFD6	Chelan County	High	HMGP, PDM, FMA	Short-term
Action FD6-6—Work with interagency partners and private landowners to Identify emergency water sources and locations, seek funding for development of emergency water access or storage facilities at identified locations.							
New and Existing	Wildfire	8	CCFD1	CCD	medium	HMGP, PDM, FMA	Long-term
Action FD6-7—Develop alternative egress routes for communities limited to single ingress and egress points and prepare an evacuation plan.							
New and Existing	Wildfire	3, 10	CCFD6, Chelan County, CCD	WSDOT, state agencies	Medium	EMPG, HMA	Long-term

Table 12-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
FD6-1	3	High	Medium	Yes	Yes	No	Medium	Medium
FD6-2	2	High	Low	Yes	No	Yes	High	Low
FD6-3	4	High	Medium	Yes	Yes	No	Medium	High
FD6-4	5	High	Medium	Yes	Yes	No	Medium	High
FD6-5	1	High	Low	Yes	Yes	Yes	High	High
FD6-6	1	High	Medium	Yes	Yes	No	Medium	Medium
FD6-7	2	High	Medium	Yes	No	No	Medium	Low

a. See the introduction to this volume for explanation of priorities.

Table 12-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	1, 3, 4	1, 3, 4	2, 3, 7		4, 5, 6, 7		3, 6	3
Severe Weather	1	1	2, 7		5, 7			
Flood	1	1	2, 7		5, 7			
Earthquake	1	1	2, 7		5, 7			

a. See the introduction to this volume for explanation of mitigation types.

12.9 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Agency Response Plan**
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

13. CHELAN COUNTY FIRE DISTRICT #8

13.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Mike Asher, Chief
P.O. Box 517
Entiat, WA 98822
Telephone: 509-784-1366
e-mail Address: maa51@genext.net

Alternate Point of Contact
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Entiat, WA 98822
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e-mail Address: Jbrooks872@nwi.net

13.2 JURISDICTION PROFILE

13.2.1 Overview

Chelan County Fire Protection District #8 is a special purpose district created in 1969 to provide fire protection services. A three-member elected Board of Directors governs the District. The Board assumes responsibility to oversee the adoption of this plan and the Fire Chief is responsible for its adoption and implementation. The District currently employs a part-time Fire Chief / District Secretary and has a roster of about 40 volunteers. Funding comes primarily through a tax levy approved by and collected from the property owners of the District. The District participates in the Public Protection Class Rating System and currently has a rating number of 6 in the City of Entiat and 8A throughout the rest of the District unless within 1000 feet of a fire hydrant then the rating is a 7.

13.2.2 Service Area and Trends

Chelan County Fire Protection District #8 was formed to serve the area in and around the City of Entiat and the Entiat Valley including the community of Ardenvoir. The District later annexed the Stayman Flats, Navarre Coulee and Mud Creek areas. The jurisdiction serves an area of about 40 square miles of valley bottom in the Entiat Valley, Navarre Coulee and Columbia River corridors. The District serves a population of about 3200. The district has seen substantial growth of over fifteen percent in the last ten years. Anticipated growth of up to twenty percent is likely in the next ten years.

13.2.3 Assets

Table 13-1 summarizes the critical assets of the district and their value.

Table 13-1. Special Purpose District Assets

Asset	Value
Property	
2.66 acres of land	$205,000
Equipment	
Licensed Vehicles	$1,390,000
Radios, Pagers, Communication Equipment	$125,000
Air Packs, Breathing Air Compressor, Cascade System	$200,000
Personal Protective Clothing, Cleaning Equipment	$85,000
Office Equipment, Computers	$15,000
Extrication Tools, Other Tools & Equipment	$38,000
Total:	***$1,853,000***
Critical Facilities and Infrastructure	
Station 81, 2200 Entiat Way	$1,200,000
Station 82, 4674 Entiat River Road	$270,000
Station 83, 213 River Avenue, Ardenvoir	$150,000
Station 84, 15670 Coyote Falls Road	$75,000
Total:	***$1,695,000***

13.3 CAPABILITY ASSESSMENT

13.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 13-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 13-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
CCFD#8 Policy Manual	2018	
Chelan Fire & Rescue Automatic Aid Agreement	2011	Adjacent Fire Jurisdiction
Chelan County Fire District #1 Automatic Aid Agreement	2008	Adjacent Fire Jurisdiction
Ballard Ambulance Service Agreement	1996	
Emergency Management Services Mutual-Aid Agreement	2005	Chelan County
WSP Mobilization Agreement	2018	Statewide mobilization
DNR FLRA Agreement	2018	Cooperative working agreement
Wenatchee/Okanogan National Forest Agreement	2014	Cooperative working agreement

13.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 13-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 13-4.

Table 13-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes
Other	

Table 13-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	No	
Engineers or professionals trained in building or infrastructure construction practices	No	
Planners or engineers with an understanding of natural hazards	No	
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Fire Services
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Services
Grant writers	Yes	Volunteer Firefighter
Other		

13.3.3 Education and Outreach Capabilities

Outreach and education capabilities identify the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 13-5.

13.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 13-6 summarizes the District's adaptive capacity for climate change.

Table 13-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	Yes Website, Website Links, Facebook
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes Website, Website Links, Facebook
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	Yes Community Wildfire Protection Plan Public Meetings
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Yes Firefighter/Community Phone Network Chelan County Emergency Management Alert System

Table 13-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts ***Comment:***	Low
Jurisdiction-level monitoring of climate change impacts ***Comment:***	Low
Technical resources to assess proposed strategies for feasibility and externalities ***Comment:***	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory ***Comment:***	Low
Capital planning and land use decisions informed by potential climate impacts ***Comment:***	Low
Participation in regional groups addressing climate risks ***Comment:***	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes ***Comment:***	Low
Identified strategies for greenhouse gas mitigation efforts ***Comment:***	Low
Identified strategies for adaptation to impacts ***Comment:***	Low
Champions for climate action in local government departments ***Comment:***	Low
Political support for implementing climate change adaptation strategies ***Comment:***	Low
Financial resources devoted to climate change adaptation ***Comment:***	Low
Local authority over sectors likely to be negative impacted ***Comment:***	Low

Criterion	Jurisdiction Rating[a]
Public Capacity	
Local residents knowledge of and understanding of climate risk ***Comment:***	Low
Local residents support of adaptation efforts ***Comment:***	Low
Local residents' capacity to adapt to climate impacts ***Comment:***	Low
Local economy current capacity to adapt to climate impacts ***Comment:***	Low
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Low

a. High = Capacity exists and is in use; Medium = Capacity may exist but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

13.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

13.4.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, Chelan County Fire Protection District #8 made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- RiverCom Dispatch Center – Mutual Aid Response Plans
- Chelan County Sheriff's Office, Emergency Management – Emergency Response Plans
- Greater Wenatchee EMS Council – MCI Plan
- Washington State Patrol, State Fire Marshal – State Mobilization Plan

13.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Chelan County Fire Protection District #8 will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- USFS Resource Management of Forested Lands – Healthy Forests Initiative
- Cascadia Conservation District - Community Wildfire Protection Planning
- North Central Washington Forest Health Collaborative – Forest & Habitat Restoration Planning
- Chelan County Planning Department – Building, Infrastructure Planning

13.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 13-7 lists past occurrences of natural hazards for which specific damage was recorded in Chelan County Fire Protection District #8. Other hazard events that broadly affected the entire planning area, including Chelan County Fire Protection District #8, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 13-7. Past Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Navarre Fire ***(Human Caused –Undetermined)***	NA	07/31/2018	No structures damaged; 165 acres
25 Mile Creek Fire ***(Human Caused)***	NA	07/29/2018	$250,000; DESTROYED: 1 garage; power poles; guardrail; 22 acres
Cougar Creek Fire ***(Lightning)***	FM-5270-WA	07/28/2018 *(declaration 08/1/2018)*	$ in progress; 42,712 acres
Rocky Reach Fire ***(Electrical Wires)***	NA	07/23/2018	No structures damaged; 3,386 acres
Fields Point Fire ***(Arson)***	NA	07/20/2018	No structures damaged; 60 acres
Little Camas Creek Fire ***(Unknown cause)***	NA	07/05/2018	No structures damaged; 317 acres
Monitor Fire ***(Vehicle caused)***	NA	11/01/2017	No structures damaged; 1,100 acres
Uno Peak Fire ***(Unattended campfire)***	NA	08/30/2017	$25,000; DESTROYED: 1 cabin; 7,879 acres
Jack Creek Fire ***(Lightning)***	NA	08/11/2017	No structures damaged; 4,606 acres
Spartan Fire ***(Lightning)***	NA	06/26/2017	Power poles damaged; 1,800 acres
Spromberg Fire ***(Unknown cause)***	FM-5182-WA	05/23/2017	$ in progress; Cedar log decks destroyed; 42 acres
Horselake Fire ***(Human caused)***	NA	09/04/2016	$50,000; Historical Barn Lost / Unk acreage
Suncrest Fire ***(Undetermined electrical cause)***	FM-5152-WA	08/27/2016	$ in progress; $2,000 damage estimate; Cell Tower Damage / 496 acres
Antilon Lake Fire ***(Motor vehicle caused)***	NA	07/29/2016	1 vehicle destroyed; 540 acres
Ribbon Cliff Fire ***(Unknown Cause)***	NA	05/08/2016	No structures damaged; 25 acres
Severe Storms, Landslides ***(Natural event))***	4249-DR-WA	01/15/2016	$1,320,000; Yodelin Road Damage
Chelan Complex Fires ***Chelan Butte Fire; Deer Mtn Fire; Antoine Crk Fire; First Crk Fire (Lightning Strikes)***	4243-DR-WA	08/14/2015	$23,513,366; DESTROYED: 30 Residences; 3 Commercial Businesses; 25 Other Structures Destroyed; 54,500 acres
Wolverine Fire ***(Lightning)***	NA	07/03/2015	$100,000; 62,167 acres 20
Sleepy Hollow Fire ***(Arson cause)***	FM-5087-WA	06/28/2015	$22,000,000+; DESTROYED: 29 Residences; 4 Commercial Businesses; 1 Outbuilding; 2,950 acres

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Earthquake **W of Entiat 9 Km**	NA	06/15/2015	3.2 R scale
Earthquake **W of Entiat 11 Km**	NA	12/29/2014	3.3 R scale
Chiwaukum Complex Fires ***(Lightning caused)***	FM-5061-WA	07/15/2014	$100,000; DESTROYED: 3 Cabins; 1 Outbuildings; 17,935 acres
Mills Canyon Fire ***(Human Caused – accidental)***	FM-5061-WA	07/08/2014	$15,000; 3 Outbuildings 22,571 acres
Eagle Fire ***(Unknown cause)***	FM-5048-WA	08/19/2013	$2,273,317; No structures damaged; 14,076 acres
Milepost 10 Fire ***(Lightning Strike)***	FM-5042-WA	08/09/2013	$1,200,000; 5,554 acres
Colockum Tarps ***(Ele ctrical fault caused)***	FM-5038-WA	07/27/2013	$1,000,000+; DESTROYED: 3 residences; 1 commercial property; 1 outbuilding; 80,184 acres
North Shore Fire **Lake Wenatchee** ***(Unattended campfire cause)***	NA	07/19/2013	$1,200,000+; DESTROYED: 3 residences; DAMAGED: 1 residence; 6 acres
Ice Storm – Lake Wenatchee ***(Natural event)***	NA *(State Emergency Declaration Denied)*	12/20/2012	$500,000+; 60+ residences damaged; 2 fatalities in vehicle accidents; 4 severely injured in vehicle accidents
Earthquake **N of Entiat 3.5 Miles**	NA	12/02/2012	E of Columbia River; 3.4 R scale
Wenatchee Complex Fires ***Peavine Fire; Poison Cyn Fire; Canyons Fire; Twin Peaks Fire*** ***(Lightning strikes)***	FM-5012-WA	09/08/21012	$20,000; DESTROYED: 1 outbuilding; 56,478 acres
Byrd Canyon Fire ***(Lightning strike caused)***	NA	09/08/2012	No known structures damaged; 14,119 acres
Wenatchee River Complex ***Nahahun Cyn Fire; Tripp Cyn Fire; Devils Gulch Fire*** ***(Lightning Strikes)***	NA No FMAG delcared	07/30/2010	$100,000; DESTROYED: Building supplies; 2,065 acres
Rainbow Bridge Fire ***(Lightning strike cause)***	NA	07/29/2010	No structures damaged; 3,710 acres
Union Valley Fire ***(Lightning cause)***	FM-2823-WA	08/01/2009	$640,027; No structures lost; 768 acres
Severe Winter Storms **Near Record Snow**	DR-1825	01/07/2009	(Unknown Damage Assessment)
Severe Winter Storms ***Entiat River, Mission Creek*** ***(Natural event)***	1817-DR-WA	01/06/2009	(Unknown Damage Assessment)
Easy Street Fire ***(Unknown cause)***	FM-2711-WA	07/07/2007	$60,000; DESTROYED: 3 outbuildings; 2,500+ acres
Wind Storm ***(Natural event)***	DR-1682	01/07/2007	$10,000,000; 60+ MPH peak winds
Wind Storm – Wenatchee ***(Natural event)***	`	12/14/2006	$3,292,842; DESTROYED: fire station; DAMAGED: Numerous homes, outbuildings, power poles/lines, trees

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Earthquake N of Entiat 1.5 Mile	NA	11/30/2006	W of Columbia River; 3.1 R scale
Flooding – Leavenworth Area ***(Natural event)***	1671-DR-WA	11/02/2006	$92,000;
Flick Creek Fire ***(Lightning caused)***	FM-2674-WA	07/26/2006	$80,510; Homes threatened –; No structures lost; 7,883 acres
Tinpan Fire ***(Lightning caused)***	NA	07/20/2006	No structures damaged; 9,247acres
Hurricane Katrina Evacuation	EM-3227	09/07/2005	(Unknown Damage Assessment)
Dirty Face Fire ***(Started as residential fire)***	FM-2572-WA	07/31/2005	$1,061,643; 73 residences threatened; 1,150 acres
Fischer Fire ***(Unknown cause)***	FM-2543-WA	08/11/2004	$3,033,966; DESTROYED: 1 residence / 1 other; 300 residences threatened; 16,513 acres
Deep Harbor Fire ***Aka: Pot Peak Complex Fires- Pot Peak Fire & Sisi Fire***	FM-2537-WA	07/30/2004	$47,179; DESTROYED: 3 cabins; 29,700 acres
Earthquake E of Entiat 1.5 Miles	NA	02/09/2004	3.3 R scale
Severe Storm and Flooding	DR-1499	11/07/2003	Unknown Damage Estimate
Earthquake W of Entiat 3.5 Miles	NA	08/24/2002	S side of Entiat Valley; 3.4 R scale
Deer Point Fire ***(Unattended campfire caused)***	FSA-2449-WA	07/20/2002	$2,573,214; DESTROYED: 5 minor structures; 43,375 acres
Icicle Complex Fires ***(Lightning causes)***	FSA-2374-WA	08/14/2001	$1,186,851; 7,696 acres
Rex Creek Complex Fires ***(Lightning caused)***	FSA-2379-WA	08/13/2001	$1,0008,947; (No known structures damaged); 55,913 acres
Union Valley Fire ***(Human caused)***	FSA-2368-WA	07/28/2001	$1,121,445; DESTROYED: 3 residences; 4,700 acres
Tommy Creek Fire	NA	2001	245 acres
Earthquake NE of Entiat 12 Mlles	DR-1361	02/28/2001	Unknown; 3.2 R scale
Earthquake NW of Entiat 2.5 Miles	NA	09/03/1997	Crum Canyon; 3.7 R scale
Severe Storm Mud Slides, Flooding	DR-1159	01/17/1997	Unknown
Earthquake N of Entiat 3 Miles	NA	03/25/1996	W of Columbia River; 3.1 R scale
Severe Storm High Wind, Flooding	DR-1079	01/03/1996	Unknown
Tyee Fire – COMPLEX ***Tyee Fire; Hatchery Creek Fire: Round Mountain Fire*** **(*lightning caused*)**	FSA-2103-WA *(includes Hatchery Creek Complex Fire)*	07/24/1994	$17,711,728 - total complex; DESTROYED: 37 Structures (residences / outbuildings); 135,000 acres
Hatchery Creek - COMPLEX ***Rat Creek Fire (human caused); Alpine Lakes Fire; Hatchery Creek Fire (lightning caused)***	(see Tyee Complex Fire)	07/23/1994	(See Tyee Fire for Damage Totals); Additional 43,000 acres

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Castle Rock Fire ***(Human caused)***	(No Known FEMA #)	09/26/1992	$5,000,000 (estimate); DESTROYED: 24 residences; 6 outbuildings; 3,500 acres
Earthquake E of Entiat 3.5 Miles	NA	01/24/1992	3.2 R scale
Earthquake S of Entiat 4 Miles	NA	11/24/1991	On Columbia River; 3.1 R scale
Earthquake W of Entiat 5 Miles	NA	03/28/1991	S of Roaring Creek; 3.1 R scale
Entiat River Flooding Ice Jam	NA	01/09/1991	Entiat River Road; Closed by ice flow and flooding; Blasted 3000' ice with 4000 lbs explosives to free jam
Severe Storm Flooding	DR-883	11/26/1990	Unknown
Dick Mesa Fire	NA	1990	1,151 acres
Earthquake NW of Entiat 8 Miles	NA	04/17/1990	3.1 R scale
Earthquake S of Entiat 1.5 Miles	NA	08/08/1989	E of Columbia River 1 mile; 4.5 R scale
Dinkleman Fire ***(Unknown cause)***	FSA-2070	09/06/1988	Unknown. Damage Assessment; DEATH: 1 person killed; DESTROYED; 1 residence; 50,000 acres
Earthquake N of Entiat 7.5 Miles	NA	04/08/1986	W of Columbia River 1.5 miles; 3.2 R scale
Earthquake N of Entiat 6.5 Miles	NA	10/25/1981	On Columbia River; 3.0 R scale
Christmas Floods ***Stehekin River; Entiat River***	Unknown if Disaster Declaration Granted	12/26/1980	Unknown Damage Estimate; Roadway damage, bridge damage
Mount St Helens Ash Fallout	DR-623	05/18/1980	Unknown Damage Estimate
Earthquake E of Entiat 3.5 Miles	NA	01/30/1979	3.0 R scale
Drought	EM-3037	03/31/1977	Unknown
Earthquake SE of Entiat 1 Mile	NA	08/30/1976	3.0 R scale
Crum Canyon Fire	NA	1976	9,000 acres
Earthquake SW of Entiat 4 MIles	NA	06/15/1976	Entiat Ridge; 3.1 R scale
Severe Storm Flash Flood – Preston Creek, Entiat River	DR-334	6/10/1972	Several summer homes lost; 4 fatalities
Lightning Burst Fires ***Mitchell Creek Fire; Slide Peak Fire; Entiat River Fire (Lightning caused)***	FSA-2002	07/17/1970	Unknown Damage Estimate; 188,000 acres
Harris Mill Fire	NA	1968	1,210 acres
Hornet Creek Fire	NA	1966	1,520 acres
Forest Mountain Fire	NA	1962	520 acres
Tenas George Fire	NA	1961	3,750 acres
Entiat Fire	NA	1958	6,500 acres

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Severe Storm Flash Flood– Tenas George	NA	1942	8 fatalities
Larch Lakes Fire	NA	1941	400 acres
Coal Oil Fire	NA	1928	600 acres
Mad River Fire	NA	1925	1,500 acres
Spectacle Butte Fire	NA	1925	600 acres
Borealis Ridge Fire	NA	1925	500 acres
Burns Creek Fire	NA	1914	600 acres
Signal Peak Fire	NA	1910	2,500 acres

13.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

Wildfire is the most frequent hazard affecting Chelan County Fire Protection District #8. East of the Cascades, the summer drying typically starts in mid-June and runs through September with fire danger often reaching extreme conditions. Thunderstorm activity and dry lightning are common occurrences in Chelan County often contributing to wildfire.

