

Hazard Mitigation Plan



Volume 2:
Planning Partner
Annexes



FINAL

October 2012

Kittitas County
HAZARD MITIGATION PLAN
VOLUME 2: PLANNING PARTNER ANNEXES

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Kittitas County Hazard Mitigation Plan; Volume 2—Planning Partner Annexes

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**PART 1—
INTRODUCTION**

CHAPTER 1.

PLANNING PARTNER PARTICIPATION

1.1. BACKGROUND

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. Such planning efforts require all participating jurisdictions to fully participate in the process and formally adopt the resulting planning document. Chapter 44 of the Code of Federal Regulations (44 CFR) states:

“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))

In the preparation of the Kittitas County Hazard Mitigation Plan, a Planning Partnership was formed to leverage resources and to meet requirements of the federal Disaster Mitigation Act of 2000 (DMA) for as many eligible local governments in Kittitas County as possible. The DMA 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.”

There are two types of Planning Partners in this process, with distinct needs and capabilities: incorporated municipalities (cities and the County); and special purpose districts.

1.2. THE PLANNING PARTNERSHIP

Initial Solicitation and Letters of Intent

The planning team solicited the participation of the County and all County-recognized special purpose districts at the outset of this project. A meeting was held on June 22, 2010 at the Kittitas Valley Event center to identify potential stakeholders for this process. All eligible local governments in the planning area were invited to attend. Various agency and citizen stakeholders were also invited. The goals of the meeting were as follows:

- Provide an overview of the Disaster Mitigation Act.
- Provide an update on the planning grant.
- Outline the work plan for the Kittitas County hazard mitigation plan.
- Describe the benefits of multi-jurisdictional planning.
- Solicit planning partners.
- Confirm a Steering Committee.

All interested local governments were provided with a list of planning partner expectations developed by the planning team and were informed of the obligations required for participation. Local governments

wishing to join the planning effort were asked to provide the planning team with a “notice 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, formal commitment was received from 19 planning partners by the planning team, and the Kittitas County Planning Partnership was formed.

Maps for each participating city are provided in the individual annex for that city. These maps will be updated periodically as changes to the partnership occur, either through linkage or by a partner dropping out due to a failure to participate.

Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were confirmed at the kickoff meeting held on June 22, 2010:

- Each partner will provide a “Letter of Intent to Participate.”
- Each partner will support and participate in the selection and function of the Steering Committee overseeing the development of the plan. Support includes allowing this body to make decisions regarding plan development and scope on behalf of the partnership.
- Each partner will provide support for the public involvement strategy developed by the Steering Committee in the form of mailing lists, possible meeting space, and media outreach such as newsletters, newspapers or direct-mailed brochures.
 - Each partner will participate in plan development activities such as Steering Committee meetings, public meetings or open houses, workshops and planning partner training sessions, and public review and comment periods prior to adoption.

Attendance will be tracked at such activities, and attendance records will be used to track and document participation for each planning partner. No minimum level of participation will be established, but each planning partner should attempt to attend all such activities.

- Each partner will be expected to perform a “consistency review” of all technical studies, plans, and ordinances specific to hazards identified within the planning area to determine the existence of plans, studies or ordinances not consistent with the equivalent documents reviewed in preparation of the County plan. For example: if a planning partner 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 the partner’s area.
- Each partner will be expected to review the risk assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide jurisdiction-specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner.
- Each partner will be expected to review the mitigation recommendations chosen for the overall county and determine if they will meet the needs of its jurisdiction. Projects within each jurisdiction consistent with the overall plan recommendations will need to be identified, prioritized and reviewed to determine their benefits and costs.
- 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.
- Each partner will be required to sponsor at least one public meeting to present the draft plan at least two weeks prior to adoption.
- Each partner will be required to formally adopt the plan.

It should be noted that 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 hazard mitigation plan may comply with DMA requirements by linking to this plan following the procedures outlined in Appendix B.

1.3. ANNEX-PREPARATION PROCESS

Templates

Templates were created to help the Planning Partners prepare their jurisdiction-specific annexes. Since special purpose districts operate differently from incorporated municipalities, separate templates were created for the two types of jurisdictions. The templates were created so that all criteria of Section 201.6 of 44 CFR would be met, based on the partners' capabilities and mode of operation. Each partner was asked to participate in a technical assistance workshop during which key elements of the template were completed by a designated point of contact for each partner and a member of the planning team. The templates were set up to lead each partner through a series of steps that would generate the DMA-required elements that are specific for each partner. The templates and their instructions can be found in Appendices C and D to this volume of the hazard mitigation plan.

Workshop

Workshops were held for Planning Partners to learn about the templates and the overall planning process. Topics included the DMA, the Kittitas County plan background, the templates, risk ranking, developing the action plan, and cost/benefit review.

Separate sessions were held for special purpose districts and municipalities, in order to address each type of partner's needs. The sessions provided technical assistance and an overview of the template completion process. Attendance at this workshop was mandatory under the planning partner expectations established by the Steering Committee. There was 95-percent attendance of the partnership at these sessions.

In the risk-ranking exercise, each planning partner was asked to rank each risk specifically for its jurisdiction, based on the impact on its population or facilities. Cities were asked to base this ranking on probability of occurrence and the potential impact on people, property and the economy. Special purpose districts were asked to base 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. A principal objective of this exercise was to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes. Tools utilized during these sessions included the following:

- The Kittitas County risk assessment results
- Hazard maps for all hazards of concern
- Special district boundary maps that illustrated the sphere of influence for each special purpose district partner
- Hazard mitigation catalogs
- Federal funding and technical assistance catalogs

Prioritization

44 CFR requires actions identified in the action plan to be prioritized (Section 201.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. The actions were prioritized according to the following criteria:

- **High Priority**—Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
- **Medium Priority**—Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
- **Low Priority**—Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

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 once a funding source has been identified. 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 Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) 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 costs and benefits as follows:

- 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.
- 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.

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.

It should be noted that for many of the strategies identified in this action plan, funding might be sought under FEMA’s HMGP or PDM programs. Both of these programs require 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.