With the majority of development being along the Entiat and Columbia River corridors, and steep terrain that drains into the river valleys, the frequency of flooding is quite high. Along the Entiat River many homes are within the 100-year flood zone. Chelan County Fire Protection District #8 has one fire station within that zone and two others that are subject to some flood risk. Wintertime icing in the Entiat River has caused flood damage from large ice flows that affected residential property and can block access on the Entiat River Road. The winter of 1991 ice damming near the mouth of the Entiat Valley flooded the only road access into the valley creating the need to blast the blockage with over 50 different dynamite charges in order to maintain access for the hundreds of residents of the valley.

Severe storms bring risk of several of the hazards affecting Chelan County Fire Protection District #8. High winds cause damage from falling trees, block roadways, and cause utility damage with frequent loss of power. Thunderstorms have caused flash flooding from steep hillsides and narrow canyons. Winter storms with heavy snowfall or icing have also caused power outages due to falling limbs and trees. Heavy snowfall years have caused avalanche danger from the steep terrain and structural damage has been caused by heavy snowfall. In 1996 the Entiat School District gymnasium collapsed from heavy snowfall.

Earthquake has had a historical impact in the Entiat area. In 1872 an earthquake of magnitude 7 - 8 on the Richter scale caused a landslide that blocked the flow of the Columbia River for several hours. The Entiat Valley has a history of numerous shallow earthquakes. The unknown frequency or location of a large destructive earthquake makes it difficult to plan for but with the steep mountainous terrain the possibility of landslide blocking our single transportation routes through the Entiat and Columbia River Valleys is highly probable.

Drought has caused significant loss of water supply from the Entiat Valley watershed. Since the watershed is subject to snowpack providing the runoff to sustain water supply throughout the year prolonged drought can significantly affect the availability of water due to a diminishing snowpack with little runoff. Poor snowpack also contributes to the dryness of fuels in the higher elevations which has a significant effect on wildfires in the region.

Though there are no volcanos in the immediate area, the Entiat area is within the fallout zone of several of the active volcanos in the Cascade Range.

Dam failure from any of the several dams on the Columbia River north of Entiat would have an impact on the properties in close proximity to the Columbia River in the Entiat area.

With the potential for power utilities to be interrupted by numerous hazards from wildfire in the summer to snowfall and icing in the winter. Having backup power is very important to provide functionality to emergency response facilities.

The chance for the one road accesses along the west side of the Columbia River or the Entiat River Road being blocked by avalanche, rock fall or landslide is great. It is important to have alternative power and provisions as well as shelter made available since residents could be blocked in one of the valley locations for an extended period of time.

Numerous bridges on the Entiat River Road and a bridge south of Entiat on Highway 97A could also be compromised by flood or major earthquake.

13.7 HAZARD RISK RANKING

Table 13-8 presents a local ranking for Chelan County Fire Protection District #8 of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 13-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Flooding	42	High
3	Severe Weather	42	High
4	Earthquake	36	High
5	Landslide	33	High
6	Drought	12	Low
7	Dam Failure	6	Low
8	Avalanche	6	Low
9	Volcano	6	Low

The high rating for wildfire is based on the past history and high frequency of large fires in the Entiat Valley and adjacent areas.

The rating for flooding is high based on the location of Station 2 within the 100 year flood zone, and the high risk of flooding associated with runoff from the Cougar Creek Fire area possibly affecting the entire community of Ardenvoir.

Severe weather may impact Chelan County Fire Protection District #8 at any time due to recent large fire activity that has left the steep mountainous landscape stripped of vegetation to hold back runoff.

The potential for earthquake and landslide are high based on USGS data and the steepness of the mountain terrain.

Though drought is infrequent, it can have a severe impact on the timely availability of water for fire protection throughout the fire protection area.

The low risk rating for dam failure, avalanche, and volcano are all based on a low frequency and a high probability of impact to only specific areas.

13.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 13-9 lists the actions that make up the Chelan County Fire Protection District #8 hazard mitigation action plan. Table 13-10 identifies the priority for each action. Table 13-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 13-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
FD8-1—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Chelan County	CCFD#8	High	HMGP, PDM, FMA	Short-term
FD8-2—Integrate the hazard mitigation plan into other plans, ordinances and programs within the community.							
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Chelan County	CCFD#8	Low	Staff Time, General Funds	Ongoing
FD8-3—Develop and implement a program to capture perishable data after significant events (e.g. high-water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.							
Existing	All Hazards	1, 2, 6, 7, 8	Chelan County DEM	CCFD#8	Medium	Staff Time, General Funds	Short-term
FD8-4—Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.							
New and Existing	All Hazards	All	CCFD#8	Chelan County	Low	Staff Time, General Funds	Short-term
FD8-5—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.							
New and Existing	All Hazards	All	CCFD#8	Chelan County	Low	Staff Time, General Funds	Short-term
FD8-6—Develop a post-disaster recovery plan and a debris management plan.							
Existing	All Hazards	2, 3, 6, 7, 8, 9, 10	Chelan County DEM	CCFD#8	Medium	EMPG	Short-term
FD8-7—Relocate Station 3 outside of 100-year flood zone.							
Existing	All Hazards	1, 2, 4, 6, 9	CCFD#8	Chelan County	High	HMGP, PDM, FMA	Short-term
FD8-8—Purchase backup generators for Station 1 and Station 2.							
New	All Hazards	1, 2, 4, 6, 9	CCFD#8	Chelan County	$50,000	HMGP, PDM	Short-term
FD8-9—Seek professional engineer to determine and post weight limits on private and county bridges.							
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Chelan County	CCFD#8	$12,000	Staff Time, General Funds, HMGP	Short-term
FD8-10—Create a fuels reduction zone with land owners in collaboration with other fire service agencies along all roadways identified as evacuation routes.							
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	CCFD#8	Chelan County, DNR, USFS	$200,000	HMGP, PDM	Short-term Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
FD8-11—Provide landowners with training pertaining to fuels management and secure matching grants to provide financial assistance to those private landowners in need of reducing fire risk on their properties.							
New and Existing	Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	CCFD#8	Chelan County, DNR, USFS	High	HMGP	Short-term Ongoing
FD8-12—Seek funding for and maintain address signage to identify residence locations.							
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	CCFD#8	Chelan County	$20,000	Staff Time, General Funds, HMGP	Short-term Ongoing
FD8-13—Work with interagency partners and private landowners to Identify emergency water sources and locations, seek funding for development of emergency water access or storage facilities at identified locations.							
New	Wildfire, Drought	1, 2, 4, 5, 8, 9, 10	CCFD#8	Chelan County, DNR, USFS	Medium	HMGP	Short-term
FD8-14—Seek funding for computer mapping and triage hardware and hard copy maps for use in the field.							
New	All Hazards	1, 2, 7, 8	CCFD#8	Chelan County	$10,000	Staff Time, General Funds, HMGP	Short-term
FD8-15—Purchase a community fuels treatment chipper to be managed by CCFD#8.							
New	Wildfire	3, 4, 5, 6, 8	CCFD#8	Chelan County	$20,000	Staff Time, General Funds, HMGP	Short-term
FD8-16—With cooperating agencies plan and have public meetings annually to introduce and provide handouts on all hazard mitigation measures, including Firewise practices for homeowners, evacuation plans, and emergency readiness in event of disaster.							
New	All Hazards	1, 2, 3, 4, 5.6, 7, 8, 9, 10	CCFD#8	Chelan County, DNR, USFS	$5,000	Staff Time, General Funds, HMGP, PDM, FMA	Short-te

Table 13-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
FD8-1	10	High	High	Yes	Yes	No	Medium	High
FD8-2	11	Medium	Low	Yes	No	Yes	High	Low
FD8-3	5	Low	Medium	No	No	Maybe	Low	Low
FD8-4	11	Low	Low	Yes	No	Yes	High	Low
FD8-5	11	Low	Low	Yes	No	Yes	High	Low
FD8-6	10	Medium	Medium	Yes	Yes	No	Medium	High
FD8-7	5	High	High	Yes	Yes	No	Medium	High
FD8-8	5	High	Medium	Yes	Yes	No	Medium	High
FD8-9	10	High	Low	Yes	Yes	No	Medium	High
FD8-10	10	High	High	Yes	Yes	No	Medium	High
FD8-11	10	High	High	Yes	Yes	No	Medium	High
FD8-12	10	High	Medium	Yes	Yes	No	Medium	High
FD8-13	7	High	Medium	Yes	Yes	No	Medium	High
FD8-14	4	High	Low	Yes	Yes	No	Medium	High
FD8-15	5	High	Low	Yes	Yes	No	Medium	High
FD8-16	10	High	Low	Yes	Yes	No	High	High

a. See the introduction to this volume for explanation of priorities.

Table 13-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	FD8-1, 7	FD8-2, 9, 11, 12, 16	FD8-6, 10, 11, 15	FD8-6, 9, 12, 14	FD8-1, 7, 13	FD8-13	FD8-2, 11, 13, 16
Flooding	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16
Severe Weather	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16
Earthquake	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16
Landslide	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16
Drought	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7	FD8-13	FD8-2, 16
Dam Failure	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16
Avalanche	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16
Volcano	FD8-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 16	FD8-1, 7	FD8-2, 9, 12, 16	FD8-6, 10	FD8-6, 9, 12, 14	FD8-1, 7		FD8-2, 16

a. See the introduction to this volume for explanation of mitigation types.

13.9 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- Entiat Valley Community Wildfire Protection Plan-2006.
- Recent wildfire documents including the Mills Canyon Fire-2014 and the Cougar Creek Fire-2018, which were large Type 1 wildfire incidents affecting Chelan County Fire Protection District #8, they provided documentation on current wildfire hazards and mitigation needs through structure protection plans, safety analysis of identified hazards, and incident action plans.
- Chelan County Emergency Management – Hazard Identification and Vulnerability Assessment-2016.
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

14. LAKE WENATCHEE FIRE AND RESCUE (CHELAN COUNTY FIRE DISTRICT #9)

14.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Mick Lamar, Fire Chief
21696 Lake Wenatchee Hwy
Leavenworth, WA 98826
Telephone: 509.763.3034
e-mail Address: lwfrchief@lwfr.org

Alternate Point of Contact
Mike Stanford, Fire Captain
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Leavenworth, WA 98826
Telephone: 509.763.3034
e-mail Address: mstanford@lwfr.org

14.2 JURISDICTION PROFILE

14.2.1 Overview

Lake Wenatchee Fire and Rescue's (LWFR) sole purpose is life safety and property conservation. LWFR was established in April of 2015 through a merging of Chelan County Fire District 4 (Formed 1978) and Chelan County Fire District 9 (Formed 1986). LWFR is a Fire Protection District formed under the guidance of Washington State RCW9s. The district is currently staffed with one part time fire chief, two part time-time administrative assistants, and 30 volunteer firefighters. Our operating expenses are collected through assessed property values at a current rate of $0.51 per thousand. We are governed by a board of elected fire commissioners who serve a six-year term.

Chelan County Fire District 9/LWFR Fire Commissioners assume responsibility for the adoption of this plan; Chelan County Fire District 9/LWFR will oversee its implementation.

The District participates in the Public Protection Class rating System and currently has a rating of #6.

14.2.2 Service Area and Trends

The district serves a population of 3,000 full time residents and 15-20,000 part-time residents and recreationalists. Its service area covers an area of 65 square miles.

LWFR responds to fire related emergencies, medical emergencies and rescues. We serve a small populace of full time residents but weekenders and recreationalists drive our populations up 10 fold on high volume holidays or seasonal activities. Call volume is on a steady increase. Relying on volunteer firefighters is becoming more difficult. Large complex/campaign fires are increasing. An Interstate highway runs through our district as does BNSF rail lines. Cross state transmission lines from the dams cross our district serving the Seattle area. We are surrounded by heavily forested United States Forest Service and State Lands which are unhealthy and pose a risk to our community.

14.2.3 Assets

Table 14-1 summarizes the critical assets of the district and their value.

Table 14-1. Special Purpose District Assets

Asset	Value
Property	
4 acres of land	$120,000
Critical Infrastructure and Equipment	
Licensed vehicles	$3,408,307
Station contents	$249,360
Personal protective equipment	$290,000
Firefighting equipment	$>2,000
Total:	***$6,067,667***
Critical Facilities	
Station 91 21696 Lake Wenatchee Hwy	$635,836
Station 92 2327 Pine Tree	$200,543
Station 93 19015 Beaver Valley Rd	$526,519
Station 94 21300 Cayuse St	$374,119
Natapoc Mtn Repeater	$3,665
Total:	***$3,540,682***

14.3 CAPABILITY ASSESSMENT

14.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 14-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 14-2. Planning and Regulatory Capability

	Date of Most Recent Update	Comment
LWFR Policy Manual	2018	Currently under third party review
LWFR Standard Operating Guidelines	2017	Currently under third party review
Interlocal Agreement with Cascade Medical	2019	Third year extension of BLS Ambulance Coverage
DNR, USFS Firefighting Agreements	2018	
Mutual Aid Firefighting and Response Agreements	2004	

14.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 14-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 14-4.

Table 14-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Federal Grant Programs	Yes

Table 14-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department /Position
Planners or engineers with knowledge of land development and land management practices	No	
Engineers or professionals trained in building or infrastructure construction practices	No	
Planners or engineers with an understanding of natural hazards	No	
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Volunteer Firefighter
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire service and EMS
Grant writers	Yes	Volunteer Firefighter

14.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 14-5.

Table 14-5. Education and Outreach

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe	Yes Firewise and Fire Adapted Communities
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe	Yes Website and Facebook
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly specify	Yes NCWFHC, UVPP, FAC
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe	Yes Safety Day/ Farmers Market/ HOA Meetings
Do you have any established warning systems for hazard events? • If yes, please briefly describe	Yes

14.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 14-6 summarizes the District's adaptive capacity for climate change.

Table 14-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Low
Comment:	
Jurisdiction-level monitoring of climate change impacts	Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment:	
Participation in regional groups addressing climate risks	Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment:	
Identified strategies for adaptation to impacts	Low
Comment:	
Champions for climate action in local government departments	Low
Comment:	
Political support for implementing climate change adaptation strategies	Low
Comment:	
Financial resources devoted to climate change adaptation	Low
Comment:	
Local authority over sectors likely to be negative impacted	Low
Comment:	
Public Capacity	
Local residents' knowledge of and understanding of climate risk	Low
Comment:	
Local residents' support of adaptation efforts	Low
Comment:	
Local residents' capacity to adapt to climate impacts	Low
Comment:	
Local economy current capacity to adapt to climate impacts	Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

14.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

14.4.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan LWFR made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- RiverCom Dual County Dispatch –Response Plans
- Chelan County Sheriff's Office – Department of Emergency management
- Greater Wenatchee EMS Council – MCI Plan
- Plan or Program Name—Description
- Washington Fire Chiefs State Mobilization Plan – Moving Statewide Additional Resources

14.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented LWFR will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- USFS Resource Management of Forested Lands – improving forest health through resource management
- Cascadia Conservation District Outreach – networking with landowners to conserve and protect natural resources
- North Central Washington Forest Health Collaborative – bringing private and public land owners together to ensure a healthy and sustainable forest/rangeland

14.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 14-7 lists past occurrences of natural hazards for which specific damage was recorded in LWFR. Other hazard events that broadly affected the entire planning area, including LWFR, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 14-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Flood, Lk Wenatchee		1990	Not Available
Tyee, Round Mtn Rat Crk Fire		1995	Not Available
Dirtyface Fire		2005	Not Available
Northshore Fire		2012	Not Available
Ice Storm Plain/Lk Wen		2012(?)	Not Available
Chiwakum Fire		2014	Not Available
Wolverine		2015	Not Available
Cougar Creek		2018	Not Available
Kahler Glenn Avalanche		2010(?)	Not Available
Chumstick/Spromberg Fire		2017	Not Available
Lk Wenatchee Flood		2009(?)	Not Available
Eagle Creek Fire		2013	Not Available
Lk Wenatchee Complex		1999	Not Available
Suncrest Fire		2016	Not Available
Sleepy Hollow/reach Complex		2015	Not Available

14.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Wildfire
- Flooding
- Severe storms
- Avalanches
- Landslides

14.7 HAZARD RISK RANKING

Table 14-8 presents a local ranking for LWFR of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 14-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	Qualitatively Ranked	High
2	Severe Weather	Qualitatively Ranked	High
3	Landslide	Qualitatively Ranked	High
4	Flooding	Qualitatively Ranked	Medium
5	Earthquake	Qualitatively Ranked	Low
6	Dam Failure	Qualitatively Ranked	Low
7	Drought	Qualitatively Ranked	Low

14.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 14-9 lists the actions that make up the Lake Wenatchee Fire and Rescue hazard mitigation action plan. Table 14-10 identifies the priority for each action. Table 14-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 14-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
FD9- 1 Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	4, 5, 6, 8	Chelan County	LWFR	High	HMGP, PDM, FMA	Short-term
FD9- 2 Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	2, 7, 10	Chelan County	LWFR	Low	Staff Time, General Funds	Short-term
FD9 - 3 Acquire property for the expansion of fire district resources to include shared spaces for Public Safety providers, refuge for citizens impacted during emergencies, and command and control facilities for responders.							
New	All Hazards	1, 2, 9	LWFR	Chelan Coounty, AFG.	High	Block Grants, Levy, LWFR	Long-term
FD9- 4 Hire seasonal workers to assist in fuel reduction, response planning and Initial Attack							
New	Fire	3, 4, 6, 8	LWFR, WAFAC, NCWFHC	LWFR, LWFAC	MED	WAFAC, DNR, LWFR, Cascadia, Chelan Co	Short-term
FD9- 5 Adopt a county wide WUI code to reduce the impact on homes during wildfire events.							
New and Existing	Fire	10, 11	Chelan County	All Fire districts	Med	Chelan county	Mid-term
FD9- 6 Increase public awareness and participation in fuel reduction programs aimed at providing defensible spaces around residences.							
New and Existing	Fire	3, 4, 5, 6	LWFR, LWFAC, Chelan County	LWFR, WAFAC	Med	Cascadia, LWFR, USFS DNR, Landowners	Short to Long
FD9- 7 Improve early notification of emergencies and subsequent evacuation plans.							
New and Existing	All hazards	1, 2, 6	Chelan Co DEM, Rivercom	Chelan Co DEM All Fire districts	Low	DEM, RiverCom, Fire Districts	Med
FD9- 8 Develop alternative egress routes for communities limited to single ingress and egress points, or major fuel reduction along paths of egress.							
New	All Hazards	3, 6	Chelan County	Fire Districts, WSDOT	High	FEMA, State, County	Long-term
FD9-9 Strengthen interagency agreements to bolster responses to emergencies.							
New and Existing	All Hazards	2, 9, 10	LWFR, USFS, DNR, Chelan Co WA State	Fire, Law EMS EMD	Low	USFS, DNR, County State Fire districts	Short-term
FD9- 10—Develop a strategy to provide staffed engines and response apparatus during predicted and ongoing operations.							
New and Existing	All hazards	2, 6, 9	Federal, State, Chelan County	LWFR	High	Federal, State, Local Emergency Services	Med-term
FD9- 11—Develop community and neighborhood recovery strategies							
New	All Hazards	2, 10	Chelan County and LWFR	FEMA, WA State, DEM LWFR	Low	Federal, State, Local, Grants	Sort-term
FD9- 12—Implement early educational engagement with schools to expand personal protective and community response strategies.							
New	All Hazards	6, 7, 10	Cascade School District, Chelan County, LWFR	LWFR, Superintendent of Public Education	Med	Federal state and County	Med-term

Table 14-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
FD9-1	4	High	High	Yes	Yes	No	Medium	High
FD9-2	3	Low	Low	Yes	No	Yes	High	Low
FD9-3	3	High	High	Yes	Yes	No	High	High
FD9-4	4	High	Medium	Yes	Partially	No	High	High
FD9-5	2	Med	Medium	Yes	Partially	UNK	High	Low
FD9-6	4	High	Low	Yes	Yes	Partially	High	High
FD9-7	4	High	Medium	Yes	UNK	No	High	High
FD9-8	2	High	High	Yes	UNK	No	High	High
FD9-9	3	High	Low	Yes	No	Yes	High	High
FD9-10	3	High	High	Yes	Yes	No	High	High
FD9-11	2	High	Low	Yes	Yes	Yes	High	High
FD9-12	3	High	Low	Yes	UNK	Partially	Medium	Low

a. See the introduction to this volume for explanation of priorities.

Table 14-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	FD9-1, 4, 5, 6	FD9-3, 4, 5, 6	FD9-5, 6, 7, 11, 12	FD9-3, 4, 6	FD9-3, 4, 7, 8, 9, 10	FD9-1, 4, 5, 6	FD9-5, 6, 11	FD9-6, 11, 12
Flooding	FD9-1	FD9-3	FD9-7, 11, 12	FD9-3	FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Severe Weather	FD9-1	FD9-3	FD9-7, 11, 12		FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Landslide	FD9-1	FD9-3	FD9-7, 11, 12		FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Earthquake	FD9-1	FD9-3	FD9-7, 11, 12		FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Draught	FD9-1	FD9-3	FD9-11, 12			FD9-1	FD9-11	FD9-11, 12
Dam Failure	FD9-1	FD9-3	FD9-7, 11, 12		FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Seiche	FD9-1	FD9-3	FD9-7, 11, 12		FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Avalanche	FD9-1	FD9-3	FD9-7, 11, 12		FD9-3, 7, 8, 9, 10	FD9-1	FD9-11	FD9-11, 12
Climate Change	FD9-1	FD9-3	FD9-11, 12			FD9-1	FD9-11	FD9-11, 12

a. See the introduction to this volume for explanation of mitigation types.

14.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Engineering surveys of bridges for allowable weight limits posted at each end of bridge. EA of opening secondary egress to areas like the Ponderosa and River Road.

Home assessments to determine resource needs to reduce fuels and provide adequate responses when necessary.

A study to indicate where future build out of commercial and residential structures might be located to better determine access, water supplies, and construction types, and response planning.

14.10 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- Community Protection Against Wildfires – determine risk and mitigation strategies.
- Community Wildfire Protection Plan – determine risk and response concerns
- NOAA Storm Event Data Base – Identify historical events
- Chelan County Hazard Identification and Vulnerability Assessment – ID and assessment of risks
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

15. LAKE CHELAN RECLAMATION DISTRICT

15.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Rod Anderson, Manager
PO Box J, 80 Wapato Way
Manson WA 98831
Telephone: 509-687-3548
e-mail Address: randerson@lcrd.org

Alternate Point of Contact
Jennifer Collins, Assistant
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Manson WA 98831
Telephone: 509-687-3548
e-mail Address: jcollins@lcrd.org

15.2 JURISDICTION PROFILE

15.2.1 Overview

The Lake Chelan Reclamation District is a special purpose district formed under Revised Code of Washington Title 87, Irrigation District. The District predecessor was formed in 1919 and currently employs 12 employees. The Lake Chelan Reclamation District besides providing irrigation water to 6600 acres on the north shore of Lake Chelan, also provides domestic water (and fire flow) and sewer services to the community of Manson. The Lake Chelan Reclamation District is governed by a five-member elected Board of Directors. The Board assumes responsibility for the adoption of this plan; the Lake Chelan Reclamation District Manager will oversee its implementation. The Lake Chelan Reclamation District is funded through rates for each of its services to their customers.

15.2.2 Service Area and Trends

The District service area covers 14,815 acres or 23 square miles and serving a population of approximately 3,500. The District service area is on the north shore of Lake Chelan stretching from the boundaries of the City of Chelan northwesterly about 8 miles to and including the unincorporated town of Manson. Historically the District has seen population growth of 2% of which most would be included in expanded domestic water and sewer services. As of December 2018, the District serves 2,460 domestic connections, 1,745 sewer connections and 6,600 acres of agriculture through the irrigation system.

15.2.3 Assets

Table 15-1 summarizes the critical assets of the district and their value.

Table 15-1. Special Purpose District Assets

Asset	Value
Property	
0.36 acres – 80 Wapato Way/250 W Manson Blvd – Office SCADA/ Fire Station	$650,000
0.10 acres – 661 W Manson Blvd – Domestic Intake Pumping Plant	$500,000
3.91 acres – 275 Bayshore Lane – Domestic Intake Pumping Plant	$750,000
2.61 acres – 550 Chase Ave – Water Treatment Plant	$300,000
8.14 acres – 3410 Wapato Lake Rd – Reclamation District Shop	$500,000
0.50 acres – 375 Mill Rd – LC Irr Pump Plant	$750,000
4.10 acres – 299 Mike Keys Rd – A Irr Pump Plant and LC Reservoir	$250,000
2.75 acres – 748 Snuffy Smith Rd – B Irr Pump Plant and A Reservoir	$100,000
0.92 acres – 1045 Snuffy Smith Rd – B Irr Reservoir	$100,000
1.14 acres – 2300 Winesap Ave – C Irr Pump Plant and B-2 Reservoir	$100,000
1.55 acres – 249 Boyd Loop Rd – D Irr Pump Plant and C Reservoir	$100,000
0.92 acres – 47d53'46.77"N, 120d05'04.74W – D Irr Reservoir	$100,000
5.64 acres – 593 Skyfall Ln – E Irr Pump Plant and Reservoir	$100,000
1.25 acres – 413 Dead End Ln – F Pump Plant and B1 Reservoir	$100,000
0.75 acres – 869 Great Horned Owl Ln - F Booster Pump Plant and F Reservoir	$100,000
1.25 acres – 254 Turk Rd - G Pump Plant	$50,000
1.00 acres – 4290 Ivan Morse Rd - G Reservoir	$50,000
1.72 acres – 203 Detering Ln - H Pump Plant and A-1 Reservoir	$75,000
0.51 acres – 1724 Upper Joe Creek Rd - H Reservoir	$75,000
0.25 acres – 177 Borealis Ln - A Booster Pump Plant	$50,000
1.09 acres – 47d52'02.21" N, 120d02'55.39"W - C Booster Pump Plant	$50,000
0.06 acres – 527 Grade Creek Rd - H Booster Pump Plant	$50,000
Total:	**$4,900,000**
Critical Infrastructure and Equipment	
80 Wapato Way/250 W Manson Blvd – Office SCADA/ Fire Station	$1,581,631
661 W Manson Blvd – Domestic Intake #1	$1,122,381
275 Bayshore Lane – Domestic Intake #2	$581,036
550 Chase Ave – Water Treatment Plant (Emergency generator included)	$3,697,865
3410 Wapato Lake Rd – Reclamation District Shop	$1,104,868
Total length of domestic pipe infrastructure ($1.05 million per mile x 56 miles)	$58,800,000
375 Mill Rd – LC Irr Pump Plant	$1,663,000
299 Mike Keys Rd – A Irr Pump Plant and LC Reservoir	$2,127,000
748 Snuffy Smith Rd – B Irr Pump Plant and A Reservoir	$1,798,000
1045 Snuffy Smith Rd – B Irr Reservoir	$500,000
2300 Winesap Ave – C Irr Pump Plant and B-2 Reservoir	$1,534,000
249 Boyd Loop Rd – D Irr Pump Plant and C Reservoir	$578,000
47d53'46.77"N, 120d05'04.74W – D Irr Reservoir	$200,000
593 Skyfall Ln – E Irr Pump Plant and Reservoir	$390,000
413 Dead End Ln – F Pump Plant and B1 Reservoir	$399,000
869 Great Horned Owl Ln - F Booster Pump Plant and F Reservoir	$250,000
254 Turk Rd - G Pump Plant	$231,000
4290 Ivan Morse Rd - G Reservoir	$150,000
203 Detering Ln - H Pump Plant and A-1 Reservoir	$233,000

Asset	Value
1724 Upper Joe Creek Rd - H Reservoir	$150,000
177 Borealis Ln - A Booster Pump Plant	$50,000
47d52'02.21"N, 120d02'55.39"W - C Booster Pump Plant	$50,000
527 Grade Creek Rd - H Booster Pump Plant	$50,000
Total length of irrigation pipe infrastructure ($1.05 million per mile x 73 miles)	$76,650,000
Willow Pt Sewer LID	$564,467
NSS Interceptor	$12,066,299
Total length of sewer pipe and infrastructure ($1.05 million per mile x 29 miles)	$30,450,000
Total:	***$196,971,547***
Critical Facilities	
Office SCADA/ Fire Station	$2,231,631
Domestic Intake #1	$1,622,381
Domestic Intake #2	$1,331,036
Water Treatment Plant	$3,997,865
Reclamation District Shop	$1,604,868
Sewer Lift Station 1	$473,682
Sewer Lift Station 1A	$187,170
Sewer Lift Station 2	$285,494
Sewer Lift Station 3	$193,726
Sewer Lift Station MBB	$172,829
Sewer Lift Station Orchards	$175,000
Total:	**$12,275,682**

15.3 CAPABILITY ASSESSMENT

An assessment of the district's current capabilities was conducted to identify opportunities to expand, initiate or integrate capabilities in order to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan. The "Analysis of Mitigation Actions" table in Section 15.8 identifies these as community capacity building mitigation actions.

15.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 15-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 15-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
Sewer Comprehensive Plan	2003	Contract in place to update SCP in 2019-2020
Domestic Comprehensive Plan	2014	Contract in place to update DCP in 2019-2020
Comprehensive Water Conservation Plan (Irrigation)	2017	
Revised Code of Washington Title 87: Irrigation	Current	Administrative Authority

15.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 15-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 15-4.

Table 15-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Federal Grant Programs	Yes

Table 15-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Contract Engineer & District Staff
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contract Engineer & District Staff
Planners or engineers with an understanding of natural hazards	Yes	Contract Engineer & District Staff
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	District Staff
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	District Staff
Grant writers	Yes	Contract Engineer & District Staff

15.3.3 Education and Outreach Capabilities

Outreach and education capabilities identify the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 15-5.

15.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 15-6 summarizes the jurisdiction's adaptive capacity for climate change.

Table 15-5. Education and Outreach

Criterion	Response
Do you have a public information officer or communications office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe**	Yes We regularly post informational newsletters
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	Yes We have a District Facebook Page for informational purposes
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	No
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	Yes Regularly scheduled board meetings advertised and open to the public to attend
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	No

Table 15-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High
Comment: *Part of our business is understanding and adapting to drought conditions both short term and longer term trends.*	
Jurisdiction-level monitoring of climate change impacts	High
Comment: *We provide a location for a Agrimet Weather Station of which our District and our customers can access the weather data.*	
Technical resources to assess proposed strategies for feasibility and externalities	Medium
Comment: *We have a general services contract in place with a regional sized engineering firm who can provide expertise in many fields of interest we may have need of technical resources and information.*	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment:	
Participation in regional groups addressing climate risks	Medium
Comment: *Our District is a participant in Washington State Water Resources Association of which many regional weather and climate discussions occur in regards to Irrigation Districts and water supply.*	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	Low
Comment:	
Identified strategies for adaptation to impacts	Low
Comment:	
Champions for climate action in local government departments	Low
Comment:	
Political support for implementing climate change adaptation strategies	Low
Comment:	

Criterion	Jurisdiction Rating[a]
Financial resources devoted to climate change adaptation ***Comment:***	Unsure
Local authority over sectors likely to be negative impacted ***Comment:***	Unsure
Public Capacity	
Local residents' knowledge of and understanding of climate risk ***Comment:*** *Climate is definitely a concern to local and regional agricultural practices.*	Medium
Local residents support of adaptation efforts ***Comment:***	Unsure
Local residents' capacity to adapt to climate impacts ***Comment:***	Unsure
Local economy current capacity to adapt to climate impacts ***Comment:***	Unsure
Local ecosystems capacity to adapt to climate impacts ***Comment:***	Unsure

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

15.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

For hazard mitigation planning, "integration" means that hazard mitigation information is used in other relevant planning mechanisms, such as capital facilities planning, and that relevant information from those sources is used in hazard mitigation. This section identifies where such integration is already in place, and where there are opportunities for further integration in the future. Resources listed in Section 15.9 were used to provide information on integration. The progress reporting process described in Volume 1 will document the progress of hazard mitigation actions related to integration and identify new opportunities for integration.

15.4.1 Existing Integration

Some level of integration has already been established between local hazard mitigation planning and the following other local plans and programs:

- Domestic Comprehensive Plan

15.4.2 Opportunities for Future Integration

The capability assessment presented in this annex identified the following plans and programs that do not currently integrate hazard mitigation information but provide opportunities to do so in the future:

- Domestic Comprehensive Plan Update
- Comprehensive Water Conservation Plan Update

15.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 15-7 lists past occurrences of natural hazards for which specific damage was recorded in Lake Chelan Reclamation District. Other hazard events that broadly affected the entire planning area, including Lake Chelan Reclamation District, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 15-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Thunderstorm	N/A	6-25-2018	Not Available
Thunderstorm	N/A	5-30-2017	Not Available
Antilon Lake Fire	N/A	7-29-16	Not Available
Severe Storm	4249	1-15-2016	Not Available
Chelan Complex Wildfire	3372	8-21-2015	$284,258
Heavy Rain/Thunderstorm	N/A	5-29-2015	Not Available
Heavy Rain/Thunderstorm	N/A	8-2014	Not Available
Heavy Rain/Thunderstorm	N/A	9-5-2013	Not Available
Thunderstorm	N/A	8-10-2013	Not Available
25 Mile Fire – NS Chelan	N/A	7-4-2013	Not Available
Heavy Rain/Thunderstorm	N/A	6-29-2013	Not Available
Heavy Rain	N/A	7-25-2011	Not Available
Heavy Rain	N/A	3-30-2011	Not Available
Heavy Rain/Thunderstorm	N/A	7-28-2010	Not Available
Union Wildfire	2823	7-29-2009	Not Available
Heavy Rain	N/A	1-6-2009	Not Available
Severe Storm	1682	2-14-2007	Not Available
Severe Storm	1671	12-12-2006	Not Available
Flash Flood	N/A	7-5-2006	Not Available
Thunderstorm	N/A	6-12-2006	Not Available
Thunderstorm	N/A	5-23-2006	Not Available
Heavy Rain/Thunderstorm	N/A	5-9-2005	Not Available
Thunderstorm	N/A	4-23-2005	Not Available
Severe Storm	1499	11-7-2003	Not Available
Heavy Rain	N/A	6-9-2003	Not Available
Heavy Rain	N/A	1-26-2003	Not Available
Deer Point Wildfire	2449	7-20-2002	Not Available
Union Valley Wildfire	2368	7-28-2001	Not Available
Heavy Rain	N/A	6-26-2001	Not Available
Earthquake	1361	3-1-2001	Not Available
Heavy Snow Event	N/A	1-1996	Not Available
Tyee Fire Complex	2103	7-24-1994	Not Available
High Wind Event	N/A	3-1988	Not Available
Mitchell Creek Fire	2002	7-17-1970	Not Available

15.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Wildfire events put District facilities at risk of damage. Most irrigation pumping plants are located in remote unprotected areas. During wildfire events some facilities are also not accessible due to area closures.

- Violent electrical storms frequently damage sensitive monitoring and control equipment on all facilities.
- Heavy rainstorms put facilities and even pipelines at an increased risk as soils become more unstable and the possibility of washouts is always present.
- Many of the District's 16 reservoirs are located on elevated terrain and more vulnerable to electrical strikes, wildfire risk, and possibly steep slope instability.
- A vast majority of the District's pipelines are made of asbestos-cement type material and highly susceptible to earth movement. An earthquake of much size could disrupt service to a large part of our community and for an extended period of time. The disruption could be of both essential potable water services and commercial irrigation services putting croplands at risk.
- The District's main office facility has been analyzed and found to be deficient in design in regard to potential earthquake stresses.
- The District has a contract and therefore cost sharing with the PUD for a high voltage transmission line that in part serves the District irrigation system. This transmission line has been damaged in the past by wildfire.
- Reliable power supply has long been a problem for our District. Even the briefest of power interruption causes large parts of our system to shut down as a safeguard. Several times a year it takes many man hours to restore services particularly in the irrigation systems.
- Access to-from the Manson area is limited in the event of wildfires or an earthquake event.