1.4. FINAL COVERAGE UNDER THE PLAN

Of the 19 committed planning partners, 12 fully met the participation requirements specified by the Steering Committee. The principal requirement not met by the other partners was completion of the jurisdictional annex template following the workshops. Eighteen of the partners attended the workshop, but only 12 subsequently submitted completed templates. Only those 12 jurisdictions are included in this volume and will seek DMA compliance under this plan. The remaining jurisdictions will need to follow the linkage procedures described in Appendix B of this volume. Table 1-1 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

Jurisdiction	Letter of Intent	Attended Workshop?	Completed Template?	Will Be Covered by This Plan?
Kittitas County	Yes	Yes	Yes	Yes
City of Cle Elum	Yes	Yes	Yes	Yes
City of Ellensburg	Yes	Yes	Yes	Yes
City of Kittitas	Yes	Yes	No	No
City of Roslyn	Yes	Yes	Yes	Yes
Town of South Cle Elum	Yes	Yes	Yes	Yes
Fire District #1	Yes	Yes	Yes	Yes
Fire District #7	Yes	Yes	Yes	Yes
Fire District #8	Yes	Yes	Yes	Yes
Kittitas Valley Fire and Rescue (District #2)	Yes	No	No	No
Snoqualmie Pass Utility District	Yes	Yes	Yes	Yes
Kittitas PUD #1	Yes	Yes	Yes	Yes
Water District #5	Yes	Yes	No	No
Water District #7	Yes	Yes	No	No
Kittitas School District #403	Yes	Yes	Yes	Yes
Cle Elum – Roslyn School District #404	Yes	Yes	Yes	Yes
Hospital District #1	Yes	Yes	No	No
Hospital District #2	Yes	Yes	No	No
Kittitas County Conservation District	Yes	Yes	No	No

1.5. ACRONYMS

The following acronyms are used in this volume of the Kittitas County Hazard Mitigation Plan:

- AFG: Assistance to Firefighters Grant
- CDS: Community Development Services
- CEMC: Cle Elum Municipal Code
- CERSD: Cle Elum Roslyn School District
- CWU: Central Washington University
- ECC: Ellensburg City Code
- FEMA: Federal Emergency Management Agency
- FIS: Flood Insurance Study
- GMA: Growth Management Act
- HMGP: Hazard Mitigation Grant Program
- KCC: Kittitas County Code
- KCFD: Kittitas County Fire District
- NOAA: National Oceanic and Atmospheric Administration
- PDM: Pre-Disaster Mitigation Grant Program
- PUD: Public utility district
- RCW: Revised Code of Washington
- SHELDUS: Spatial Hazard Events and Losses Database for the United States
- SMP: Shoreline Management Plan
- WDFW: Washington Department of Fish and Wildlife
- WSDOT: Washington State Department of Transportation

**PART 2—
ANNEXES FOR MUNICIPALITIES**

CHAPTER 2. UNINCORPORATED KITTITAS COUNTY ANNEX

2.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Christina Wollman
Department of Public Works
411 N Ruby Street, Suite 1
Ellensburg, WA 98926
Telephone: 509-962-7523
e-mail Address: christina.wollman@co.kittitas.wa.us

Alternate Point of Contact

Kirk Holmes, Director
Department of Public Works
411 N Ruby Street, Suite 1
Ellensburg, WA 98926
Telephone: 509-962-7523
e-mail Address: kirk.holmes@co.kittitas.wa.us

2.2. JURISDICTION PROFILE

The following is a summary of key information about Kittitas County and its history:

- **Date of Incorporation**—November 1883.
- **Current Population**—40,915 as of 2010 Census.
- **Population Growth**—Kittitas County was the fifth fastest growing county based on populations in the 2000 and 2010 census, with a growth rate of 22.9 percent.
- **Location and Description**—Kittitas County is located in the center of Washington State. It is bounded to the west by the crest of the Cascade Range, separating Kittitas County from the Seattle/Puget Sound region. It is bounded to the north by the Wenatchee National Forest and Alpine Lakes Wilderness region. The eastern boundary is the Columbia River, separating Kittitas County and the agricultural lands of the Columbia Plateau region. Its southern boundary is the urban and agricultural region of the Yakima Valley. The county has a total area of 2,333 square miles, 36 square miles of which is water.

Kittitas County has a diverse landscape, ranging from forested Alpine Lakes Wilderness and snow-capped Cascade Mountains in the north and west areas of the County to the scabland and cliff-lined canyons of the Columbia River and Yakima River in the east and south areas. In the valleys are rich farmlands that produce the County's largest cash crop-timothy hay. Timothy hay is grown commercially by estimated 200-250 farmers on 25,000 to 30,000 acres of land at an estimated annual value of more than \$30 million.

- **Brief History**—The County was organized in November 1883 by the Washington Territorial Legislature. It was partitioned from what was then the northern part of Yakima County. There are numerous interpretations of the name, which is from the language of the Kittitas American Indians. According to one source, it “has been said to mean everything from ‘white chalk’ to ‘shale rock’ to ‘shoal people’ to ‘land of plenty.’ Most anthropologists and historians concede that each interpretation has some validity depending upon the particular dialect spoken.”
- **Climate**—Kittitas County has a wide range of annual precipitation: from 147 inches in western Kittitas County to 6 inches in eastern Kittitas County. The average seasonal snowfall varies from 434 inches each season at Snoqualmie Pass to less than 30 inches in eastern Kittitas County.

Countywide, the average winter maximum temperature is around 30 degrees F and the average daily minimum temperature is around 20 degrees F. The lowest temperature on record, which occurred at Snoqualmie Pass on February 1, 1922, is -48 degrees F. In summer, the average maximum temperature is around 75 degrees F and the average daily minimum temperature is around 50 degrees F. The highest temperature, which occurred in Ellensburg on July 26, 1928, is 110 degrees.

- **Governing Body Format**—Kittitas County has three elected Commissioners who are empowered to set county policy, adopt laws, implement them, and, except for the responsibilities of other elected officials, carry out day-to-day operations of the County.
- **Development Trends**—With its proximity to the Seattle metropolitan area and vast supply of recreational land, Kittitas County has been called “Seattle’s backyard.” Most development in the Cle Elum area has been for recreation or second homes. Most of the development has occurred in mountainous and forested areas, and many hillsides have been cleared and roads constructed to provide access to these lands. The County has also seen a rise over the past decade of families buying houses in the Cle Elum area and commuting daily to the Seattle area. In the Ellensburg area, growth and development have been steady. Much development has been on the flat lands of the Kittitas Valley on what was previously farmland.

2.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 2-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 13
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

2.4. HAZARD RISK RANKING

Table 2-2 presents the ranking of the hazards of concern.

2.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 2-3. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 2-4. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 2-5. Classifications under various community mitigation programs are presented in Table 2-6.

2.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 2-7 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 2-8 identifies the priority for each initiative. Table 2-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

2.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

County-wide LIDAR data would significantly enhance the HAZUS model.

The Flood Insurance Study (FIS) and associated Flood Insurance Rate Maps for Kittitas County are in need of update and revision.

2.8. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the Kittitas County area are included in Volume 1 of this hazard mitigation plan. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE 2-1. NATURAL HAZARD EVENTS		
Type of Event	Date	Preliminary Damage Assessment
Landslide	06/07/1970	A steep hillside about 7 miles northwest of Ellensburg tumbled down, tore out an irrigation flume, destroyed a half mile of roadway and pushed about 1,000 feet of the highway into the Yakima River.
Landslide	08/28/1971	N/A
Severe Storms And Flooding (DR-492)	12/13/1975	N/A
Drought	3/31/1977	N/A
Severe Storms, Mudslides, & Flooding (DR-545)	12/10/1977	N/A
Volcanic Eruption, Mt. St. Helens (DR-623)	5/21/1980	N/A
Severe Storms & Flooding (DR-883)	11/26/1990	N/A
Landslide	4/24/1995	A slide and debris flow 120 feet wide and 800 feet long took out a large section of Kittitas Reclamation District main canal about 12 miles west of Ellensburg south of the Bristol Flats area, sending debris into the Yakima River.
Severe Storms, High Wind, And Flooding (DR-1079)	1/3/1996	N/A
High Winds, Severe Storms, & Flooding (DR-1100)	2/9/1996	N/A
Severe Winter Storms, Land & Muds Slides, & Flooding (DR-1159)	1/17/1997	N/A
Severe Storm & Landslide	7/3/1998	A severe thunderstorm dropped more than 3 inches of rain in less than 1 hour on the flanks of Manastash Ridge and caused swift-moving debris flows in scoured channels down the slopes of the Yakima River Canyon.
Earthquake (DR-1361)	3/1/2001	N/A
Wind	5/19/2001	\$20,000 ^a
Wind	10/23/2001	\$30,000 ^a
Winter Weather	11/28/2001	\$50,000 ^a
Elk Heights Fire	7/30/2004	N/A
Avalanche	1/7/2009	\$500,000 ^a
Severe Winter Storm, Landslides, Mudslides, & Flooding (DR-1817)	1/30/2009	\$10,000,000 ^a

**TABLE 2-1.
NATURAL HAZARD EVENTS**

Type of Event	Date	Preliminary Damage Assessment
Severe Winter Storm And Record And Near Record Snow (DR-1825)	3/2/2009	
Landslide	10/10/2009	\$12,500,000 ^a
Lightning	09/19/2010	\$60,000 ^a
Wind	11/15/2010	\$33,333 ^a
Severe Winter Storm, Flooding, Landslides, And Mudslides (DR-1963)	2/25/2011	
Severe Storm & Flooding	5/15/2011	

a. Damage estimate from SHELDUS

**TABLE 2-2.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Wildfire	54
2	Flood	39
3	Earthquake	36
4	Drought	27
4	Severe Weather	27
5	Landslide	18
6	Avalanche	18
7	Dam Failure	13
8	Volcano	9
9	Seiche	6

**TABLE 2-3.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	Yes	KCC 14.04 Building Code-adopts the 2009 edition of the IBC
Zoning Code	Yes	No	No	Yes	KCC 17 Zoning, 1983
Subdivisions	Yes	No	No	Yes	KCC 16 Subdivisions, 2005
Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	No	Yes	RCW 64.06.020
Growth Management	Yes	No	No	Yes	RCW 36.70A
Site Plan Review	Yes	No	No	No	KCC 14.04 Building Code
Special Purpose (flood management, critical areas)	Yes	Yes	No	Yes	KCC 14.08 Flood Damage Protection, 2003
Critical Areas	Yes	Yes	No	Yes	KCC 17A.05 Critical Areas, 1994
Planning Documents					
General Plan	Yes	No	No	Yes	The Kittitas County Comprehensive Plan is mandated by the Growth Management Act. Updated annually.
Floodplain or Basin Plan	Yes	No	No	No	Kittitas County Comprehensive Flood Hazard Management Plan. December 1996.
Stormwater Plan	No	No	No	No	
Capital Improvement Plan	No	No	No	No	A process to develop a Capital Improvement Plan is currently in process. The plan will be a part of the Capital Facilities Plan, which is part of the Comprehensive Plan.
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	Yes	No	No	No	The Economic Development Plan is a part of the Comprehensive Plan, and the Economic Development Strategic Plan prepared by the Economic Development Group of Kittitas County in 2009 has been adopted by reference into the Comprehensive Plan.
Emergency Response Plan	Yes	No	No	Yes	Kittitas County Comprehensive Emergency Management Plan
Shoreline Management Plan	Yes	No	No	Yes	Shoreline Master Program. March 5, 1975.
Post Disaster Recovery Plan	No	No	No	No	

**TABLE 2-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Kittitas County Public Works (PW): Director, County Engineer, Planner. Kittitas County Community Development Services (CDS): Planner.
Engineers or professionals trained in building or infrastructure construction practices	Yes	PW: County Engineer, Construction Manager, Director.
Planners or engineers with an understanding of natural hazards	Yes	PW: Director, County Engineer, Planner.
Staff with training in benefit/cost analysis	Yes	PW: Planner.
Floodplain manager	Yes	PW: Planner.
Surveyors	Yes	PW: Survey crew.
Personnel skilled or trained in GIS applications	Yes	PW: Planners. CDS: Planners. Information Services: GIS Analyst. Assessor: Cadastral Technician. Various other county departments have employees with GIS experience.
Scientist familiar with natural hazards in local area	Yes	By contract: CWU, WSDOT, NOAA, WDFW.
Emergency manager	Yes	Sheriff's Office.
Grant writers	Yes	Numerous Kittitas County employees with grant writing experience.

**TABLE 2-5.
FISCAL CAPABILITY**

Financial Resources	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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Eligible: Yes Accessible: No

TABLE 2-6. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	—	—
Building Code Effectiveness Grading Schedule	Yes	4/4	—
Public Protection			
Fire District #1	Yes	6	—
Fire District #2	Yes	8	—
Fire District #3	Yes	7	—
Fire District #4	Yes	8	—
Fire District #6	Yes	7	—
Fire District #7	Yes	8	—
Fire District #8	Yes	8	—
Storm Ready	No	—	—
Firewise	No	—	—

TABLE 2-7. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #KC-1 —Create a flood control district for Kittitas County						
New and Existing	Flood	1, 2, 3, 4, 6, 7, 8, 9, 10	Public Works	10,000 Medium	General Fund, Road Fund	Short-term
Initiative #KC-2 —Enhance the flood warning system on major rivers and streams within Kittitas County including strengthening the computer interface and upgrading and increasing the number of weather stations.						
New and Existing	Flood	1, 6, 9	Sheriff, Public Works	100,000 Medium	Grants, Road Fund, General Fund, Other agency funds	Short-term
Initiative #KC-3 —Join the Community Rating System.						
New and Existing	Flood	All	Public Works, CDS	10,000 Low	General Fund	Short-term, ongoing
Initiative #KC-4 —Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect them from future damage, with priority for properties exposed to repetitive losses.						
Existing	All Hazards	1, 2, 8, 10	Public Works, CDS	5,000,000 High	HMGP	Long-term