15.7 HAZARD RISK RANKING

Table 15-8 presents a local ranking for Lake Chelan Reclamation District of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 15-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire	54	High
2	Severe Weather	45	High
3	Earthquake	36	High
4	Landslide	33	High
5	Flooding	18	Medium
6	Dam failure	12	Low
7	Drought	9	Low

15.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 15-9 lists the actions that make up the Lake Chelan Reclamation District hazard mitigation action plan. Table 15-10 identifies the priority for each action. Table 15-11 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 15-9. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
LCRD-1 —Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	2, 4, 6, 8, 9	LCRD	TBD	High	HMGP, PDM, FMA	Short-term
LCRD-2 —Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	1, 2, 4, 5, 6, 9, 10	CHELAN CO	LCRD	Low	Staff Time, General Funds	Short-term
LCRD-3 —Seismic Stabilization of LCRD Main Office building. This office houses the essential District SCADA center and also serves as the Manson Fire District 5 station 51 location.							
Existing	Earthquake	2, 4, 6, 8, 9, 10	LCRD	CCFD5	High	HMGP, PDM, FMA	Long-term
LCRD-4 —Domestic mainline replacement with durable C900 or ductile iron product would protect against catastrophic line failures.							
Existing	Earthquake, Severe Weather	2, 4, 6, 8, 9	LCRD	TBD	High	HMGP, PDM, FMA	Ongoing
LCRD-5 —Irrigation mainline replacement with durable C900 or ductile iron product would protect against catastrophic line failures.							
Existing	Earthquake, Landslide, Severe Weather	2, 4, 6, 8, 9	LCRD	TBD	High	HMGP, PDM, FMA	Ongoing
LCRD-6 —Expanding the defensible space around irrigation facilities by fencing the perimeter and clearing and gravelling all areas within the perimeter.							
Existing	Wildfire	2, 4, 6, 8, 9	LCRD	TBD	Medium	HMGP, PDM, FMA	Ongoing
LCRD-7 —Relocate sensitive electronics off of the steel reservoirs through a redesign and implementation process.							
Existing	Wildfire, Severe Weather	2, 4, 6, 8, 9	LCRD	TBD	Medium	Staff Time, General Funds	Short-term
LCRD-8 —Generator backup for domestic and sewer systems.							
New	Severe Weather, Wildfire	2, 4, 6, 8, 9, 10	LCRD	TBD	Medium	HMGP, PDM, FMA	Short-term
LCRD-9 —Transmission line power pole protection and enhancement.							
Existing	Wildfire	2, 4, 6, 8, 9, 10	CCPUD	LCRD	Medium	HMGP, PDM, FMA	Ongoing
LCRD-10 —Increase domestic water treatment and storage facilities. The District's existing water treatment plant is designed for some level of expansion.							
New	Earthquake, Landslide, Severe Weather, Wildfire	2, 6, 8, 9, 10	LCRD	TBD	High	HMGP, PDM, FMA	Long-term
LCRD-11 —Seismic upgrade or replacement of District shop facility housing all essential equipment and parts for day to day operations.							
Existing	Earthquake	2, 6, 8, 9, 10, 11	LCRD	TBD	High	HMGP, PDM, FMA	Long-term
LCRD-12 —Delivery system for potable water in the case of potable water loss for extensive period of time.							
New	All Hazards	4, 6, 10	LCRD	TBD	Medium	Staff Time, General Funds	Short-term
LCRD-13 —Interconnecting District and neighboring City of Chelan domestic water systems and storage for emergency backup supply.							
New	All Hazards	2, 6, 8, 9, 10	LCRD or City of Chelan	LCRD or City of Chelan	High	HMGP, PDM, FMA	Long-term
LCRD-14 —Upgrading/maintaining protective coatings on all domestic and irrigation tanks to protect against weakening of the facility.							
Existing	Earthquake	2, 6, 8, 9	LCRD	TBD	High	HMGP, PDM, FMA	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
LCRD-15 —Retrofit pump and motor mounts to be seismically stable.							
Existing	Earthquake	2, 6, 8, 9	LCRD	TBD	High	HMGP, PDM, FMA	Long-term
LCRD-16 —Replace existing irrigation pumps and motors with system more responsive to demand in a fire event.							
Existing	Wildfire	2, 6, 8, 9, 10	LCRD	TBD	High	HMGP, PDM, FMA	Long-term
LCRD-17 —Replace domestic intake facility block buildings to be seismically stable.							
Existing	Earthquake	2, 6, 8, 9, 10	LCRD	TBD	Medium	HMGP, PDM, FMA	Long-term
LCRD-18 —Install domestic line extensions and fire hydrant with isolation valves throughout the domestic service area where deficient to enhance fire-fighting capability.							
New	Wildfire	2, 6, 8, 9, 10	LCRD	TBD	Medium	Staff Time, General Funds	Ongoing
LCRD-19 —Repair and stabilize shoreline at all intakes to prevent erosion and loss.							
Existing	Flooding, Earthquake, Severe Weather	2, 4, 6, 8, 9, 10	LCRD	TBD	Medium	Staff Time, General Funds	Short-term
LCRD-20 —Build redundancy in domestic storage system for delivery protection and increased storage for fire suppression efforts.							
New	All Hazards	2, 6, 8, 9, 10	LCRD	TBD	High	HMGP, PDM, FMA	Long-term
LCRD-21 —Upgrade/replace all systems communications from direct bury to radio/cell for reliability.							
Existing	Earthquake, Severe Weather, Landslide, Wildfire	2, 4, 6, 8, 9	LCRD	TBD	Medium	Staff Time, General Funds	Short-term
LCRD-22 —Purchase snow removal equipment or snow transport equipment to better access remote plants for winter maintenance work.							
New	Severe Weather	6, 8, 9, 10	LCRD	TBD	Medium	HMGP, PDM, FMA, Staff Time, General Funds	Ongoing
LCRD-23 —Dredge entry channels to all District dam overflow facilities to better facilitate water transport.							
Existing	Dam Failure, Flooding, Severe Weather	4, 6, 8, 9	LCRD	DOE	Medium	Staff Time, General Funds	Ongoing
LCRD-24 —Upsize/replace all overflow piping at District dam facilities to minimize risk of overtopping.							
Existing	Dam Failure, Flooding, Severe Weather	6, 8, 9	LCRD	DOE	High	HMGP, PDM, FMA, Staff Time, General Funds	Long-term
LCRD-25 —Replace all concrete section sewer mainlines.							
Existing	Earthquake, Severe Weather	2, 4, 6, 8, 9	LCRD	TBD	High	HMGP, PDM, FMA	Ongoing
LCRD-26 —Replace brick/mortar sewer manholes with preformed concrete manholes.							
Existing	Earthquake, Flooding, Severe Weather	2, 4, 6, 8, 9	LCRD	TBD	Medium	HMGP, PDM, FMA	Ongoing
LCRD-27 —Purchase heavy equipment to better respond to emergency repairs in a timely manner.							
New	All Hazards	2, 6, 8, 9, 10	LCRD	TBD	Medium	HMGP, PDM, FMA, Staff Time, General Funds	Ongoing

Table 15-10. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
LCRD-1	5	High	High	Yes	Yes	No	Medium	High
LCRD-2	7	Low	Low	Yes	No	Yes	High	Low
LCRD-3	6	Medium	High	No	Yes	No	Low	Medium
LCRD-4	5	Medium	High	No	Yes	No	Low	Medium
LCRD-5	5	Medium	High	No	Yes	No	Low	Medium
LCRD-6	5	High	Medium	Yes	Yes	No	Medium	High
LCRD-7	5	High	Medium	Yes	Yes	Yes	High	High
LCRD-8	6	Medium	Medium	Yes	Yes	No	Medium	Medium
LCRD-9	6	Medium	Medium	Yes	Yes	No	Medium	Medium
LCRD-10	5	Low	High	No	Yes	No	Low	Low
LCRD-11	6	Medium	High	No	Yes	No	Low	Medium
LCRD-12	3	Low	Medium	No	Yes	No	Low	Low
LCRD-13	5	Low	High	No	Yes	No	Low	Low
LCRD-14	4	Medium	High	No	Yes	No	Low	Medium
LCRD-15	4	Low	High	No	Yes	No	Low	Low
LCRD-16	5	Medium	High	No	Yes	No	Low	Medium
LCRD-17	5	Medium	Medium	Yes	Yes	No	Medium	Medium
LCRD-18	5	High	Medium	Yes	Yes	No	High	High
LCRD-19	6	Medium	Medium	Yes	Yes	No	Medium	Medium
LCRD-20	5	Low	High	No	Yes	No	Low	Low
LCRD-21	5	High	Medium	Yes	Yes	Yes	High	High
LCRD-22	4	Medium	Medium	Yes	Yes	No	Medium	Medium
LCRD-23	4	Medium	Medium	Yes	Yes	No	High	Medium
LCRD-24	3	Medium	High	No	Yes	No	Low	Medium
LCRD-25	5	Medium	High	No	Yes	No	Low	Medium
LCRD-26	5	Medium	Medium	Yes	Yes	No	Medium	Medium
LCRD-27	5	Medium	Medium	Yes	Yes	No	Medium	Medium

a. See the introduction to this volume for explanation of priorities.

Table 15-11. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Flooding	2	1, 19, 23, 24, 25, 26, 27	2, 12	25, 26, 27	2, 12, 13, 19, 20, 23, 24, 27	1, 13, 19, 20, 24, 25, 26	23, 24	13, 24
Dam Failure	2	1, 23, 24, 27	2, 12	23, 24, 27	2, 12, 13, 20, 23, 24, 27	1, 13, 20, 24	23, 24	13, 24
Earthquake	2, 14	1, 3, 4, 5, 11, 14, 15, 17, 19, 21, 25, 26, 27	2, 12	4, 5, 27	2, 10, 12, 13, 19, 20, 25, 26, 27	1, 3, 4, 5, 10, 11, 13, 14, 15, 17, 19, 20, 21, 25, 26		3, 11, 13
Landslide	2	1, 5,	2, 12	5, 27	2, 10, 12, 13, 20, 27	1, 5, 10, 13, 20		13
Severe Weather	2, 7, 8	1, 4, 5, 7, 8, 19, 22, 23, 24, 25, 26, 27	2, 12	4, 5, 25, 26, 27	2, 8, 10, 12, 13, 19, 20, 22, 23, 24, 27	1, 4, 5, 7, 8, 10, 13, 19, 20, 22, 24, 25, 26	7, 8	13, 24
Wildfire	2, 6, 7, 8	1, 6, 7, 8, 9, 18, 27	2, 12	16, 27	2, 8, 9, 10, 12, 13, 16, 18, 20, 27	1, 6, 7, 8, 9, 10, 13, 16, 18, 20	6, 7, 8, 9	13

a. See the introduction to this volume for explanation of mitigation types.

15.9 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- LCRD_Project_Report_Final_20160314.pdf was the Report provided by RH2 Engineering to look comprehensively at emergency power for all of its facilities.
- LCRD installed an emergency generator at the Water Treatment Plant when the plant was constructed.
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.

Appendix A. Planning Partner Expectations

PLANNING PARTNER EXPECTATIONS

ACHIEVING DMA COMPLIANCE FOR ALL PLANNING PARTNERS

One of the goals of the multi-jurisdictional approach to hazard mitigation planning is to achieve compliance with the Disaster Mitigation Act (DMA) for all participating members in the planning effort. DMA compliance must be certified for each member in order to maintain eligibility for the benefits under the DMA. To achieve compliance for all partners, the plan must clearly document how each planning partner that is seeking eligibility from the plan, participated in the plan's development. The best way to do this is to clearly define "participation". For this planning process, "participation" has been defined as addressing the following items:

- ✓ **The Estimated level of effort**. It is estimated that the total time commitment to meet these "participation" requirements for a planning partner not participating on the Steering Committee would be ***approximately 40 hours over the eight month period.*** Approximately sixty percent of this time would be allocated to meeting items F through L described below.

- ✓ **Participate in the process.** This means to support the process to the best of your capabilities. This planning process will utilize a Steering Committee that will assume responsibility for many of the planning milestones prescribed for this process. This committee will be representative of the whole. This committee will meet periodically throughout the process and provide direction and guidance to the planning team. Steering Committee meetings are not mandatory meetings for all planning partners. This means that if you are not on the committee, your attendance is not required. However, it is our hope that all planning partners will attempt to remain engaged with this process. This process is anticipated to take eight months to complete. It will be easy to become disconnected with the process objectives if you do not participate in some of these meetings to some degree.

  The planning team will also request support from the partnership during the public involvement phase of the planning process. Support could be in the form of providing venues for public meetings, attending these meetings as meeting participants, providing technical support, etc.

- ✓ **Consistency Review.** All planning partners will be asked to identify their capabilities during this process. This capability assessment will require a review of existing documents (plans, studies and ordinances) pertinent to each jurisdiction to identify policies or recommendations that are consistent with those in the "parent" plan or have policies and recommendations that complement the hazard mitigation initiatives selected (i.e.: comp plans, basin plans or hazard specific plans).

- ✓ **Action Review.** All previous planning partners will be required to perform a review of the strategies from your prior action plan to determine those that have been

accomplished and how they were accomplished; and why those that have not been accomplished were not completed. The planning team (Tetra Tech and Chelan County DNR) will be available to assist with this task.

- ✓ **Financial Contribution.** The planning process is funded by two $25,000 planning grants from FEMA, for a total of $50,000. The planning process is estimated to cost $69,000, or $19,000 more than the grant funding provides. Each participating jurisdiction will be asked to contribute to the planning process to make up the difference. The amount of contribution will vary depending on the ability of the jurisdiction.

- ✓ **Plan must be adopted by each jurisdiction.**

One of the benefits to multi-jurisdictional planning is the ability to pool resources. This means more than monetary resources. Resources such as staff time, meeting locations, media resources, technical expertise will all need to be utilized to generate a successful plan. In addition, these resources can be pooled such that decisions can be made by a peer group applying to the whole and thus reducing the individual level of effort of each planning partner. This will be accomplished by the formation of a steering committee made up of planning partners and other "stakeholders" within the planning area. The size and makeup of this steering committee will be determined by the planning partnership. This body will assume the decision making responsibilities on behalf of the entire partnership. This will streamline the planning process by reducing the number of meetings that will need to be attended by each planning partner. The assembled Steering Committee for this effort will meet monthly on an as needed basis as determined by the planning team, and will provide guidance and decision making during all phases of the plan's development.

With the above participation requirements in mind, each partner will be asked to aid this process by being prepared to develop its section of the plan. To be an eligible planning partner in this effort, each Planning Partner will be asked to provide the following:

A. A "Letter of Intent to participate" or Resolution to participate to the Planning Team (see exhibit A).

B. Designate a lead point of contact for this effort. This designee will be listed as the hazard mitigation point of contact for your jurisdiction in the plan.

C. Identify a fully loaded billing rate for this point of contact which will be used to calculate the in-kind match for the grant that is funding this project.

D. The amount of financial contribution the jurisdiction is able to contribute to the planning process.

E. Approve the Steering Committee.

F. If requested, provide support in the form of mailing list, possible meeting space, and public information materials, such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy developed by the Steering Committee.

G. Participate in the process. There will be many opportunities as this plan evolves to participate. Opportunities such as:

   a. Steering Committee meetings

   b. Public meetings or open houses

   c. Workshops/ Planning Partner specific training sessions

   d. Public review and comment periods prior to adoption

At each and every one of these opportunities, attendance will be recorded. Attendance records will be used to document participation for each planning partner. No thresholds will be established as minimum levels of participation. However, each planning partner should attempt to attend all possible meetings and events.

H. There will be one ***mandatory*** workshop that all planning partners will be required to attend. This workshop will cover the proper completion of the jurisdictional annex template which is the basis for each partner's jurisdictional chapter in the plan. Failure to have a representative at this workshop will disqualify the planning partner from participation in this effort. The schedule for this workshop will be such that all committed planning partners will be able to attend.

I. After participation in the mandatory template workshop, each partner will be required to complete their template and provide it to the planning team in the time frame established by the Steering Committee. Technical assistance in the completion of these templates will be available from the planning team. Failure to complete your template in the required time frame *may* lead to disqualification from the partnership.

J. Each partner will be asked to perform a "consistency review" of all technical studies, plans, ordinances specific to hazards to determine the existence of any not consistent with the same such documents reviewed in the preparation of the County (parent) Plan. For example, if your community has a floodplain management plan that makes recommendations that are not consistent with any of the County's Basin Plans, that plan will need to be reviewed for probable incorporation into the plan for your area.

K. Each partner will be asked to review the Risk Assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide the jurisdiction specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner.

L. Each partner will be asked to review and determine if the mitigation recommendations chosen in the parent plan will meet the needs of its jurisdiction. Projects within each jurisdiction consistent with the parent plan recommendations will need to be identified and prioritized, and reviewed to determine their benefits vs. costs.

M. Each partner will be required to create its own action plan that identifies each project, who will oversee the task, how it will be financed and when it is estimated to occur.

N. Each partner will be required to formally adopt the plan.

Templates and instructions to aid in the compilation of this information will be provided to all committed planning partners. Each partner will be asked to complete their templates in a timely manner and according to the timeline specified by the Steering Committee.

**** Note**: Once this plan is completed, and FEMA approval has been determined for each partner, maintaining that eligibility will be dependent upon each partner implementing the plan implementation-maintenance protocol identified in the plan.**

Exhibit A
Example Letter of Intent to Participate

Chelan County Hazard Mitigation Planning Partnership
C/O Rob Flaner, Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616

Dear Chelan County Planning Partnership,

Please be advised that the _____ (***insert City or district name***) is committed to participating in the update to the Chelan County Natural Hazards Mitigation Plan. As the Chief Administrative Official for this jurisdiction, I certify that I will commit all necessary resources in order to meet Partnership expectations as outlined in the "Planning Partners expectations" document provided by the planning team, in order to obtain Disaster Mitigation Act (DMA) compliance for our jurisdiction.

Mr./Ms. _____ will be our jurisdiction's point of contact for this process and they can be reached at ***(insert: address, phone number and e-mail address)***. We understand that this designated point of contact's time will be applied to the "in-kind" local match for the grant that is funding this project. To aid in the determination of this local match, we have determined that the fully burdened bill rate for our designated point of contact is $_____.

Our jurisdiction will be able to contribute up to $_____ to the planning process.

Sincerely,

_____

Exhibit B

Planning Team Contact information

Name	Representing	Address	Phone	e-mail
Hillary Heard	Chelan County DNR	411 Washington Ave, Office # 201 Wenatchee, WA 98801	(509) 630-5372	Hillary.Heard@CO.CHELAN.WA.US
Rob Flaner	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	Rob.flaner@tetratech.com
Christina Wollman	Perteet	2302 W Dolarway Road, Suite 1 Ellensburg, Washington 98926	(509) 619-7031	christina.wollman@perteet.com
Carol Bauman	Tetra Tech, Inc.	1020 SW Taylor St., Suite 530| Portland, Oregon 97205	(503) 727-8067	Carol.bauman@tetratech.com

Appendix B. Procedures for Linking to Hazard Mitigation Plan

PROCEDURES FOR LINKING TO THIS PLAN

Not all eligible local governments within Chelan County are included in the Chelan County Hazard Mitigation Plan Update. It is assumed that some or all of these non-participating local governments may choose to "link" to the Plan at some point to gain eligibility for programs under the federal Disaster Mitigation Act. In addition, some of the current partnership may not continue to meet eligibility requirements due to a lack of participation as prescribed by the plan. The following "linkage" procedures define the requirements established by the Plan's Steering Committee and all planning partners for dealing with an increase or decrease in the number of planning partners linked to this plan. It should be noted that a currently non-participating jurisdiction within the defined planning area is not obligated to link to this plan. These jurisdictions can choose to do their own "complete" plan that addresses all required elements of section 201.6 of 44 CFR.

INCREASING THE PARTNERSHIP THROUGH LINKAGE

The annual time period for the linkage process will be from January to May during any year. Eligible linking jurisdictions are instructed to complete all of the following procedures during this time frame:

- The eligible jurisdiction requests a "Linkage Package" by contacting the Point of Contact (POC) for the plan:

  Name

  Title

  Address

  City, State ZIP

  Phone

  e-mail

  The POC will provide a linkage packages that includes:

  - Copy of Volume 1 and 2 of the plan
  - Planning partner's expectations package.
  - A sample "letter of intent" to link to the Multi-Hazard Mitigation Plan.
  - A Special Purpose District or City template and instructions.
  - Catalog of Hazard Mitigation Alternatives
  - A "request for technical assistance" form.
  - A copy of Section 201.6 of Chapter 44, the Code of Federal Regulations, which defines the federal requirements for a local hazard mitigation plan.

- The new jurisdiction will be required to review both volumes of the Multi-Hazard Mitigation Plan, which includes the following key components for the planning area:

  - The planning area risk assessment
  - Goals and objectives
  - Plan implementation and maintenance procedures
  - Comprehensive review of alternatives
  - County-wide initiatives.

  Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC. Technical assistance can be provided upon request by completing the request for technical assistance (TA) form provided in the linkage package. This TA may be provided by the POC or any other resource within the Planning Partnership such as a member of the Steering Committee or a currently participating City or Special Purposes District partner. The POC will determine who will provide the TA and the possible level of TA based on resources available at the time of the request.

- The new jurisdiction will be required to develop a public involvement strategy that ensures the public's ability to participate in the plan development process. At a minimum, the new jurisdiction must make an attempt to solicit public opinion on hazard mitigation at the onset of this linkage process and a minimum of one public meeting to present their draft jurisdiction specific annex for comment, prior to adoption by the governing body. The Planning Partnership will have resources available to aid in the public involvement strategy such as the Plan website. However, it will be the new jurisdiction's responsibility to implement and document this strategy for incorporation into its annex. It should be noted that the Jurisdictional Annex templates do not include a section for the description of the public process. This is because the original partnership was covered under a uniform public involvement strategy that covered the planning area described in Volume 1 of the plan. Since new partners were not addressed by that strategy, they will have to initiate a new strategy, and add a description of that strategy to their annex. For consistency, new partners are encouraged to follow the public involvement format utilized by the initial planning effort as described in Volume 1 of the plan.
- Once their public involvement strategy is completed and they have completed their template, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the Regional plan format.
- The POC will review for the following:

  - Documentation of Public Involvement strategy
  - Conformance of template entries with guidelines outlined in instructions
  - Chosen initiatives are consistent with goals, objectives and mitigation catalog of the Multi-Hazard Mitigation Plan Update
  - A Designated point of contact
  - A ranking of risk specific to the jurisdiction.