**TABLE 2-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #KC-5 —Adopt appropriate regulatory standards that will reduce the risk to natural hazards through updates to existing code affecting critical areas regulations, flood hazard regulations, shoreline regulations, and to the county’s growth management comprehensive plan.						
New and Existing	All Hazards	1, 3, 4, 9, 10	Public Works, CDS	25,000 Low	General Fund, grants	Short-term
Initiative #KC-6 —Annually disseminate a floodplain information brochure to all floodplain area or flood risk households.						
New and Existing	Flood	1, 2, 6, 10	Public Works, CDS	10,000/year	General Fund	Short-term, ongoing
Initiative #KC-7 —Retrofit, rehabilitate or replace vulnerable road facilities, bridges and infrastructure throughout Kittitas County.						
Existing	All except drought and severe weather	1, 8	Public Works	High	HMGP, Roads Fund	Long-term
Initiative #KC-8 —Replace undersized bridges and culverts throughout Kittitas County, including but not limited to Manastash Creek and Dry Creek.						
Existing	Flood	1, 8	Public Works	High	HMGP, Roads Fund	Long-term
Initiative #KC-9 —Continue to maintain compliance and good standing under the National Flood Insurance Program.						
New and Existing	Flood	1, 2, 3, 4, 6, 8, 10	CDS	10,000	General Fund	Short-term, ongoing
Initiative #KC-10 —Update the Kittitas County Comprehensive Flood Management Plan.						
New and Existing	Flood	All	CDS	250,000 Medium	General Fund	Short-term
Initiative #KC-11 —Where feasible, seek to elevate at-risk structures within the floodplain to an adequate freeboard that is commensurate with the flood risk. The measure of feasibility will be willing participation by the property owner and the cost-effectiveness of the project.						
Existing	Flood	1, 8	Public Works	5,000,000 High	HMGP, Road Fund	Short-term
Initiative # KC-12 —Upgrade or install stream gauges on rivers and streams with a flow greater than 20 cubic feet per second.						
New and Existing	Flood, Dam Failure	1, 7	Public Works, CDS	100,000 Medium	HMGP, grants	Short-term, ongoing
Initiative # KC-13 —Conduct a study of all County-owned facilities to determine their vulnerability to natural hazards. Conduct a seismic retrofit or other mitigation to identified vulnerable structures.						
Existing	Earthquake	1, 8	Facilities	Medium	HMGP, General Fund	Long-term

**TABLE 2-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative # KC-14 —Begin a public outreach effort to educate landowners about Firewise, defensible space around structures, non-combustible building materials, fuel reduction and other wildfire prevention tactics. Place information boards in key areas of the County.						
New and Existing	Wildfire	1, 6	County Fire Marshal	20,000 Low	HMGP, grants	Short-term, ongoing
Initiative # KC-15 —Perform fuel reduction projects in Manastash, South Wenas, Exit 78, Hidden Valley, Pine Glen, Sky Meadows, and other areas with an identified need.						
New and Existing	Wildfire	1, 2, 3, 6, 10	County Fire Marshal	\$70,000 Low	HMGP, grants	Short-term, ongoing
Initiative # KC-16 —Enhance the subdivision code and building code to include fire code requirements such as fire flow and the use of fire-resistant building materials.						
New	Wildfire	1, 2, 3, 4, 10	County Fire Marshal	Low	General Fund	Short-term
Initiative # KC-17 —Improve and preserve fire apparatus access throughout the County, including access through private gates.						
New and Existing	All Hazards	1, 2, 8	Fire Marshal, Public Works	Medium	HMGP, Road Fund	Short-term, Long-term, Ongoing
Initiative # KC-18 —Identify seiche hazard areas and adopt higher regulatory standards to protect structures within the identified areas.						
New	Seiche	1, 2, 3, 7, 8, 10	Public Works, CDS	Medium	General Fund	Long-term
Initiative # KC-19 —Adopt land use policies that prohibit the placement of habitable structures in high risk landslide and avalanche areas.						
New	Landslide & Avalanche	1, 2, 3, 4, 10	CDS	25,000	General Fund	Short-term
Initiative # KC-20 —Strengthen/harden critical road facilities from the impacts of all hazards for which they have exposure and vulnerability.						
New and Existing	All Hazards	1, 8	Public Works	High	HMGP, Road Fund	Long-Term depends on funding
Initiative # KC-21 —Proactively manage hazardous tree removal from public areas, and educate private property owners about management of their own trees.						
Existing	Severe Storm	1, 9, 10	Public Works, CDS	Low	General Fund, Road Fund	Short-term, ongoing
Initiative # KC-22 —Use the best available data and science to continually update the County risk assessment as new information becomes available (hydrologic, geologic, topographic, etc.).						
New and Existing	All Hazards	1, 3, 7	Public Works, CDS		HMGP, General Fund, Road Fund	Short-term

**TABLE 2-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative # KC-23 —Integrate the hazard mitigation plan into future updates of the Kittitas County Comprehensive Plan.						
New	All Hazards	All	CDS	250,000	General Fund	Short-term
Initiative # KC-24 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New and Existing	All Hazards	All	Public Works	Low	HMGP, General Fund, Road Fund	Short-term, ongoing
Initiative # KC-25 —Integrate goals, objectives and initiatives of the Kittitas County Hazard Mitigation Plan into existing County regulations and programs where appropriate.						
New and Existing	All Hazards	All	All County regulatory agencies	Low	General Fund, Road Fund	Short-term
Initiative #KC-26 —Maintain an active public outreach strategy using available multiple media to inform the public how to personally prepare for and mitigate the hazards of concern.						
New and Existing	All Hazards	1, 6	Public Works, CDS, Sheriff	Low	General Fund	Short-term Ongoing
Initiative #KC-27 —Support detailed ash fall studies.						
New and Existing	Volcano	1, 7, 9	Public Works, CDS	Low	HMGP, General Fund, Road Fund	Long-term
Initiative #KC-28 —Identify and create new impounded water sources.						
New and Existing	Drought	1, 7		Medium	HMGP, Grant, Other	Long-term
Initiative #KC-29 —Educate the public on drought resistance and encourage the use of water saving landscaping, irrigation methods and farming practices.						
New and Existing	Drought	1, 6, 7, 9, 10	CDS, Kittitas County Conservation District	Low	General Fund, Grants	Short-term
Initiative #KC-30 —Improve irrigation conveyance systems to reduce water loss through earthen canals and ditches.						
New and Existing	Drought	1, 8, 9, 10	CDS, Kittitas County Conservation District	High	HMGP, Irrigation Districts and Companies	Long-term
Initiative #KC-31 —Enhance the existing dam failure early warning system.						
New and Existing	Dam Failure	1, 6	CDS, Public Works	Medium	HMGP, Grants	Long-term

TABLE 2-7. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #KC-32 —Set the course for sustained operations of critical county functions by the development of a continuity of operations plan and/or a post-disaster recovery plan.						
New and Existing	All Hazards	1,6,9	Emergency Management	Medium	General Fund, DHS grant funding	Long term
Initiative #KC-33 —Continue to support through active participation the “county-wide” initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	All County Agencies	Low	General Fund	Short-term Ongoing
Initiative #KC-34 —Consider participation in the National Weather Service “Storm Ready” program.						
New and Existing	Flood, Severe Weather	6,7,9	Emergency Management	Low	General Funding, NWS grant funding	Short-term

TABLE 2-8. MITIGATION STRATEGY PRIORITY SCHEDULE							
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
KC-1	10	High	Medium	Yes	No	Yes	High
KC-2	3	High	Medium	Yes	Yes	No	Medium
KC-3	10	Medium	Low	Yes	No	Yes	High
KC-4	4	High	High	Yes	Yes	No	Medium
KC-5	5	High	Low	Yes	Now	Yes	High
KC-6	4	Low	Low	Yes	No	Yes	High
KC-7	2	High	High	Yes	Yes	No	Medium
KC-8	2	High	High	Yes	Yes	No	Medium
KC-9	7	Medium	Low	Yes	No	Yes	High
KC-10	10	Medium	Medium	Yes	Yes	No	Medium
KC-11	2	High	High	Yes	Yes	No	Medium
KC-12	2	High	Medium	Yes	Yes	No	Medium
KC-13	2	Medium	Medium	Yes	Yes	No	Medium
KC-14	5	Low	Low	Yes	No	Yes	High
KC-15	2	High	Low	Yes	Yes	Yes	High
KC-16	5	Medium	Low	Yes	No	Yes	High
KC-17	5	Medium	Medium	Yes	Yes	Yes	High
KC-18	3	Medium	Medium	Yes	Yes	No	Medium
KC-19	3	Medium	Low	Yes	No	Yes	High

**TABLE 2-8.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
KC-20	6	High	High	Yes	Yes	No	Medium
KC-21	5	Medium	Low	Yes	Yes	Yes	High
KC-22	2	Medium	Medium	Yes	Yes	Yes	High
KC-23	3	Medium	Low	Yes	No	Yes	High
KC-24	3	Medium	Low	Yes	Yes	Yes	High
KC-25	10	Medium	Low	Yes	No	Yes	High
KC-26	10	Low	Low	Yes	No	Yes	High
KC-27	10	Low	Low	Yes	No	No	Low
KC-28	2	Medium	Medium	Yes	No	No	Medium
KC-29	2	Low	Low	Yes	No	No	Medium
KC-30	5	High	High	Yes	Yes	No	Medium
KC-31	4	High	Medium	Yes	No	Yes	High
KC-32	3	High	Medium	Yes	Yes	No	Medium
KC-33	3	High	Low	Yes	Yes	Yes	High
KC-34	3	High	Low	Yes	Yes	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 2-9.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	5, 19, 23, 24, 25, 33	4, 7, 20	22, 24, 26, 33	5	17, 20, 32	
Dam failure	5, 23, 24, 25, 33	4, 7, 11, 20	22, 24, 26, 33	5	12, 20, 31, 32	
Drought	5, 23, 24, 25, 33	4	22, 24, 26, 29, 33	5	32	28, 30
Earthquake	5, 13, 23, 24, 25, 33	4, 7, 13, 20	22, 24, 26, 33	5	17, 20, 32	13
Flood	1, 3, 5, 9, 10, 23, 24, 25, 33	1,3,4, 7, 8, 9, 10, 11, 20	1,3, 6, 9, 10, 22, 24, 26, 33	1,3, 5, 10	1, 2, 3, 9, 10, 12, 17, 20, 31, 32,34	1, 3, 10
Landslide	5, 19, 23, 24, 25, 33	4, 7, 20	22, 24, 26, 33	5	17, 20, 32	
Severe Weather	5, 23, 24, 25, 33	4, 20	22, 24, 26, 33	5, 21	12, 17, 20, 32, 34	
Seiche	5, 18, 23, 24, 25, 33	4, 7, 18, 20	18, 22, 24, 26, 33	5	17, 20, 32	
Volcano	5, 23, 24, 25, 27, 33	4, 20	22, 24, 26, 33	5	17, 20, 32	
Wildfire	5, 15, 16, 23, 24, 25, 33	4, 7, 15, 20	14, 22, 24, 26, 33	5, 15	17, 20, 32	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 3. CITY OF CLE ELUM ANNEX

3.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Dave W. Campbell, Fire Chief
301 Pennsylvania Ave
Cle Elum, WA. 98922
Telephone: 509-304-6140
e-mail Address: chiefcampbell5101@gmail.com

Alternate Point of Contact

Robert Omans, CBO
119 W. 1st St.
Cle Elum, WA 98922
Telephone: 509-674-2262
e-mail Address: robert@cityofcleelum.com

3.2. JURISDICTION PROFILE

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

- **Date of Incorporation** Cle Elum was officially incorporated on February 12, 1902.
- **Current Population**—1,872 as of 2010 (US Census Est.)
- **Population Growth**—The City of Cle Elum has had a growth rate of approximately 9 percent since 2000 according to City-Data.com.
- **Location and Description**—The City of Cle Elum is located in Upper Kittitas County at Milepost 83 on Interstate 90 east of Snoqualmie Pass (47°11'39"N 120°56'15"W). It is bordered on the north by the Cle Elum Ridge and the south by South Cle Elum Ridge, including Peoh Point. It has a total land area of 3.22 sq. mi. It is a neighbor town to the City of Roslyn. It is at an altitude of 1,913 feet.
- **Brief History**—The founders of Cle Elum were Thomas L. Gamble (later known as Judge Gamble) and Walter J. Reed. Mr. Gamble took up a quarter section of land in Section 26, Township 20 North, and Range 15 East, in April 1883 with the intent of farming the land. Mr. Reed took a claim adjoining Mr. Gamble's on the west. On those two preemptive claims the town was laid out. The date of these filings was three years prior to the discovery of coal. Scattered discoveries of coal ledges had been made in 1883 and 1884, but in 1886 a definite discovery of a large ledge of good coal in paying quantities made it clear that an important stage had come in the history of the region and populations in the region began to increase. Meanwhile, the Northern Pacific Railway was seeking a route over the Cascade Mountains. On October 11, 1886, the first Northern Pacific Railroad train pulled into the new Cle Elum station. Following the arrival of the railway, the small town began to grow rapidly.

In 1913, steps were taken to improve automobile access across the Cascade Mountains via Snoqualmie Pass. A \$1,500,000 levy was approved in 1913 to improve and expand the state's highways. The majority of the levy (\$590,743) went to construction of the Sunset Highway between Spokane and Seattle. This major cross-state highway would pass directly through Cle Elum's business district. As one of the first towns reached after traveling east across the pass, Cle Elum would benefit from the road's construction. That same year, reflecting on the prosperity of the coal mines, the city's second bank was chartered. By 1914, Cle Elum's population had risen to 3,000 from about 100 at the turn of the century.