  The POC may utilize members of the Steering Committee or other resources to complete this review. All proposed linked annexes will be submitted to the Steering Committee for review and comment prior to submittal to the Washington Emergency management Division (WAEMD).

- Plans approved and accepted by the Steering Committee will be forwarded to WAEMD for review with a cover letter stating the forwarded plan meets local approved plan standards and whether the plan is submitted with local adoption or for criteria met/plan not adopted review.

- WAEMD will reviews plans for federal compliance. Non-Compliant plans are returned to the Lead agency for correction. Compliant plans are forwarded to FEMA for review with annotation as to the adoption status.
- FEMA reviews the new jurisdiction's plan in association with the approved plan to ensure DMA compliance. FEMA notifies new jurisdiction of results of review with copies to WAEMD and approved planning authority.
- New jurisdiction corrects plan shortfalls (if necessary) and resubmits to WAEMD through the approved plan lead agency.
- For plans with no shortfalls from the FEMA review that have not been adopted, the new jurisdiction governing authority adopts the plan (if not already accomplished) and forwards adoption resolution to FEMA with copies to lead agency and WAEMD.
- FEMA regional director notifies new jurisdiction governing authority of plan approval.

The new jurisdiction plan is then included with the regional plan with the commitment from the new jurisdiction to participate in the ongoing plan implementation and maintenance.

DECREASING THE PARTNERSHIP

The eligibility afforded under this process to the planning partnership can be rescinded in two ways. First, a participating planning partner can ask to be removed from the partnership. This may be done because the partner has decided to develop its own plan or has identified a different planning process for which it can gain eligibility. A partner that wishes to voluntarily leave the partnership shall inform the POC of this desire in writing. This notification can occur any time during the calendar year. A jurisdiction wishing to pursue this avenue is advised to make sure that it is eligible under the new planning effort, to avoid any period of being out of compliance with the Disaster Mitigation Act.

After receiving this notification, the POC shall immediately notify both WAEMD and FEMA in writing that the partner in question is no longer covered by the Multi-Hazard Mitigation Plan, and that the eligibility afforded that partner under this plan should be rescinded based on this notification.

The second way a partner can be removed from the partnership is by failure to meet the participation requirements specified in the "Planning Partner Expectations" package provided to each partner at the beginning of the process, or the plan maintenance and implementation procedures specified in Volume 1 of the plan. Each partner agreed to these terms by adopting the plan.

Eligibility status of the planning partnership will be monitored by the POC. The determination of whether a partner is meeting its participation requirements will be based on the following parameters:

- Are progress reports being submitted annually by the specified time frames?
- Are partners notifying the POC of changes in designated points of contact?
- Are the partners supporting the Steering Committee by attending designated meetings or responding to needs identified by the body?
- Are the partners continuing to be supportive as specified in the Planning Partners expectations package provided to them at the beginning of the process?

Participation in the plan does not end with plan approval. This partnership was formed on the premise that a group of planning partners would pool resources and work together to strive to reduce risk within the planning area. Failure to support this premise lessens the effectiveness of this effort. The following procedures will be followed to remove a partner due to the lack of participation:

- The POC will advise the Steering Committee of this pending action and provide evidence or justification for the action. Justification may include: multiple failures to submit annual progress reports, failure to attend meetings determined to be mandatory by the Steering Committee, failure to act on the partner's action plan, or inability to reach designated point of contact after a minimum of five attempts.
- The Steering Committee will review information provided by POC and determine action by a vote. The Steering Committee will invoke the voting process established in the ground rules established during the formation of this body.
- Once the Steering Committee has approved an action, the POC will notify the planning partner of the pending action in writing via certified mail. This notification will outline the grounds for the action and ask the partner if it is their desire to remain as a partner. This notification shall also clearly identify the ramifications of removal from the partnership. The partner will be given 30 days to respond to the notification.
- Confirmation by the partner that they no longer wish to participate or failure to respond to the notification shall trigger the procedures for voluntary removal discussed above.
- Should the partner respond that they would like to continue participation in the partnership, they must clearly articulate an action plan to address the deficiencies identified by the POC. This action plan shall be reviewed by the Steering Committee to determine whether the actions are appropriate to rescind the action. Those partners that satisfy the Steering Committee's review will remain in the partnership, and no further action is required.
- Automatic removal from the partnership will be implemented for partners where these actions have to be initiated more than once in a 5-year planning cycle.

Appendix C. Annex Instructions and Templates

INSTRUCTIONS FOR COMPLETING MUNICIPAL/UNINCORPORATED COUNTY ANNEX TEMPLATE

PHASE 3

The jurisdictional annex templates for the 2019 Chelan County Hazard Mitigation Plan update will be completed in three phases. **This document provides instructions for completing Phase 3 of the Jurisdictional Annex process for municipalities / unincorporated county areas.**

If your jurisdiction completed and submitted Phase 1 and/or Phase 2, Phase 2 will be added to the end of your document. Any planning team comments, questions or suggestions have been included as blue highlighted notes and/or comments. Any text edits were made with changes tracked for review. Any yellow highlights indicate areas where missing information should be filled in.
If your jurisdiction did not complete Phase 1 or Phase 2, please complete all phases at this time.

The target timeline for phase completion is as follows:

- **Phase 1** – Jurisdictional profile
  - Deployed: Late October 2018
  - **Due: November 30, 2018**
- **Phase 2** – Capability assessment
  - Deployed: Early December 2018
  - **Due: January 18, 2019**
- **Phase 3** – Risk ranking and action plan development
  - Deployed: January 10, 2019
  - Due: **Friday, February 15, 2019**

Any questions on completing the template should be directed to:

Christina Wollman
Perteet
509.619.7031
E-mail: christina.wollman@perteet.com

Municipality Annex:

This document provides instructions for completing **all phases** of the jurisdictional annex template for municipalities. **Templates should be completed by February 15, 2019.** Your completed template should be submitted to:

Rob Flaner
Tetra Tech, Inc.
(208) 939-4391 or (208) 830-3844
E-mail: rob.flaner@tetratech.com

A Note About Formatting:

The template for the annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

JURISDICTION-SPECIFIC NATURAL EVENT HISTORY

In the table titled "Past Natural Hazard Events," list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction. Include the date of the event and the estimated dollar amount of damage it caused. You are welcome to include any events, but special attention should be made to include major storms and federally declared disasters. Please refer to the table below that lists Presidential Disaster Declarations for the County. We recommend including most large-scale disasters, unless you know that there were no impacts to your jurisdiction. Specifically, we recommend that you include these events if you have damage estimate information or can provide a brief description of impacts that occurred within your community. In addition to these events, please refer to the NOAA storm events database included in the tool kit. We recommend conducting a search for the name of your jurisdiction in order to identify events with known impacts. Other potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data
- Newspaper archives
- Other plans/documents that deal with emergency management (safety element of a comprehensive plan, emergency response plan, etc.)
- Resident input.

If you do not have estimates for dollars of damage caused, please list "Not Available" in the appropriate column or simply list a brief description of the damages (e.g. Main Street closed as a result of flooding, downed trees and residential damages). Please note that tracking such damages is a valid and useful mitigation action if your jurisdiction does not currently track such information.

Presidential Disaster Declarations for Chelan County

Type of Event	Disaster Type*	FEMA Disaster #	Declaration Date
SEVERE STORMS, STRAIGHT-LINE WINDS, FLOODING, LANDSLIDES, AND MUDSLIDES	DR	4249	1/15/2016
WILDFIRES AND MUDSLIDES	DR	4243	10/20/2015
WILDFIRES	EM	3372	8/21/2015
WILDFIRES	EM	3371	7/23/2014
UNION VALLEY FIRE	FM	2823	7/29/2009
SEVERE WINTER STORM AND RECORD AND NEAR RECORD SNOW	DR	1825	3/2/2009
SEVERE WINTER STORM, LANDSLIDES, MUDSLIDES, AND FLOODING	DR	1817	1/30/2009
EASY STREET FIRE	FM	2711	7/8/2007
SEVERE WINTER STORM, LANDSLIDES, AND MUDSLIDES	DR	1682	2/14/2007
SEVERE STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES	DR	1671	12/12/2006
FLICK CREEK FIRE	FM	2674	9/11/2006
HURRICANE KATRINA EVACUATION	EM	3227	9/7/2005
DIRTY FACE FIRE	FM	2572	8/1/2005
WA-FISCHER WILDFIRE-08-11-2004	FM	2543	8/11/2004

Type of Event	Disaster Type*	FEMA Disaster #	Declaration Date
DEEP HARBOR FIRE	FM	2537	7/30/2004
SEVERE STORMS AND FLOODING	DR	1499	11/7/2003
WA - DEER POINT FIRE - 07/20/02	FS	2449	7/20/2002
WA - REX CREEK FIRE COMPLEX - 2379	FS	2379	8/17/2001
WA - ICICLE FIRE COMPLEX - 2374	FS	2374	8/14/2001
WA - UNION VALLEY FIRE - 07/28/01	FS	2368	7/28/2001
EARTHQUAKE	DR	1361	3/1/2001
SEVERE WINTER STORMS, LAND & MUDS SLIDES,FLOODING	DR	1159	1/17/1997
SEVERE STORMS, HIGH WIND, AND FLOODING	DR	1079	1/3/1996
SEVERE STORMS & FLOODING	DR	883	11/26/1990
VOLCANIC ERUPTION, MT. ST. HELENS	DR	623	5/21/1980
DROUGHT	EM	3037	3/31/1977
SEVERE STORMS & FLOODING	DR	334	6/10/1972

*Note: EM = Emergency Declaration; DR = Disaster Declaration; FS = Fire Suppression Authorization; FM = Fire Management Assistance Declaration

HAZARD RISK RANKING

The risk ranking performed for the overall planning area is presented in the risk assessment section of the overall hazard mitigation plan. However, each jurisdiction has differing degrees of risk exposure and vulnerability and, therefore, needs to rank risk for its own area, using the same methodology as used for the overall planning area. The risk-ranking exercise assesses two variables for each hazard: its probability of occurrence; and its potential impact on people, property and the economy.

The risk ranking for each jurisdiction is included in the Risk Ranking Summary tab in the Loss Matrix included in the toolkit. Tetra Tech has filled in the results for each jurisdiction. If this risk ranking exercise generates results other that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in your template and include what you believe the rank should be and why. For example, drought was ranked as low; however, the jurisdiction's economy is heavily reliant on water using industries, such as agriculture or manufacturing, so you believe it should be ranked as medium.

Also keep in mind that one of the purposes of this exercise is to support the selection and prioritization of actions in your plan. **You will need to have at least one true mitigation action for each hazard ranked as "high" or "medium."** This is discussed in more detail in the Hazard Mitigation Action Plan section of these instructions.

The instructions below describe the methodology for how these rankings were derived. Please review before providing any comments.

Risk Ranking Methodology

Review Risk Ranking in Template

Review the hazard risk ranking information that Tetra Tech has provided. The hazard with the highest risk rating is listed at the top of table titled "Hazard Risk Ranking" in your template and was given a rank of 1; the hazard with the second highest rating is listed second with a rank of 2; and so on. Two hazards with equal risk ratings were given the same rank. "High," Medium," and "Low" assignments were given for each hazard of concern

based on the total score (probability x impact). It is important to note, that this is determined by the scores rather than assigning a certain number of hazards to each category.

When reviewing the risk ranking results, it is important to remember that this exercise is about categorizing hazards into broad levels of risk (e.g. high, medium, low). It is not an exercise in precision.

Review Risk Ranking in Loss Matrix

The following sections discuss the methodology used to develop the results included in your template. Please refer to the Loss Matrix provided in your tool kit in order to follow along.

Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. The probability of occurrence of a hazard event is generally based on past hazard events in an area, although weight can be given to expected future probability of occurrence based on established return intervals and changing climate conditions. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category. Each hazard was assigned a probability factor as follows:

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3)
- Medium—Hazard event is likely to occur within 100 years (Probability Factor = 2)
- Low—Hazard event is not likely to occur within 100 years (Probability Factor = 1)
- None—If there is no exposure to a hazard, there is no probability of occurrence (Probability Factor = 0)

Potential Impacts of Each Hazard

The impact of each hazard is divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories are also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on the economy was assigned a weighting factor of 1.

Impact factors for each category (people, property, economy) are described below:

- **People**—Values are assigned based on the percentage of the total ***population exposed*** to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. Impact factors were assigned as follows:

  High—25 percent or more of the population is exposed to a hazard (Impact Factor = 3)
  Medium—10 percent to 24 percent of the population is exposed to a hazard (Impact Factor = 2)
  Low—9 percent or less of the population is exposed to the hazard (Impact Factor = 1)
  No impact—None of the population is exposed to a hazard (Impact Factor = 0)

- **Property**—Values are assigned based on the percentage of the total ***property value exposed*** to the hazard event:

  High—25 percent or more of the total replacement value is exposed to a hazard (Impact Factor = 3)
  Medium—10 percent to 24 percent of the total replacement value is exposed to a hazard (Impact Factor = 2)
  Low—9 percent or less of the total replacement value is exposed to the hazard (Impact Factor = 1)
  No impact—None of the total replacement value is exposed to a hazard (Impact Factor = 0)

- **Economy**—Values were assigned based on the percentage of the total ***property value vulnerable*** to the hazard event. Values represent estimates of the loss from a major event of each hazard in comparison to the total replacement value of the property exposed to the hazard. For some hazards, such as wildland fire and landslide, vulnerability may be considered to be the same or a portion of exposure due to the lack of loss estimation tools specific to those hazards.

  High—Estimated loss from the hazard is 10 percent or more of the total replacement value (Impact Factor = 3)
  Medium—Estimated loss from the hazard is 5 percent to 9 percent of the total replacement value (Impact Factor = 2)
  Low—Estimated loss from the hazard is 4 percent or less of the total replacement value (Impact Factor = 1)
  No impact—No loss is estimated from the hazard (Impact Factor = 0).

Impacts on People

The percent of the total population exposed to each hazard of concern with a defined extent and location (e.g. floodplain) can be found in the loss estimate matrix in the **green highlighted column.** For those hazards that do not have a defined extent and location the entire population or a portion of the population is considered to be exposed, depending on the hazard. For the drought hazard, it is common for jurisdictions to list "low" or "none," because all people in the planning area would be exposed to drought, but impacts to the health and safety of individuals are expected to be minimal.

Impacts on Property

The percent of the total value exposed to each hazard of concern with a defined extent and location (e.g. floodplain) can be found in the loss estimate matrix in the **blue highlighted column.** For those hazards that do not have a defined extent and location (e.g. severe weather) the entire building stock is generally considered to be exposed. For the drought hazard, it is common for jurisdictions to list "low" or "none," because all structures in the planning area would be exposed to drought, but impacts to structures are expected to be minimal.

Impacts on the Economy

The loss estimates for each hazard of concern that was modeled (i.e. dam failure, flood, earthquake) can be found in the loss estimate matrix in the **purple highlighted column.** For those hazards that have a defined extent and location, but do not have modelled loss results, loss estimates can be the same as exposure or a portion thereof. For example, a large percentage of the building stock may be exposed to landslide or wildland fire risk, but it would not be expected that one event that resulted in loss to all exposed structures would occur. For those hazards that do not have a defined extent and location, exposure is based on the hazard type.

Risk Rating for Each Hazard

A risk rating for each hazard was determined by multiplying the assigned probability factor by the sum of the weighted impact factors for people, property and the economy:

Risk Rating = Probability Factor x Weighted Impact Factor {people + property + economy}

This is the number that is shown in the risk ranking table in your template. Generally, score of 30 or greater receive a "high" rating, score between 15 and 30 receive a "medium" rating, and score of less than 15 receives a "low" rating.

JURISDICTION-SPECIFIC VULNERABILITIES

Repetitive Loss Properties

A repetitive loss property is any property for which FEMA has paid two or more flood insurance claims in excess of $1,000 in any rolling 10-year period since 1978. In the space provided, Tetra Tech has inserted the following information based on data provided by FEMA:

- The number of any FEMA-identified repetitive-loss properties in your jurisdiction.
- The number of any FEMA-identified severe-repetitive-loss properties in your jurisdiction.
- The number (if any) of repetitive-loss or severe-repetitive-loss properties in your jurisdiction that have been mitigated. Mitigated for this exercise means that flood protection has been provided to the structure.

Please note that if your jurisdiction has any repetitive loss properties, we would strongly encourage you to include a mitigation action that addresses mitigating these properties.

Other Vulnerabilities

We would strongly encourage you to review the results of the risk assessment included in the tool kit, your jurisdiction's natural events history, and any relevant public comments/input and develop a few sentences that discuss specific risks. You do not need to develop a sentence for every single parameter, but review the results and identify a few issues you would like to highlight. For example:

- Only about 2 percent of the jurisdiction's population is estimated to reside in the 1 percent annual chance flood hazard area; however, 45 percent of the population is estimated to reside in the 0.2 percent annual chance flood hazard area where flood insurance is generally not required.
- A magnitude 7.5 earthquake on the Smithburg Fault may produce nearly 1 million tons of structure debris.
- Over the past 10 years, the jurisdiction has experienced more than $6 million in estimated damages from severe storm events.
- More than 50 buildings are located in areas that will be permanently inundated with 12 inches of sea level rise.
- The results of the public survey indicated that 40 percent of Smithburg residents would not be able to be self-sufficient for 5 days following a major event.

In addition, please list any noted vulnerabilities in your jurisdiction related to hazard mitigation that may not be apparent from the risk assessment and other information provided. This may include things such as the following:

- An urban drainage issue that results in localized flooding every time it rains.
- An area of the community that frequently loses power due to a lack of tree maintenance.
- A critical facility, such as a police station, that is not equipped with a generator.
- A neighborhood that has the potential to have ingress and egress cut off as the result of a hazard event, such as a flood or earthquake (e.g. bridge only access).
- Substantial number of buildings in one area of the community are unreinforced masonry or soft-story construction.
- An area along the river is eroding and threatening public and/or private property.
- A large visitor population that may not be aware of tsunami risk.

Spending some time thinking about the results of the risk assessment and other noted vulnerabilities will be a big help in the development of your mitigation strategy. Tetra Tech has inserted a few items in this section to get you started. In addition, two examples are shown in the table below.

Noted Vulnerability	Example Mitigation Action
Only about 2 percent of the jurisdiction's population is estimated to reside in the 1 percent annual chance flood hazard area; however, 45 percent of the population is estimated to reside in the 0.2 percent annual chance flood hazard area where flood insurance is generally not required.	Develop and implement an annual public information initiative that targets residents in the 0.2 percent annual chance flood hazard area. Provide information on the availability of relatively low cost flood insurance policies.
An urban drainage issue that results in localized flooding every time it rains.	Replace undersized culverts that are contributing to localized flooding. Priority areas include: • The corner of Main Street and 1st Street • Old Oak subdivision.

STATUS OF PREVIOUS PLAN ACTIONS

This was completed under phase 1 of the Jurisdictional Annex process. Please refer to that submittal in support of the completion of phase 3. Please note that this section only applies to jurisdictions that are conducting updates to previously approved hazard mitigation plans. If your jurisdiction has not previously participated in an approved plan, this section will not appear in your annex template. Also, please note that a handout with this information was distributed at the February Steering Committee meeting so work may have already begun on this portion of phase 3.