Cle Elum's greatest disaster occurred on June 25, 1918 when a fire wiped out over 70 acres of the city (29 city blocks), with over \$500,000 dollars in damage. The cause was determined

to be a discarded cigarette butt thrown into a pile of garbage behind a theater. Thirty businesses and 205 houses were destroyed, leaving more than 1,800 people homeless. Following the incident, aid poured in from across the state. The Red Cross brought tents from Camp Lewis to house misplaced citizens while soldiers were sent from Ellensburg to guard businesses. Yakima and Portland, Oregon also sent aid to the city. Fortunately no lives were lost in the incident. High insurance rates on Cle Elum’s many wooden structures inhibited many people from purchasing it. One of the few buildings in downtown Cle Elum to survive the fire was the Cle Elum State Bank Building, built in 1906 and still standing today. The rest of downtown was quickly rebuilt of brick and many of these buildings still stand.

- **Climate**—Cle Elum gets 22 inches of rain per year. Snowfall is 81 inches. The number of days with any measurable precipitation is 117. On average, there are 199 sunny days per year in Cle Elum. The July high is around 81 degrees. The January low is 20. The city’s comfort index, which is based on humidity during the hot months, is a 75 out of 100, where higher is more comfortable. The US average on the comfort index is 44.
- **Governing Body Format**—The City of Cle Elum is governed by a mayor and a six person council.
- **Development Trends**—With its proximity to the Seattle metropolitan area and vast supply of recreational land, Kittitas County has been called “Seattle’s backyard.” The majority of development in the Cle Elum area has been for recreational or second homes. Most of the development has occurred in mountainous and forested areas, and many hillsides have been cleared and roads constructed to provide access to these lands. The County has also seen a rise over the past decade of families buying houses in the Cle Elum area and commuting daily to the Seattle area.

3.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 3-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 2
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

3.4. HAZARD RISK RANKING

Table 3-2 presents the ranking of the hazards of concern.

3.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 3-3. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 3-4. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 3-5. Classifications under various community mitigation programs are presented in Table 3-6.

3.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 3-7 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 3-8 identifies the priority for each initiative. Table 3-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

3.7. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the City of Cle Elum are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE 3-1. NATURAL HAZARD EVENTS		
Type of Event	Date	Preliminary Damage Assessment
Flood Event (DR-1817)	1/30/2009	61,688
Earthquake	02-28-2001	N/A
Earthquake	05-03-1996	N/A
Earthquake	01-29-1995	N/A
Earthquake	02-14-1981	N/A
Earthquake	04-29-1965	N/A

TABLE 3-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	27
2	Wildfire	27
3	Earthquake	24
4	Dam Failure	18
5	Severe Weather	18
6	Landslide	10
7	Volcano	6
8	Drought	5
9	Avalanche	1
10	Seiche	0

**TABLE 3-3.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	Yes	No	Yes	Title 15 CEMC adopts the 2009 IBC, 7/27/2010
Zoning Code	Yes	No	No	No	Title 17, CEMC, 2001
Subdivisions	Yes	No	No	No	Title 16, CEMC, 2005
Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	Yes	Yes	RCW 64.06.020
Growth Management	Yes	No	No	Yes	RCW 36.70A
Site Plan Review	Yes	No	No	Yes	Title 15 CEMC, 2010
Special Purpose (flood management, critical areas)	Yes	No	No	No	Flood damage Prevention: Title 15, Chapter 15.24; 2002 Critical Areas: Title 18, CEMC, 2010
Planning Documents					
General Plan	Yes	No	No	Yes	
Floodplain or Basin Plan	Yes	No	No	No	Kittitas County Comprehensive Floodplain Management Plan, 1996
Stormwater Plan	Yes	No	No	No	
Capital Improvement Plan	Yes	No	No	No	5-year CIP, updated annually for streets, water, sewer and drainage
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	Yes	No	No	No	Economic Development Group of Kittitas County & Chamber
Emergency Response Plan	No	No	No	No	
Shoreline Management Plan	Yes	Yes	No	No	
Post Disaster Recovery Plan	No	No	No	No	

**TABLE 3-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Matt Morton, City Development Director Jeff Louman, City Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Robert Omans, CBO
Planners or engineers with an understanding of natural hazards	Yes	Matt Morton, City Development Director Jeff Louman, City Engineer
Staff with training in benefit/cost analysis	No	
Floodplain manager	Yes	Rob Omens, CBO
Surveyors	Yes	Encompass Engineering & Surveying
Personnel skilled or trained in GIS applications	Yes	Matt Morton, City Development Director
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	
Grant writers	Yes	Matt Morton, City Development Director

**TABLE 3-5.
FISCAL CAPABILITY**

Financial Resources	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
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	No
Other	No

	Participating?	Classification	Date Classified
Community Rating System	No	—	—
Building Code Effectiveness Grading Schedule	Yes	3/3	—
Public Protection	Yes	6/9	—
Storm Ready	No	—	—
Firewise	Yes	Sky Meadows Ranch	2009

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #CE-1 —Consider participation in the Community Rating System						
New and Existing	Flood	All	City Council	Low	General Fund	Short-Term
Initiative #CE-2 —Adopt appropriate regulatory standards that will reduce the risk of natural hazards through updates to existing code affecting critical areas regulations, flood hazard regulations, shoreline regulations, and updates to the county’s comprehensive plan.						
New	All Hazards	1, 3, 4, 9, 10	Community Development	Low	General Fund	Short-Term
Initiative #CE-3 —Continue to maintain compliance and good standing under the National Flood Insurance Program.						
New and Existing	Flood	1, 2, 3, 4, 6, 8, 10	Community Development	Low	General Fund	Short-term, ongoing
Initiative #CE-4 —Consider participation in the National Weather Service “Storm Ready” program.						
New and Existing	Flood, Severe Weather	6, 7, 9	Public Works	Low	General Fund	Short term
Initiative #CE-5 —Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	1,2,8,10	Community Development	High	HMGP funding, Local contribution	Long-Term depends on funding
Initiative #CE-6 —Continue to support participation in the “Firewise” program by expanding the number of project sites within Cle Elum and promoting Firewise strategies through active community outreach.						
New and Existing	Wildfire	1,3,6,7,9	Community Development	Low	General Fund	Short-term Ongoing