All action items identified in prior mitigation planning efforts must be reconciled in this plan update. Action items must all be marked as ONE of the following; check the appropriate box (place an X) and provide the following information:

- **Completed—**If an action was completed during the performance period of the prior plan, please check the appropriate box and provide a date of completion in the comment section. If an action has been initiated and is an ongoing program (e.g. annual outreach event), you may mark it as completed and note that it is ongoing in the comments. When removing such actions from your action plan, please consider including them in the existing integration section above. If you have an action that addresses an ongoing program you would like to continue to include it in your action plan, please see the Carried Over to Plan Update section below.
- **Removed—**If action items are to be removed because they are no longer feasible, a reason must be given. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible or barriers that prevented the action from being implemented (e.g., "Action no longer considered feasible due to lack of political support."). If the wording and/or intent of a previously identified action is unclear, this can be a reason for removal. A change in community priorities may also be a reason for removal and should be discussed in the comments.
- **Carried Over to Plan Update—**If an action is in progress, ongoing or has not been initiated and you would like to carry it over to the plan update, please check the "Check if Yes" column under "Carried Over to Plan Update." Selecting this option indicates that the action will be included in the mitigation action plan for the 2018 plan. If you are carrying over an action to the plan update, please include a comment describing any action that has been taken or why action was not taken (specifically, any barriers or obstacles that prevented the action from moving forward or slowed progress) The last column "Enter Action #" will be addressed when you develop your actions plan in the following sections. You will need to revisit it after completing the updated action plan in phase 3.

Please ensure that you have provided a status and a comment for each action.

HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

This section is the heart of your jurisdictional annex. This is where you will identify the actions your jurisdiction would like to pursue with this plan. All of the work that you have done thus far should provide you with a plethora of ideas for actions. With this in mind, we recommend that you review the following and develop a list of potential actions:

Wording Your Action Descriptions:

Descriptions of your actions need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan action:

- **Action 1**—Address repetitive-loss properties. Through targeted mitigation, acquire, relocate or retrofit the five repetitive loss structures in the County as funding opportunities become available.
- **Action 2**—Perform a non-structural, seismic retrofit of City Hall.
- **Action 3**—Acquire floodplain property in the Smith subdivision.
- **Action 4**—Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.

- **Capability Assessment Section of Annex**—Review the Legal and Regulatory Capability table, the Fiscal Capability table, the Administrative and Technical Capability table, the Education and Outreach table, and the Community Classification table.
  - For any capability that you indicated that you did not have, ask yourself – should we have this capability? If yes, consider including an action to develop/acquire the capability.
  - Example: Ensure a staff person from public works and planning are trained in the use of FEMA's benefit-cost analysis software.
  - Review the Legal and Regulatory capabilities. If any have not been reviewed and updated in more than 10 years, consider an action to review and update the capability and, as appropriate, incorporate hazard mitigation principles or information obtained in the risk assessment (Note: actions such as this should also be identified in the opportunities for future integration section). Also, consider including projects or actions that have been identified in other plans and programs such as Capital Improvement Plans, Strategic Plans, etc. as actions in this plan.
  - For any capability that you indicated you do have, consider how this capability can be leveraged to increase or improve hazard mitigation in the jurisdiction.

- **National Flood Insurance Program Compliance Table of this Annex**—Review the table and consider the following:
  - If you have no certified floodplain managers and you have flood risk, consider adding an action to provide key staff members with training appropriate to obtain certification.
  - If your flood damage prevention was last updated in or before 2004, you should identify an action to update your ordinance to ensure it is compliant with NFIP requirements.
  - If you have any outstanding NFIP compliance issues, be sure to add an action to address them.
  - If flood hazard maps do not adequately address the flood risk within your jurisdiction, consider actions to request new mapping or conduct studies.
  - If you don't participate in CRS or you would like to improve your classification, consider this as an action.
  - If the number of flood insurance polices in your jurisdiction is low relative to the number of structures in the floodplain, consider an action that will promote flood insurance in your jurisdiction.

- **Adaptive Capacity for Climate Change Section of this Annex**—Consider your responses to this section. For those criterion that you listed as medium or low, think of ways you could improve this rating

(see adaptive capacity portion of the mitigation best practices catalog). For those criterion you listed as high, think about how you can leverage this capacity to improve or enhance mitigation or continue to improve this capacity. For those criterion that you were unable to provide responses for, consider ways you could improve your understanding of this capacity (see mitigation best practices and adaptive capacity catalog).

- **Opportunities for Future Integration Section in this Annex**—Review the items you identified in this section. For those items that address land use include them in the prepopulated Action in your template that reads as follows: Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including _____. For other items listed in this section, consider an action that specifically says what the plan, code, ordinance etc. is and how it will be integrated.
- **Jurisdiction-Specific Vulnerabilities Section in this Annex—**Review the items that you have identified in this section and consider actions that will help reduce these vulnerabilities (see mitigation best practices catalog).
- **Mitigation Best Practices Catalog**—A catalog that includes FEMA and other agency identified best practices, steering committee and other stakeholder recommendations was developed as part of the plan development process and included in your tool kit. Review the catalog and identify those actions that your jurisdiction should consider including in its action plan.
- **Public Input**—Review input received during the process, specifically the public survey results included in your toolkit.
- **Prior Mitigation Planning Efforts**—If your jurisdiction participated in a previous hazard mitigation plan, please be sure to remember to include any actions that were identified as "carry over" actions. Once you have carried them over, return to the Status of Previous Actions table and record the new action number (see discussion below).

Be sure to consider the following factors in your selection of actions:

- Select actions that are consistent with the overall purpose, goals, and objectives of the hazard mitigation plan.
- Identify actions where benefits exceed costs.
- Include any action that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) grants (see fact sheet provided in toolkit). If you have actions that are not HMGP, PDM or FMA grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- **You must identify at least one true mitigation action (i.e. not a preparedness or response action) that is clearly defined and actionable for hazards ranked as "high" or "medium."**

Recommended Actions

We recommend that every planning partner strongly consider the following actions. **The specifics of these actions should be adjusted as needed for the particulars of each community.** You will note that six of these actions have been prepopulated in your annex template. These six actions should be included in every annex and should not be removed.

- Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing those structures that have experienced repetitive losses and/or are located in high or medium ranked hazard.
- Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.

- Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.
- Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements:

  - Enforce the flood damage prevention ordinance.
  - Participate in floodplain identification and mapping updates.
  - Provide public assistance/information on floodplain requirements and impacts.

- Identify and pursue strategies to increase adaptive capacity to climate change.
- Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.
- Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.
- Develop a post-disaster recovery plan and a debris management plan.
- Develop and/or update plans that support or enhance continuity of operations following disasters.
- Purchase generators for critical facilities and infrastructure that lack adequate back-up power.

Complete the Table

Complete the table titled "Hazard Mitigation Action Plan Matrix" for all the actions you have identified and would like to include in the plan:

Action Item Numbering:

- Please use the following action item numbering conventions:
  - Chelan County—CC-1
  - Wenatchee—W1

- Enter the action number and description .
- Indicate whether the action mitigates hazards for new and/or existing assets.
- Identify the specific hazards the action will mitigate (note: you must list the hazards, simply indicating all hazards is not deemed acceptable).
- Identify by number the mitigation plan objectives that the action addresses (see toolkit).
- Indicate who will be the lead in administering the action. This will most likely be a department within your jurisdiction (e.g. planning or public works). If you wish to indicate more than one department, please ensure that it is clear who the lead agency will be and list supporting agencies in the appropriate column.
- Enter an estimated cost in dollars if known; otherwise, enter "High," "Medium" or "Low" as determined for the prioritization process described in the following section.
- Identify funding sources for the action. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment to identify possible sources of funding and refer to the table below for project eligibility for FEMA's hazard mitigation assistance grant program.
- Indicate the time line as "short-term" (1 to 5 years) or "long-term" (5 years or greater) or "ongoing" (a continual program)

Eligible Activities	HMGP	PDM	FMA
Mitigation Projects			
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Structure Elevation	√	√	√
Mitigation Reconstruction	√	√	√
Dry Floodproofing of Historic Residential Structures	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√

Generators	√	√	
Localized Flood Risk Reduction Projects	√	√	√
Non-Localized Flood Risk Reduction Projects	√	√	
Structural Retrofitting of Existing Buildings	√	√	√
Non-structural Retrofitting of Existing Buildings and Facilities	√	√	√
Safe Room Construction	√	√	
Wind Retrofit for One- and Two-Family Residences	√	√	
Infrastructure Retrofit	√	√	√
Soil Stabilization	√	√	√
Wildland fire Mitigation	√	√	
Post-Disaster Code Enforcement	√		
Advance Assistance	√		
5 Percent Initiative Projects*	√		
Aquifer and Storage Recovery**	√	√	√
Flood Diversion and Storage**	√	√	√
Floodplain and Stream Restoration**	√	√	√
Green Infrastructure**	√	√	√
Miscellaneous/Other**	√	√	√
Hazard Mitigation Planning	√	√	√
Technical Assistance			√
Management Costs	√	√	√

Notes: HMGP = Hazard Mitigation Grant Program; PDM = Pre-Disaster Mitigation; FMA = Flood Mitigation Assistance

* FEMA allows increasing the 5% Initiative amount up to 10% for a Presidential major disaster declaration under HMGP. The additional 5% Initiative funding can be used for activities that promote disaster-resistant codes for all hazards. As a condition of the award, either a disaster-resistant building code must be adopted or an improved Building Code Effectiveness Grading Schedule is required.

**Indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.

Source: https://www.fema.gov/hazard-mitigation-assistance-mitigation-activity-chart

Please see the table below for examples of some of the recommended actions above:

Example Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
EX-1—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing those structures that have experienced repetitive losses and/or are located in high or medium ranked hazard areas.							
Existing	Dam failure, Earthquake, Flooding, Landslide, Severe weather, Wildland fire	3, 4, 10	Planning		High	HMGP, PDM, FMA	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
EX-2—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community including _____.							
New and Existing	Dam failure, Drought, Earthquake, Flooding, Landslide, Severe weather, Wildland fire	1, 3, 4, 5, 7, 8, 10	Planning		Low	Staff Time, General Funds	Ongoing
EX-3—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.							
Existing	Dam failure, Drought, Earthquake, Flooding, Landslide, Severe weather, Wildland fire	4, 8	Emergency Management		Medium	Staff Time, General Funds	Short-term
EX-4—Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flooding, Landslide, Severe weather, Wildland fire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
EX-5—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flooding, Landslide, Severe weather, Wildland fire	1, 5, 8	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
EX-6—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood, Dam Failure	1, 3, 5, 7, 8, 10	Floodplain Administration Department		Low	Staff Time, General Funds	Ongoing
EX-7—Work with building officials to identify ways to improve the jurisdictions' BCEGS classification.							

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
New	Earthquake, Flooding, Landslide, Severe weather, Wildland fire	1, 4, 7	Building and Development Services		Low	Staff Time, General Funds	Short-term
EX-8—Develop a post-disaster recovery plan and a debris management plan.							
Existing	Dam failure, Earthquake, Flooding, Landslide, Severe weather, Wildland fire	9	Emergency Management		Medium	EMPG	Long-term
EX-9—Participate in programs such as Firewise, StormReady and the Community Rating System.							
New and Existing	Dam Failure, Flooding, Severe weather, Wildland fire	3, 4	Emergency Management	Public Works	Low	Staff Time, General Funds	Short-term
EX-10—Identify and pursue strategies to increase adaptive capacity to climate change including _____.							
New and Existing	Dam failure, Drought, Flooding, Landslide, Severe weather, Wildland fire	1, 3, 4, 5, 6, 7, 8	Planning		Low	Staff Time, General Funds	Short-term
EX-11—Purchase generators for critical facilities and infrastructure that lack adequate back-up power including _____.							
New and Existing	Dam failure, Flooding, Landslide, Severe weather, Wildland fire	2, 6, 9	Planning		Low	Staff Time, General Funds	Short-term

Prioritization of Mitigation Actions

Complete the information in the table titled "Mitigation Strategy Priority Schedule" as follows:

- **Action #**—Indicate the action number from the previous annex table (Hazard Mitigation Action Plan Matrix).
- **# of Objectives Met**—Enter the number of objectives the action will meet.
- **Benefits**—Enter "High," "Medium" or "Low" as follows:

  - High: Action will have an immediate impact on the reduction of risk exposure to life and property.
  - Medium: Action will have a long-term impact on the reduction of risk exposure to life and property, or action will provide an immediate reduction in the risk exposure to property.
  - Low: Long-term benefits of the action are difficult to quantify in the short term.

- **Costs**—Enter "High," "Medium" or "Low" as follows:

- High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed action.
- Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the action would have to be spread over multiple years.
- Low: Possible to fund under existing budget. Action is or can be part of an existing ongoing program.
- If you know the estimated cost of an action because it is part of an existing, ongoing program, indicate the amount.

- **Do Benefits Exceed the Cost?**—Enter "Yes" or "No." This is a qualitative assessment. Enter "Yes" if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter "No" if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- **Is the Action Grant-Eligible?**—Enter "Yes" or "No." Refer to the fact sheet on HMGP, PDM and FMA and the table above.
- **Can Action Be Funded Under Existing Program Budgets?**—Enter "Yes" or "No." In other words, is this action currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- **Implementation Priority**— Enter "High," "Medium" or "Low" as follows:

  - **High Priority**—An action that meets multiple objectives, has benefits that exceed costs, and has a secured source of funding. Action can be completed in the short term (1 to 5 years).
  - **Medium Priority**—An action that meets multiple objectives, has benefits that exceed costs, and is eligible for funding though no funding has yet been secured for it. Action can be completed in the short term (1 to 5 years), once funding is secured. Medium-priority actions become high-priority actions once funding is secured.
  - **Low Priority**—An action that will mitigate the risk of a hazard, has benefits that do not exceed the costs or are difficult to quantify, has no secured source of funding, and is not eligible for any known grant funding. Action can be completed in the long term (1 to 10 years). Low-priority actions are generally "wish-list" actions. They may be eligible for grant funding from programs that have not yet been identified.

- **Grant Pursuit Priority**— Enter "High," "Medium" or "Low" as follows:

  - **High Priority**—An action that meets identified grant eligibility requirements, has high benefits, and is listed as high or medium implementation priority; local funding options are unavailable or available local funds could be used instead for actions that are not eligible for grant funding.
  - **Medium Priority**—An action that meets identified grant eligibility requirements, has medium or low benefits, and is listed as medium or low implementation priority; local funding options are unavailable.
  - **Low Priority**—An action that has not been identified as meeting any grant eligibility requirements.

This prioritization is a simple way to determine that your identified actions meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM /FMA action grants. The prioritization will identify any actions whose probable benefits will not exceed the probable costs. Those actions identified as high-priority grant funding actions should be closely reviewed for consideration when grant funding opportunities arise.

Note: If a jurisdiction wishes to identify an action as high priority that is outside of the prioritization scheme for high priorities. A note indicating so should be inserted and a rationale should be provided.

Please see the example below based off the recommended actions:

Table 0-9. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Action Grant-Eligible?	Can Action Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
EX-1	3	High	High	Yes	Yes	No	Medium	High
EX-2	7	Medium	Low	Yes	No	Yes	High	Low
EX-3	2	Low	Medium	No	No	Maybe	Low	Low
EX-4	10	Low	Low	Yes	No	Yes	High	Low
EX-5	3	Low	Low	Yes	No	Yes	High	Low
EX-6	6	Medium	Low	Yes	No	Yes	High	Low
EX-7	3	Medium	Low	Yes	No	Yes	High	Low
EX-8	1	Medium	Medium	Yes	Yes	No	Medium	High
EX-9	2	Medium	Low	Yes	No	Yes	High	Low
EX-10	7	Medium	Low	Yes	No	Yes	High	Medium
EX-11	3	High	Medium	Yes	Yes	No	Medium	High

Analysis of Mitigation Actions

Complete the table titled "Analysis of Mitigation Actions" summarizing the mitigation actions by hazard of concern and the following eight mitigation types. Please note that an action can be more than one mitigation type:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform residents and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, wetland restoration and preservation, and green infrastructure.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

Please see the example below based off the recommended actions, but please note that these recommendations are heavy on generalized actions on the prevention spectrum and light in other areas and specificity. Planning partners should aim to identify at least one action in each category (although this is not required) and should make sure there is at least one action to address "high" and "medium" ranked hazards:

Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]						
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Community Capacity Building
Dam Failure	EX-2, 3, 4, 5	EX-1, 6	EX-4, 6		EX-8, 11	EX-2, 3, 4, 5, 6	EX-1, 6
Drought	EX-2	EX-1	EX-4			EX-2	EX-1
Earthquake	EX-2, 3, 4, 5,	EX-1, 7	EX-4		EX-8, 11	EX-2, 3, 4, 5, 7	EX-1, 7
Flood	EX-2, 3, 4, 5	EX-1, 6, 7	EX-4, 6	EX-9	EX-8, 11	EX-2, 3, 4, 5, 6, 7	EX-1, 6, 7
Landslide	EX-2, 3, 4, 5,	EX-1, 7	EX-4		EX-8, 11	EX-2, 3, 4, 5, 7	EX-1, 7
Severe Weather	EX-2, 3, 4, 5,	EX-1, 7, 9	EX-4		EX-8, 9, 11	EX-2, 3, 4, 5, 7	EX-1, 7, 9
Wildfire	EX-2, 3, 4, 5,	EX-1, 7, 9	EX-4, 9	EX-9	EX-8, 11	EX-2, 3, 4, 5, 7	EX-1, 7, 9

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates. Please note that this section is optional.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template. Please note that this section is optional.

REVIEW AND INCORPORATION OF INFORMATION FOR THIS ANNEX

Existing Reports, Plans, Regulatory Tools and Other Resources

This section should describe what resources you used to complete the annex and how you used them. Several items are started for you, but please be sure to update and enhance any descriptions. This may seem trivial or unimportant, but it is a requirement to pass the state and FEMA review process.

Staff and Local Stakeholder Involvement in Annex Development

This section should describe in general terms the process by which the annex was developed. Please include general discussion with a focus on who was involved and how the action plan was developed. An example is included below.

> This annex was developed over the course of several months with input from many city departments including public works, public safety, planning, budget and finance, and parks and recreation. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization. A action development meeting was held on February 20, 2018 and was attended by representatives from all previously listed department as well as the City Manager's office. Once actions had been identified and compiled in the annex, a draft was internally circulated for comment.

NEXT STEPS

After all jurisdictions have submitted their annexes, the draft plan will be submitted for public comment. Following the public comment period and any revisions responsive to public comment, the plan will be submitted to the Washington Emergency Management Division (WAEMD) for review. After their review and approval, WAEMD will submit the plan to FEMA Region X for plan review and approval. At that point planning partners will be asked to begin making preparations to formally adopt the plan. Each participating planning partner must have the governing board of their jurisdiction adopt via resolution or ordinance. Once FEMA has reviewed the plan and issued an approved pending adoption (APA) notice, planning partners will be asked to go forth and adopt the plan. Once adopted, planning partners will submit adoption information to Tetra Tech, who will submit the proof of adoption to FEMA. Once such adoption has been received, FEMA will issue final approval via a letter for those planning partners who have adopted the plan. It is very important to understand that approval is not final until proof of adoption has been received by FEMA and they have issued a letter specifically naming your jurisdiction. More information on the review and approval process, along with adoption support materials, will be provided at a later date.

1. JURISDICTION NAME

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

Alternate Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

1.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—
- **Current Population**—
- **Population Growth**—
- **Location and Description**—
- **Brief History**—
- **Climate**—
- **Governing Body Format**—___[general description]___. The __[name of adopting body]___ assumes responsibility for the adoption of this plan; __[name of oversight agency]__ will oversee its implementation.

1.3 DEVELOPMENT TRENDS

_DESCRIBE TRENDS IN GENERAL__.