**TABLE 3-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #CE-7 —Set the course for sustained operations of critical city functions by the development of a continuity of operations plan and/or a post-disaster recovery plan.						
New and existing	All Hazards	1,6,9	Emergency Management Staff	Medium	General fund, DHS grant funding	Long-term
Initiative #CE-8 —Educate the public on natural hazards, the risks they pose and way to reduce those risk through existing public information programs with the City.						
New and Existing	All Hazards	6, 7, 9	City Council	Low	General Fund	Short-term Ongoing
Initiative # CE-9 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New and Existing	All Hazards	All	City Council, Fire Chief	Low	HMGP, General Fund, Road Fund	Short-term, ongoing
Initiative #CE-10 —Continue to support through active participation the countywide initiatives identified in volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	All City Agencies	Low	General Fund	Short-term Ongoing

**TABLE 3-8.
MITIGATION STRATEGY PRIORITY SCHEDULE**

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

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 3-9.
ANALYSIS OF MITIGATION INITIATIVES**

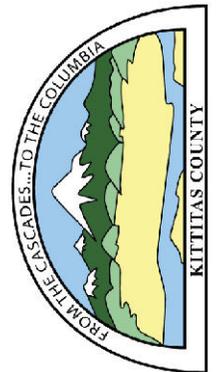
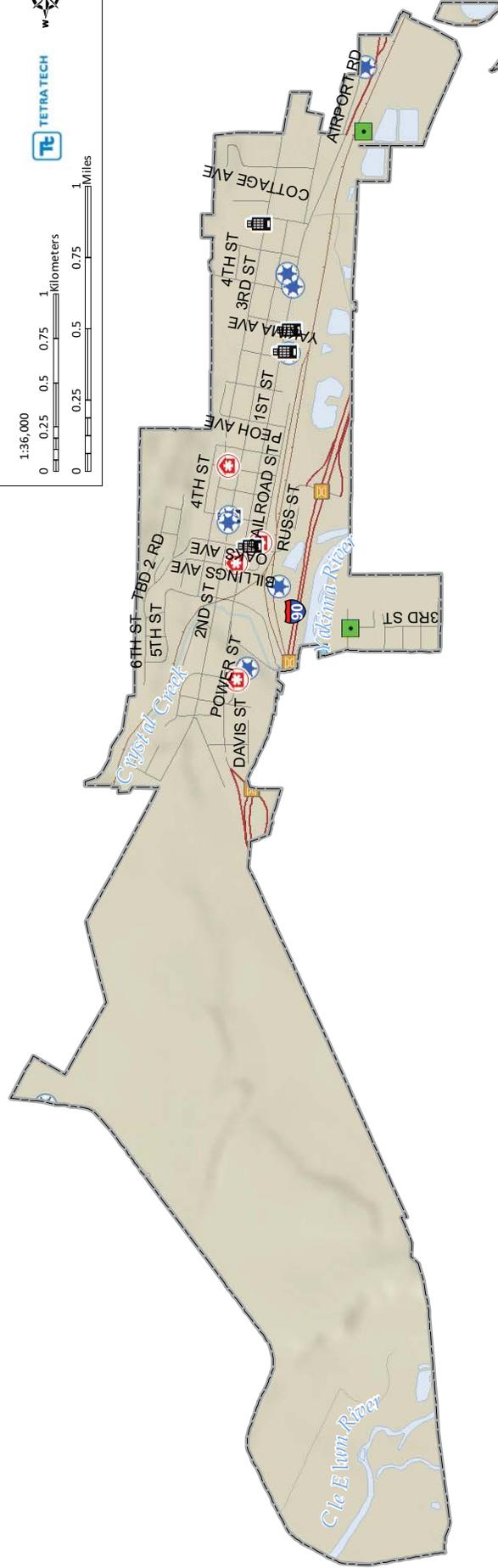
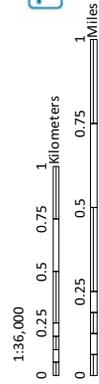
Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	2, 9	5	8, 10		7	
Dam failure	2, 9	5	8, 10		7	
Drought	2, 9		8, 10		7	
Earthquake	2, 9	5	8, 10		7	
Flood	1, 2, 3, 9	1, 3, 5	1, 3, 8, 10	1, 3	1, 3, 4, 7	1
Landslide	2, 9	5	8, 10		7	
Severe Weather	2, 9	5	8, 10		4, 7	
Seiche	2, 9	5	8, 10		7	
Volcano	2, 9	5	8, 10		7	
Wildfire	2, 6, 9	5, 6	6, 8, 10	6	7	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CITY OF CLE ELUM

Critical Facilities

- | | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Bridge | Communication | Dam | Government | Hazmat | Medical |
| Power | Protective | School | Wastewater | Water | Other |



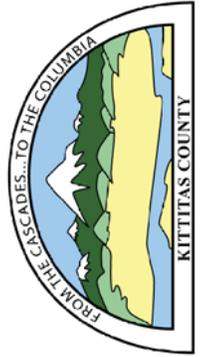
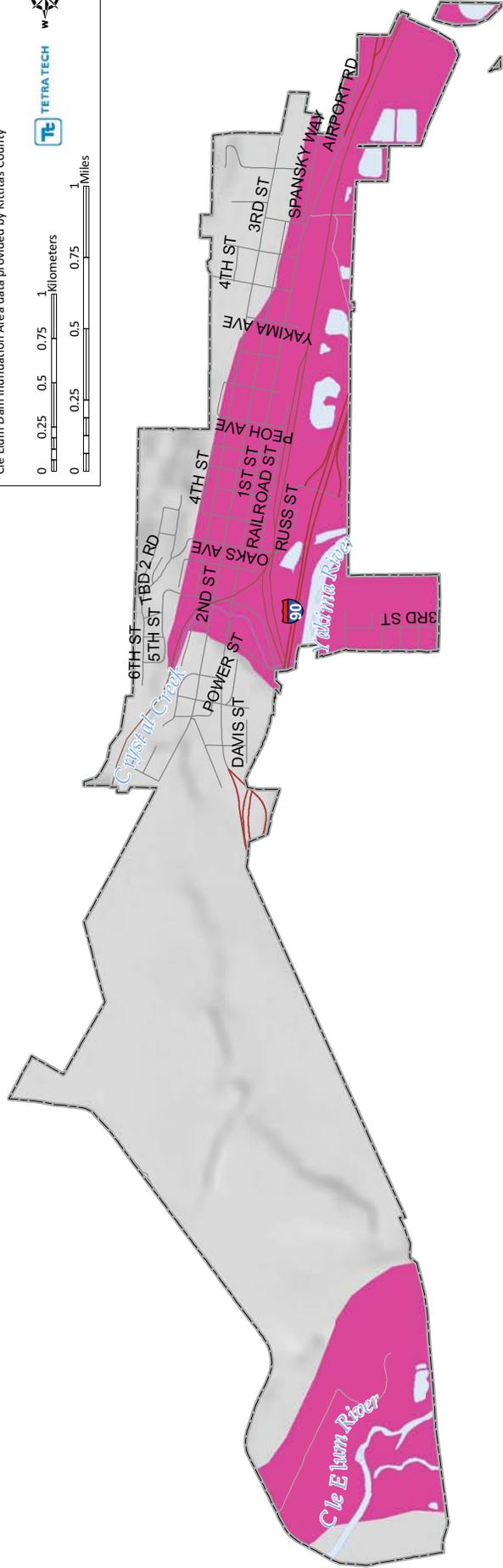
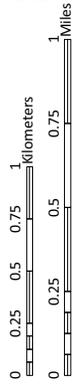
CITY OF CLE ELUM