Table 1-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 1-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • **If yes, give the estimated area annexed and estimated number of parcels or structures.**	Yes/No _____					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • **If yes, please describe land areas and dominant uses.** • **If yes, who currently has permitting authority over these areas?**	Yes/No _____ _____					
Are any areas targeted for development or major redevelopment in the next five years? • **If yes, please briefly describe, including whether any of the areas are in known hazard risk areas**	Yes/No _____					
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?		**2011**	**2012**	**2013**	**2014**	**2015**
	Single Family	__	__	__	__	__
	Multi-Family	__	__	__	__	__
	Other (commercial, mixed use, etc.)	__	__	__	__	__
Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: # • Landslide: # • High Liquefaction Areas: # • Tsunami Inundation Area: # • Wildfire Risk Areas: #					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	_____					

1.4 CAPABILITY ASSESSMENT

Jurisdiction Name has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 1-2.
- Development and permitting capabilities are presented in Table 1-3.
- An assessment of fiscal capabilities is presented in Table 1-4.
- An assessment of administrative and technical capabilities is presented in Table 1-5.
- An assessment of education and outreach capabilities is presented in Table 1-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 1-7.
- Classifications under various community mitigation programs are presented in Table 1-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 1-9.

Table 1-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Zoning Code	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Subdivisions	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Stormwater Management	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Post-Disaster Recovery	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Real Estate Disclosure	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Growth Management	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Site Plan Review	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Environmental Protection	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Flood Damage Prevention	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Emergency Management	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Climate Change	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Other:	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Planning Documents				
General Plan	Yes/No	Yes/No	Yes/No	Yes/No
Is the plan compliant with Assembly Bill 2140? *Yes/No*				
Comment:				
Capital Improvement Plan	Yes/No	Yes/No	Yes/No	Yes/No
How often is the plan updated? _____				
Comment:				
Floodplain or Watershed Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Stormwater Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Urban Water Management Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Habitat Conservation Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Economic Development Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Shoreline Management Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Community Wildfire Protection Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Forest Management Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Climate Action Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Comprehensive Emergency Management Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Post-Disaster Recovery Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Continuity of Operations Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Public Health Plan	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				
Other:	Yes/No	Yes/No	Yes/No	Yes/No
Comment:				

Table 1-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • **If no, who does? If yes, which department?**	Yes/No _____
Does your jurisdiction have the ability to track permits by hazard area?	Yes/No
Does your jurisdiction have a buildable lands inventory?	Yes/No

Table 1-4. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	Yes/No
Capital Improvements Project Funding	Yes/No
Authority to Levy Taxes for Specific Purposes	Yes/No
User Fees for Water, Sewer, Gas or Electric Service	Yes/No- If yes, please specify
Incur Debt through General Obligation Bonds	Yes/No
Incur Debt through Special Tax Bonds	Yes/No
Incur Debt through Private Activity Bonds	Yes/No
Withhold Public Expenditures in Hazard-Prone Areas	Yes/No
State-Sponsored Grant Programs	Yes/No
Development Impact Fees for Homebuyers or Developers	Yes/No
Other	Yes/No (if yes, please specify)

Table 1-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes/No	Insert appropriate information
Engineers or professionals trained in building or infrastructure construction practices	Yes/No	Insert appropriate information
Planners or engineers with an understanding of natural hazards	Yes/No	Insert appropriate information
Staff with training in benefit/cost analysis	Yes/No	Insert appropriate information
Surveyors	Yes/No	Insert appropriate information
Personnel skilled or trained in GIS applications	Yes/No	Insert appropriate information
Scientist familiar with natural hazards in local area	Yes/No	Insert appropriate information
Emergency Manager	Yes/No	Insert appropriate information
Grant writers	Yes/No	Insert appropriate information
Other	Yes/No	Insert appropriate information

Table 1-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes/No
Do you have personnel skilled or trained in website development?	Yes/No
Do you have hazard mitigation information available on your website? • **If yes, please briefly describe.**	Yes/No Insert appropriate information
Do you utilize social media for hazard mitigation education and outreach? • **If yes, please briefly describe.**	Yes/No Insert appropriate information
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly describe.**	Yes/No Insert appropriate information
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe.**	Yes/No Insert appropriate information
Do you have any established warning systems for hazard events? • **If yes, please briefly describe.**	Yes/No Insert appropriate information

Table 1-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Insert appropriate information
Who is your floodplain administrator? (department/position)	Insert appropriate information
Are any certified floodplain managers on staff in your jurisdiction?	Yes/No
What is the date that your flood damage prevention ordinance was last amended?	Insert appropriate information
Does your floodplain management program meet or exceed minimum requirements? • **If exceeds, in what ways?**	Meets/Exceeds Insert appropriate information
When was the most recent Community Assistance Visit or Community Assistance Contact?	Insert appropriate information
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • **If so, please state what they are.**	Yes/No Insert appropriate information
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • **If no, please state why.**	Yes/No Insert appropriate information

Criterion	Response
Does your floodplain management staff need any assistance or training to support its floodplain management program? • **If so, what type of assistance/training is needed?**	Yes/No Insert appropriate information
Does your jurisdiction participate in the Community Rating System (CRS)? • **If yes, is your jurisdiction interested in improving CRS Classification?** • **Is your jurisdiction interested in joining the CRS program?**	Yes/No Yes/No Yes/No
How many flood insurance policies are in force in your jurisdiction?[a] • **What is the insurance in force?** • **What is the premium in force?**	Insert appropriate information $_____ $_____
How many total loss claims have been filed in your jurisdiction?[a] • **How many claims are still open/were closed without payment?** • **What were the total payments for losses?**	Insert appropriate information Insert appropriate information $_____

a. According to FEMA statistics as of MONTH XX, 201X

Table 1-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes/No	_____	Date
Building Code Effectiveness Grading Schedule	Yes/No	_____	Date
Public Protection	Yes/No	_____	Date
Storm Ready	Yes/No	_____	Date
Firewise	Yes/No	_____	Date

Table 1-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High/Medium/Low
Comment:	
Jurisdiction-level monitoring of climate change impacts	High/Medium/Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	High/Medium/Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High/Medium/Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	High/Medium/Low
Comment:	
Participation in regional groups addressing climate risks	High/Medium/Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High/Medium/Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	High/Medium/Low
Comment:	
Identified strategies for adaptation to impacts	High/Medium/Low
Comment:	

Criterion	Jurisdiction Rating[a]
Champions for climate action in local government departments	High/Medium/Low
Comment:	
Political support for implementing climate change adaptation strategies	High/Medium/Low
Comment:	
Financial resources devoted to climate change adaptation	High/Medium/Low
Comment:	
Local authority over sectors likely to be negative impacted	High/Medium/Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	High/Medium/Low
Comment:	
Local residents support of adaptation efforts	High/Medium/Low
Comment:	
Local residents' capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local economy current capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	High/Medium/Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

1.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

1.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, Jurisdiction Name made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

Resources listed in Section 1.13 were used to provide information for this annex on hazard events and local capabilities within the jurisdiction.

1.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Jurisdiction Name will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

1.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-10 lists past occurrences of natural hazards for which specific damage was recorded in Jurisdiction Name. Other hazard events that broadly affected the entire planning area, including Jurisdiction Name, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 1-10. Past Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____

1.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: XX
- Number of FEMA-identified Severe-Repetitive-Loss Properties: XX
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: XX

Other noted vulnerabilities include the following:

- Insert as appropriate.
- Insert as appropriate.
- Insert as appropriate.

1.8 HAZARD RISK RANKING

Table 1-11 presents a local ranking for Jurisdiction Name of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 1-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	_____	_____	High/Medium/Low
2	_____	_____	High/Medium/Low
3	_____	_____	High/Medium/Low
4	_____	_____	High/Medium/Low
5	_____	_____	High/Medium/Low
6	_____	_____	High/Medium/Low
7	_____	_____	High/Medium/Low
8	_____	_____	High/Medium/Low
9	_____	_____	High/Medium/Low

Insert description of assumptions, as appropriate.

1.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 1-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 1-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				

1.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-13 lists the actions that make up the Jurisdiction Name hazard mitigation action plan. Table 1-14 identifies the priority for each action. Table 1-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 1-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #— Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	TBD	TBD	TBD	High	HMGP, PDM, FMA	Short-term
Action #— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including _____							
New and Existing	All Hazards	TBD	TBD	TBD	Low	Staff Time, General Funds	Ongoing
Action #— Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	TBD	TBD	TBD	Low	Staff Time, General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood	TBD	TBD	TBD	Low	Staff Time, General Funds	Ongoing
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							

Table 1-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
TBD	TBD	High	High	Yes	Yes	No	Medium	High
TBD	TBD	Medium	Low	Yes	No	Yes	High	Low
TBD	TBD	Low	Low	Yes	No	Yes	High	Low

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
TBD	TBD	Medium	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 1-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
_____								
_____								
_____								
_____								
_____								
_____								
_____								
_____								
_____								

a. See the introduction to this volume for explanation of mitigation types.

1.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Insert text, if any; otherwise, delete section

1.12 ADDITIONAL COMMENTS

Insert text, if any; otherwise, delete section

1.13 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Jurisdiction Name Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Jurisdiction Name Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- **Technical Reports and Information—**The following **o**utside resources and references were reviewed:
  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
  - <INSERT DOCUMENT AND DESCRIPTION OF HOW IT WAS USED>

Tetra Tech Will Insert Jurisdiction-Specific Hazard Maps Prepared for This Plan

INSTRUCTIONS FOR COMPLETING SPECIAL PURPOSE DISTRICT ANNEX TEMPLATE

PHASE 3

Special Purpose District Annex:

This document provides instructions for completing all phases of the jurisdictional annex template for municipalities. Templates should be completed by February 15, 2019. Your completed template should be submitted to:

Rob Flaner
Tetra Tech, Inc.
(208) 939-4391 or (208) 830-3844
E-mail: rob.flaner@tetratech.com

The jurisdictional annex templates for the 2019 Chelan County Hazard Mitigation Plan update will be completed in three phases. **This document provides instructions for completing Phase 3 of the Jurisdictional Annex process for municipalities / unincorporated county areas.**

If your jurisdiction completed and submitted Phase 1 and/or Phase 2, Phase 2 will be added to the end of your document. Any planning team comments, questions or suggestions have been included as blue highlighted notes and/or comments. Any text edits were made with changes tracked for review. Any yellow highlights indicate areas where missing information should be filled in.

If your jurisdiction did not complete Phase 1 or Phase 2, please complete all phases at this time.

The target timeline for phase completion is as follows:

- **Phase 1** – Jurisdictional profile
  - Deployed: Late October 2018
  - **Due: November 30, 2018**
- **Phase 2** – Capability assessment
  - Deployed: Early December 2018
  - **Due: January 18, 2019**
- **Phase 3** – Risk ranking and action plan development
  - Deployed: January 10, 2019
  - Due: **Friday, February 15, 2019**

Any questions on completing the template should be directed to:

Christina Wollman
Perteet
509.619.7031
E-mail: christina.wollman@perteet.com

A Note About Formatting:

The template for the annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

Phase 3 Instructions

JURISDICTION-SPECIFIC NATURAL EVENT HISTORY

In the table titled "Past Natural Hazard Events," list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction. Include the date of the event and the estimated dollar amount of damage it caused. You are welcome to include any events, but special attention should be made to include major storms and federally declared disasters. Please refer to the table below that lists Presidential Disaster Declarations for the County. We recommend including most large-scale disasters, unless you know that there were no impacts to your jurisdiction. Specifically, we recommend that you include these events if you have damage estimate information or can provide a brief description of impacts that occurred within your community. In addition to these events, please refer to the NOAA storm events database included in the tool kit. We recommend conducting a search for the name of your jurisdiction or those jurisdictions in your service area in order to identify events with known impacts. Other potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data
- Newspaper archives
- Other plans/documents that deal with emergency management (safety element of a comprehensive plan, emergency response plan, etc.)
- Resident input.

If you do not have estimates for dollars of damage caused, please list "Not Available" in the appropriate column or simply list a brief description of the damages (e.g. Power out to 35,000 customers for 24 hours). Please note that tracking such damages, is a valid and useful mitigation action if your jurisdiction does not currently track such information.

Presidential Disaster Declarations for Chelan County

Type of Event	Disaster Type*	FEMA Disaster #	Declaration Date
SEVERE STORMS, STRAIGHT-LINE WINDS, FLOODING, LANDSLIDES, AND MUDSLIDES	DR	4249	1/15/2016
WILDFIRES AND MUDSLIDES	DR	4243	10/20/2015
WILDFIRES	EM	3372	8/21/2015
WILDFIRES	EM	3371	7/23/2014
UNION VALLEY FIRE	FM	2823	7/29/2009
SEVERE WINTER STORM AND RECORD AND NEAR RECORD SNOW	DR	1825	3/2/2009
SEVERE WINTER STORM, LANDSLIDES, MUDSLIDES, AND FLOODING	DR	1817	1/30/2009
EASY STREET FIRE	FM	2711	7/8/2007
SEVERE WINTER STORM, LANDSLIDES, AND MUDSLIDES	DR	1682	2/14/2007
SEVERE STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES	DR	1671	12/12/2006
FLICK CREEK FIRE	FM	2674	9/11/2006

Type of Event	Disaster Type*	FEMA Disaster #	Declaration Date
HURRICANE KATRINA EVACUATION	EM	3227	9/7/2005
DIRTY FACE FIRE	FM	2572	8/1/2005
WA-FISCHER WILDFIRE-08-11-2004	FM	2543	8/11/2004
DEEP HARBOR FIRE	FM	2537	7/30/2004
SEVERE STORMS AND FLOODING	DR	1499	11/7/2003
WA - DEER POINT FIRE - 07/20/02	FS	2449	7/20/2002
WA - REX CREEK FIRE COMPLEX - 2379	FS	2379	8/17/2001
WA - ICICLE FIRE COMPLEX - 2374	FS	2374	8/14/2001
WA - UNION VALLEY FIRE - 07/28/01	FS	2368	7/28/2001
EARTHQUAKE	DR	1361	3/1/2001
SEVERE WINTER STORMS, LAND & MUDS SLIDES,FLOODING	DR	1159	1/17/1997
SEVERE STORMS, HIGH WIND, AND FLOODING	DR	1079	1/3/1996
SEVERE STORMS & FLOODING	DR	883	11/26/1990
VOLCANIC ERUPTION, MT. ST. HELENS	DR	623	5/21/1980
DROUGHT	EM	3037	3/31/1977
SEVERE STORMS & FLOODING	DR	334	6/10/1972

*Note: EM = Emergency Declaration; DR = Disaster Declaration

JURISDICTION-SPECIFIC VULNERABILITIES

We would strongly encourage you to review the results of the risk assessment included in the tool kit, your jurisdiction's natural events history, and any relevant public comments/input and develop a few sentences that discuss specific risks. You do not need to develop a sentence for every single parameter, but review the results and identify a few issues you would like to highlight. For example:

- One of the District's wastewater treatment plants is located in an area likely to be permanently inundated by sea level rise by 2030.
- Three of the District's five fire stations are located in very high landslide risk areas.
- The vast majority of the service area for the district is located on high liquefaction potential soils, which has the potential to severely disrupt service for an extended period following even a moderate earthquake event.
- The District headquarters is more likely than not to be extensively damaged during a Smithburg fault M7.0 event.

In addition, please list any noted vulnerabilities in your jurisdiction related to hazard mitigation that may not be apparent from the risk assessment and other information provided. This may include things such as the following:

- An area of the community that frequently loses power due to a lack of tree maintenance.
- A critical facility, such as a police station, that is not equipped with a generator.
- A neighborhood that has the potential to have ingress and egress cut off as the result of a hazard event, such as a flood or earthquake (e.g. bridge only access).

Spending some time thinking about the results of the risk assessment and other noted vulnerabilities will be a big help in the development of your mitigation strategy.

HAZARD RISK RANKING

The risk ranking performed for the overall planning area is presented in the risk assessment section of the overall hazard mitigation plan. However, each jurisdiction has differing degrees of risk exposure and vulnerability and, therefore, needs to rank risk for its own area, using the same methodology as used for the overall planning area. The risk-ranking exercise assesses two variables for each hazard: its probability of occurrence; and its potential impact on people, property and the economy.

Tetra Tech has brought forward the risk ranking results from the 2011 plan for each jurisdiction that participated in that planning effort. For those jurisdictions that did not participate in the 2011 planning effort, a draft risk ranking using the parameters outlined below has been developed for each planning partner. If this risk ranking exercise generates results other that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in your template and include what you believe the rank should be and why. For example, drought was ranked as low; however, the jurisdiction is a water supply district, so you believe it should be ranked as high.

Also keep in mind that one of the purposes of this exercise is to support the selection and prioritization of actions in your plan. If you identify an action with a high priority that mitigates the risk of a hazard you have ranked low, that project may not be as competitive in the grant arena. On the other hand, you will need to have at least one true mitigation action for each hazard ranked as "high."

The instructions below describe the methodology for how these rankings were derived. Please review before providing any comments.

Risk Ranking Methodology

Review Risk Ranking in Template

Review the hazard risk ranking information that Tetra Tech has provided. The hazard with the highest risk rating is listed at the top of table titled "Hazard Risk Ranking" in your template and was given a rank of 1; the hazard with the second highest rating is listed second with a rank of 2; and so on. Two hazards with equal risk ratings were given the same rank. "High," Medium," and "Low" assignments were given for each hazard of concern based on the total score (probability x impact). It is important to note, that this is determined by the scores rather than assigning a certain number of hazards to each category.

When reviewing the risk ranking results, it is important to remember that this exercise is about categorizing hazards into broad levels of risk (e.g. high, medium, low). It is not an exercise in precision.

Review Risk Ranking in Loss Matrix

The following sections discuss the methodology used to develop the results included in your template. Please refer to the risk assessment results provided for more information.

Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. The probability of occurrence of a hazard event is generally based on past hazard events in an area, although weight can be given to expected future probability of occurrence based on established return intervals and changing climate conditions. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category. Each hazard was assigned a probability factor as follows:

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3)
- Medium—Hazard event is likely to occur within 100 years (Probability Factor = 2)
- Low—Hazard event is not likely to occur within 100 years (Probability Factor = 1)
- None—If there is no exposure to a hazard, there is no probability of occurrence (Probability Factor = 0)

Potential Impacts of Each Hazard

The impact of each hazard is divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories are also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on the economy was assigned a weighting factor of 1.

Impact factors for each category (people, property, economy) are described below:

- **People**—Values are assigned based on the percentage of the total ***population exposed*** in your service area to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. Impact factors were assigned as follows:

  - High—25 percent or more of the population is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the population is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent or less of the population is exposed to the hazard (Impact Factor = 1)
  - No impact—None of the population is exposed to a hazard (Impact Factor = 0)

- **Property**—Values are assigned based on the percentage of the total ***district assets exposed*** to the hazard event:

  - High—25 percent or more of the total replacement value of assets is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the total replacement value of assets is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent or less of the total replacement value of assets is exposed to the hazard (Impact Factor = 1)
  - No impact—None of the total replacement value is exposed to a hazard (Impact Factor = 0)

- **Operations**—Impact on operations is assessed based on estimates of how long it will take your jurisdiction to become 100-percent operable after a hazard event. The estimated functional downtime for critical facilities has been estimated by Hazus (see toolkit) or subjectively assigned an impact as follows:

  - High—Functional downtime of 365 days or more (Impact Factor = 3)
  - Medium—Functional downtime of 180 to 364 days (Impact Factor = 2)
  - Low—Functional downtime of 180 days or less (Impact Factor = 1)
  - No impact—No functional downtime is estimated from the hazard (Impact Factor = 0).

Risk Rating for Each Hazard

A risk rating for each hazard was determined by multiplying the assigned probability factor by the sum of the weighted impact factors for people, property and the economy:

Risk Rating = Probability Factor x Weighted Impact Factor {people + property + economy}

This is the number that is shown in the risk ranking table in your template.

STATUS OF PREVIOUS PLAN ACTIONS

This was completed under phase 1 of the Jurisdictional Annex process. Please refer to that submittal in support of the completion of phase 3. Please note that this section only applies to jurisdictions that are conducting updates to previously approved hazard mitigation plans. If your jurisdiction has not previously participated in an approved plan, this section will not appear in your annex template. Also, please note that if you completed the Phase 2 annex, you likely already filled out this table. You will need to revisit this section to fill in the Action # section after competing your action plan in the following section.

All action items identified in prior mitigation planning efforts must be reconciled in this plan update. Action items must all be marked as ONE of the following; check the appropriate box (place an X) and provide the following information:

- **Completed—**If an action was completed during the performance period of the prior plan, please check the appropriate box and provide a date of completion in the comment section. If an action has been initiated and is an ongoing program (e.g. annual outreach event), you may mark it as completed and note that it is ongoing in the comments. When removing such actions from your action plan, please consider including them in the existing integration section above. If you have an action that addresses an ongoing program you would like to continue to include it in your action plan, please see the Carried Over to Plan Update section below.
- **Removed—**If action items are to be removed because they are no longer feasible, a reason must be given. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible (e.g., "Action no longer considered feasible due to lack of political support."). If the wording and/or intent of a previously identified action is unclear, this can be a reason for removal. A change in community priorities may also be a reason for removal and should be discussed in the comments.
- **Carried Over to Plan Update—**If an action is in progress, ongoing or has not been initiated and you would like to carry it over to the plan update, please check the "Check if Yes" column under "Carried Over to Plan Update." Selecting this option indicates that the action will be included in the mitigation action plan for the 2017 plan. The last column "Enter Action #" will be addressed when you develop your actions plan in the following sections. You will need to revisit it after completing the action plan.

HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

This section is the heart of your jurisdictional annex. This is where you will identify the actions your jurisdiction would like to pursue with this plan. All of the work that you have done thus far should provide you with a plethora of ideas for actions. With this in mind, we recommend that you review the following and develop a list of potential actions:

Wording Your Action Descriptions:

Descriptions of your actions need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan action:

- **Action 1**—Address repetitive-loss properties. Through targeted mitigation, acquire, relocate or retrofit the nine pump stations that have been repetitively damaged.
- **Action 2**—Perform a non-structural, seismic retrofit of the administrative building.
- **Action 3**—Develop a schedule to underground overhead powerlines.

- **Capability Assessment Section of Annex—**Review the Planning and Regulatory Capability table, the Fiscal Capability table, the Administrative and Technical Capability table, and the Education and Outreach table.
  - For any capability that you indicated that you did not have, ask yourself – should we have this capability? If yes, consider including an action to develop/acquire the capability.
  - Example: Ensure a staff person is trained in the use of FEMA's benefit-cost analysis software.
  - Review the Legal and Regulatory capabilities. If you have not reviewed and updated a capability in more than 10 years, consider an action to review and update the capability and, as appropriate, incorporate hazard mitigation principles or information obtained in the risk assessment (Note: actions such as this should also be identified in the opportunities for future integration section). Also, consider including projects or actions that have been identified in other plans and programs such as Capital Improvement Plans, Strategic Plans, etc. as actions in this plan.
  - For any capability that you indicated you do have, consider how this capability can be leveraged to increase or improve hazard mitigation in the jurisdiction.
- **Adaptive Capacity for Climate Change Section of this Annex**—Consider your responses to this section. For those criterion that you listed as medium or low, think of ways you could improve this rating (see adaptive capacity portion of the mitigation best practices catalog). For those criterion you listed as high, think about how you can leverage this capacity to improve or enhance mitigation or continue to improve this capacity. For those criterion that you were unable to provide responses for, consider ways you could improve your understanding of this capacity (see mitigation best practices).
- **Opportunities for Future Integration Section in this Annex**—Review the items you identified in this section. Consider an action that specifically says what the plan, code, ordinance etc. is and how it will be integrated.
- **Jurisdiction-Specific Vulnerabilities Section in this Annex—**Review the items that you have identified in this section and consider actions that will help reduce these vulnerabilities (see mitigation best practices catalog).
- **Mitigation Best Practices Catalog**—A catalog that includes FEMA and other agency identified best practices, steering committee and other stakeholder recommendations was developed as part of the plan development process and included in your tool kit. Review the catalog and identify those actions that your jurisdiction should consider including in its action plan.
- **Public Input**—Review input received during the process, specifically the public survey results included in your toolkit.

- **Prior Mitigation Planning Efforts**—If your jurisdiction participated in a previous hazard mitigation plan, please be sure to remember to include any actions that were identified as "carry over" actions. Once you have carried them over, return to the Status of Previous Actions table and record the new action number (see discussion below).

Be sure to consider the following factors in your selection of actions:

- Select actions that are consistent with the overall purpose, goals, and objectives of the hazard mitigation plan.
- Identify projects where benefits exceed costs.
- Include any project that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) grants (see fact sheet provided in toolkit). Listing HMGP, PDM or FMA as a potential funding source for an ineligible project will be a red flag when this plan goes through review. If you have projects that are not HMGP, PDM or FMA grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- You should identify at least one action for your highest ranked risk, but hazard-specific projects for every hazard are not required. If you have not identified an earthquake related project, and an earthquake occurs that causes damage in your jurisdiction, you are not discounted from HMGP project grant eligibility.

Recommended Actions

We recommend that every planning partner strongly consider the following actions. The specifics of these actions should be adjusted as needed for the particulars of each jurisdiction. You will note that two of these actions have been prepopulated in your annex template. These two actions should be included in every annex and should not be removed.

- Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing structures that have experienced repetitive losses.
- Integrate the hazard mitigation plan into other plans, ordinances and programs within the community.
- Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.

- Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.
- Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.
- Consider the development of a post-disaster recovery plan and a debris management plan.

Complete the Table

Complete the table titled "Hazard Mitigation Action Plan Matrix" for all the actions you have identified and would like to include in the plan:

- Enter the action number and description .
- Indicate whether the action mitigates hazards for new and/or existing assets.

Action Item Numbering:

- Please use the following action item numbering conventions:
  - Chelan County Flood Control District- CCFCD-1
  - Chelan County Fire District #1- CCFD1-1
  - Chelan County Fire District #9- CCFD9-1
  -

- Identify the specific hazards the action will mitigate.
- Identify by number the mitigation plan objectives that the action addresses (see toolkit).
- Indicate who will be the lead in administering the project. This will most likely be a department within your jurisdiction (e.g. planning or public works). If you wish to indicate more than one department, please ensure that it is clear who the lead agency will be (i.e note with an *)
- Enter an estimated cost in dollars if known; otherwise, enter "High," "Medium" or "Low" as determined for the prioritization process described in the following section.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment to identify possible sources of funding.
- Indicate the time line as "short-term" (1 to 5 years) or "long-term" (5 years or greater) or ongoing (a continual program)

Please see the table below for an example for the recommended initiatives above:

Example Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
EX-1— Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing structures that have experienced repetitive losses.						
Existing	All Hazards	1, 4, 7, 9, 12, 14, 15, 17	Planning	High	HMGP, PDM, FMA	Short-term
EX-2—Integrate the hazard mitigation plan into other plans, ordinances and programs within the community.						
New and Existing	All Hazards	1, 4, 5, 7, 11, 12, 14, 17	Planning	Low	Staff Time, General Funds	Ongoing
EX-3—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.						
Existing	All Hazards	6, 8, 18	Emergency Management	Medium	Staff Time, General Funds	Short-term
EX-4—Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.						
New and Existing	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 ,18	Lead Contact Department for Plan	Low	Staff Time, General Funds	Short-term
EX-5—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.						
New and Existing	All Hazards	3, 8, 16	Lead Contact Department for Plan	Low	Staff Time, General Funds	Short-term
EX-7—Develop a post-disaster recovery plan and a debris management plan.						
Existing	All Hazards	6, 13	Emergency Management	Medium	EMPG	Long-term

*Identified Lead Agency

Prioritization of Mitigation Actions

Complete the information in the table titled "Mitigation Strategy Priority Schedule" as follows:

- **Action #**—Indicate the action number from the previous annex table (Hazard Mitigation Action Plan Matrix).
- **# of Objectives Met**—Enter the number of objectives the action will meet.
- **Benefits**—Enter "High," "Medium" or "Low" as follows:
  - High: Project will have an immediate impact on the reduction of risk exposure to life and property.
  - Medium: Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
  - Low: Long-term benefits of the project are difficult to quantify in the short term.
- **Costs**—Enter "High," "Medium" or "Low" as follows:
  - High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

- Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- Low: Possible to fund under existing budget. Project is or can be part of an existing ongoing program.

If you know the estimated cost of a project because it is part of an existing, ongoing program, indicate the amount.

- **Do Benefits Exceed the Cost?**—Enter "Yes" or "No." This is a qualitative assessment. Enter "Yes" if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter "No" if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- **Is the Project Grant-Eligible?**—Enter "Yes" or "No." Refer to the fact sheet on HMGP, PDM and FMA.
- **Can Project Be Funded Under Existing Program Budgets?**—Enter "Yes" or "No." In other words, is this action currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- **Implementation Priority**— Enter "High," "Medium" or "Low" as follows:

  - High Priority—An initiative that meets multiple objectives, has benefits that exceed cost, has funding secured or is an ongoing project and meets eligibility requirements for a grant program. High priority initiatives can be completed in the short term (1 to 5 years). The key factors for high priority initiatives are that they have funding secured and can be completed in the short term.
  - Medium Priority—An initiative that meets multiple objectives, that has benefits that exceed costs, and for which funding has not yet been secured, but is eligible for funding. Initiative can be completed in the short term, once funding is secured. Medium priority projects will become high priority projects once funding is secured. The key factors for medium priority initiatives are that they are eligible for funding, but do not yet have funding secured, and they can be completed within the short term.
  - Low Priority—An initiative that will mitigate the risk of a hazard, that has benefits that do not exceed the costs or are difficult to quantify, for which funding has not been secured, that is not eligible for grant funding, and for which the time line for completion is long term (1 to 10 years). Low priority initiatives may be eligible for grant funding from other programs that have not yet been identified. Low priority projects are generally "blue-sky" or "wish-list." projects. Financing is unknown, and they can be completed over a long term.

- **Grant Pursuit Priority**— Enter "High," "Medium" or "Low" as follows:

  - High Priority—An initiative that has been identified as meeting grant eligibility requirements, assessed to have high benefits, is listed as high or medium priority, and where local funding options are unavailable or where dedicated funds could be utilized for projects that are not eligible for grant funding.
  - Medium Priority—An initiative that has been identified as meeting grant eligibility requirements, assessed to have medium or low benefits, is listed as medium or low priority, and where local funding options are unavailable.
  - Low Priority—An initiative that has not been identified as meeting grant eligibility requirements, or has low benefits.

This prioritization is a simple way to determine that your identified actions meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM /FMA project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs. Those initiatives identified as high-priority grant funding initiatives should be closely reviewed for consideration when grant funding opportunities arise.

Note: If a jurisdiction wishes to identify a project as high priority that is outside of the prioritization scheme for high priorities. A note indicting so should be inserted and a rationale should be provided.

Please see the example below based off the recommended initiatives:

Table 0-9. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
EX-1	8	High	High	Yes	Yes	No	Medium	High
EX-2	8	Medium	Low	Yes	No	Yes	High	Low
EX-3	3	Low	Medium	No	No	Maybe	Low	Low
EX-4	18	Low	Low	Yes	No	Yes	High	Low
EX-5	3	Low	Low	Yes	No	Yes	High	Low
EX-6	2	Medium	Medium	Yes	Yes	No	Medium	High

a. See the introduction to this volume for explanation of priorities

Analysis of Mitigation Actions

Complete the table titled "Analysis of Mitigation Actions" summarizing the mitigation actions by hazard of concern and the following eight mitigation types. Please note that an action can be more than one mitigation type:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform residents and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, wetland restoration and preservation, and green infrastructure.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Climate Resilient**—Actions that incorporate methods to mitigate and/or adapt to the impacts of climate change. Includes aquifer storage and recovery activities, incorporating future conditions projections in

project design or planning, or actions that specifically address jurisdiction-specific climate change risks, such as sea level rise or urban heat island effect.

- **Community Capacity Building**—Actions that increase or enhance local capabilities to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. Includes staff training, memorandums of understanding, development of plans and studies, and monitoring programs.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

Please see the example below based off the recommended initiatives, but please note that these recommendations are heavy on generalized actions on the prevention spectrum and light in other areas and specificity. Planning partners should aim to identify at least one action in each category (although this is not required) and should make sure there is at least one action to address "high" ranked hazards:

Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
All hazards	EX-2, 3, 4, 5	EX-1	EX-4		EX-8			EX-3, 4, 6
Dam and Levee Failure								
Drought								
Earthquake								
Flood								
Landslide								
Severe weather								
Tsunami								
Wildfire								

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates. Please note that this section is optional.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template. Please note that this section is optional.

REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

This section should describe what resources you used to complete the annex and how you used them. Several items are started for you, but please be sure to update and enhance any descriptions. This may seem trivial or unimportant, but it is a requirement to pass the state and FEMA review process.

NEXT STEPS

After all jurisdictions have submitted their annexes, the draft plan will be submitted for public comment. Following the public comment period and any revisions responsive to public comment, the plan will be submitted to the Washington Emergency Management Division (WAEMD) for review. After their review and approval, WAEMD will submit the plan to FEMA Region X for plan review and approval. At that point planning partners will be asked to begin making preparations to formally adopt the plan. Each participating planning partner must have the governing board of their jurisdiction adopt via resolution or ordinance. Once FEMA has reviewed the plan and issued an approved pending adoption (APA) notice, planning partners will be asked to go forth and adopt the plan. Once adopted, planning partners will submit adoption information to Tetra Tech, who will submit the proof of adoption to FEMA. Once such adoption has been received, FEMA will issue final approval via a letter for those planning partners who have adopted the plan. It is very important to understand that approval is not final until proof of adoption has been received by FEMA and they have issued a letter specifically naming your jurisdiction. More information on the review and approval process, along with adoption support materials, will be provided at a later date.

1. DISTRICT NAME

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

Alternate Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

1.2 JURISDICTION PROFILE

1.2.1 Overview

Insert Narrative Profile Information, per Instructions. The __[name of adopting body]___ assumes responsibility for the adoption of this plan; __[name of oversight agency]__ will oversee its implementation.

For fire districts please be sure to include the following sentence (Non-fire Special Purpose Districts may delete the sentence):

The District participates/does not participate in the Public Protection Class Rating System and currently has a rating of #.

1.2.2 Service Area and Trends

The district serves a population of _ population_. Its service area covers an area of _area_.

Insert summary description of service trends.

1.2.3 Assets

Table 1-1 summarizes the critical assets of the district and their value.

Table 1-1. Special Purpose District Assets

Asset	Value
Property	
**number** **acres of land**	$_value_
Critical Infrastructure and Equipment	
**description**	$_value_
**description**	$_value_
**description**	$_value_
**description**	$_value_
**description**	$_value_
Total:	***$_value_***
Critical Facilities	
**description**	$_value_
**description**	$_value_
**description**	$_value_
**description**	$_value_
**description**	$_value_
**description**	$_value_
Total:	***$_value_***

1.3 CAPABILITY ASSESSMENT

1.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 1-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 1-2. Planning and Regulatory Capability

	Date of Most Recent Update	Comment
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____

1.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 1-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 1-4.

Table 1-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes/No
Authority to Levy Taxes for Specific Purposes	Yes/No
User Fees for Water, Sewer, Gas or Electric Service	Yes/No
Incur Debt through General Obligation Bonds	Yes/No
Incur Debt through Special Tax Bonds	Yes/No
Incur Debt through Private Activity Bonds	Yes/No
State-Sponsored Grant Programs	Yes/No
Development Impact Fees for Homebuyers or Developers	Yes/No
Federal Grant Programs	Yes/No
Other	Yes/No (if yes, please specify)

Table 1-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes/No	Insert appropriate information
Engineers or professionals trained in building or infrastructure construction practices	Yes/No	Insert appropriate information
Planners or engineers with an understanding of natural hazards	Yes/No	Insert appropriate information
Staff with training in benefit/cost analysis	Yes/No	Insert appropriate information
Surveyors	Yes/No	Insert appropriate information
Personnel skilled or trained in GIS applications	Yes/No	Insert appropriate information
Scientist familiar with natural hazards in local area	Yes/No	Insert appropriate information
Emergency manager	Yes/No	Insert appropriate information
Grant writers	Yes/No	Insert appropriate information
Other	Yes/No	Insert appropriate information

1.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 1-5.

Table 1-5. Education and Outreach

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes/No
Do you have personnel skilled or trained in website development?	Yes/No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe	Yes/No Insert appropriate information
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe	Yes/No Insert appropriate information
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly specify	Yes/No Insert appropriate information

Criterion	Response
Do you have any other programs already in place that could be used to communicate hazard-related information? • **If yes, please briefly describe**	Yes/No Insert appropriate information
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Yes/No Insert appropriate information

1.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 1-6 summarizes the District's adaptive capacity for climate change.

Table 1-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High/Medium/Low
Comment:	
Jurisdiction-level monitoring of climate change impacts	High/Medium/Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	High/Medium/Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High/Medium/Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	High/Medium/Low
Comment:	
Participation in regional groups addressing climate risks	High/Medium/Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High/Medium/Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	High/Medium/Low
Comment:	
Identified strategies for adaptation to impacts	High/Medium/Low
Comment:	
Champions for climate action in local government departments	High/Medium/Low
Comment:	
Political support for implementing climate change adaptation strategies	High/Medium/Low
Comment:	
Financial resources devoted to climate change adaptation	High/Medium/Low
Comment:	
Local authority over sectors likely to be negative impacted	High/Medium/Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	High/Medium/Low
Comment:	

Criterion	Jurisdiction Rating[a]
Local residents support of adaptation efforts	High/Medium/Low
Comment:	
Local residents' capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local economy current capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	High/Medium/Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

1.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

1.4.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, District Name made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

Resources listed in Section 1.12 were used to provide information on hazard events and local capabilities within the jurisdiction.

1.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, District Name will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

1.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-7 lists past occurrences of natural hazards for which specific damage was recorded in District Name. Other hazard events that broadly affected the entire planning area, including District Name, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 1-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____

1.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Insert as appropriate.
- Insert as appropriate.
- Insert as appropriate.

1.7 HAZARD RISK RANKING

Table 1-8 presents a local ranking for District Name of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 1-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	_____	_____	High/Medium/Low

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
2	_____	_____	High/Medium/Low
3	_____	_____	High/Medium/Low
4	_____	_____	High/Medium/Low
5	_____	_____	High/Medium/Low
6	_____	_____	High/Medium/Low
7	_____	_____	High/Medium/Low
8	_____	_____	High/Medium/Low
9	_____	_____	High/Medium/Low

Insert description of assumptions, as appropriate.

1.8 STATUS OF PREVIOUS PLAN ACTIONS

Table 1-9 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 1-9. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
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Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#

1.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-10 lists the actions that make up the District Name hazard mitigation action plan. Table 1-11 identifies the priority for each action. Table 1-12 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 1-10. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	All Hazards	TBD	TBD	TBD	High	HMGP, PDM, FMA	Short-term
Action #—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	All Hazards	TBD	TBD	TBD	Low	Staff Time, General Funds	Short-term
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							

Table 1-11. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
TBD	TBD	High	High	Yes	Yes	No	Medium	High
TBD	TBD	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 1-12. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
_____								
_____								
_____								
_____								
_____								
_____								
_____								
_____								
_____								

a. See the introduction to this volume for explanation of mitigation types.

1.10 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Insert text, if any; otherwise, delete section

1.11 ADDITIONAL COMMENTS

Insert text, if any; otherwise, delete section

1.12 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.