Cle Elum Dam Inundation Area

 Cle Elum Dam Failure Probable Maximum Flood

1:36,000

Cle Elum Dam Inundation Area data provided by Kittitas County

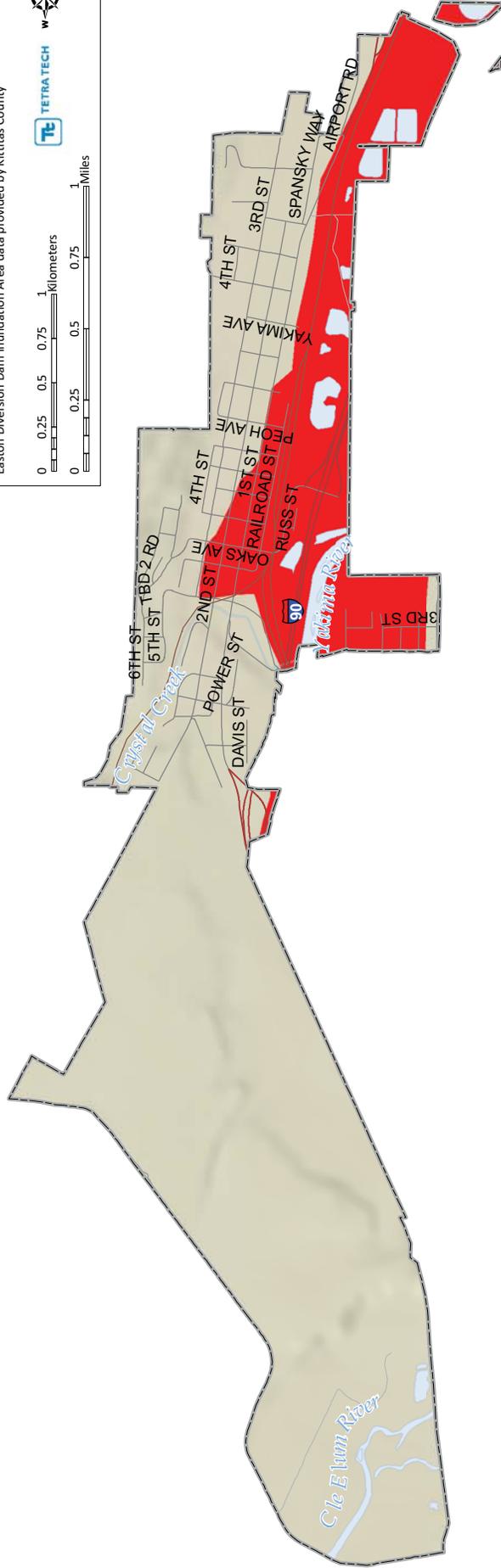
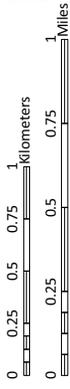


CITY OF CLE ELUM

Easton Diversion Dam Inundation Area

 Easton Diversion Dam Failure
Probable Maximum Flood

1:36,000
Easton Diversion Dam Inundation Area data provided by Kittitas County



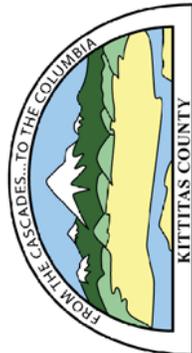
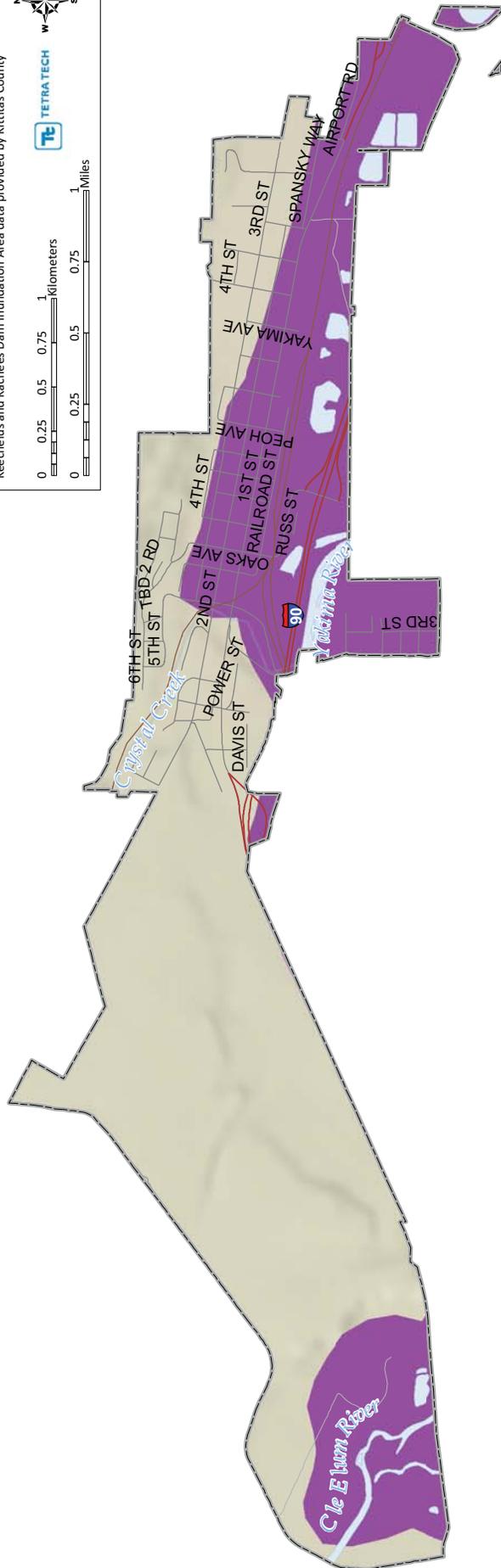
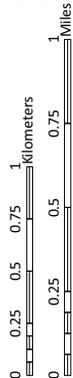
CITY OF CLE ELUM

Keechelus & Kachees Dam Inundation Area Probable Maximum Flood

 Keechelus & Kachees Dam Inundation Area
Probable Maximum Flood

1:36,000

Keechelus and Kachees Dam Inundation Area data provided by Kittitas County



CITY OF CLE ELUM

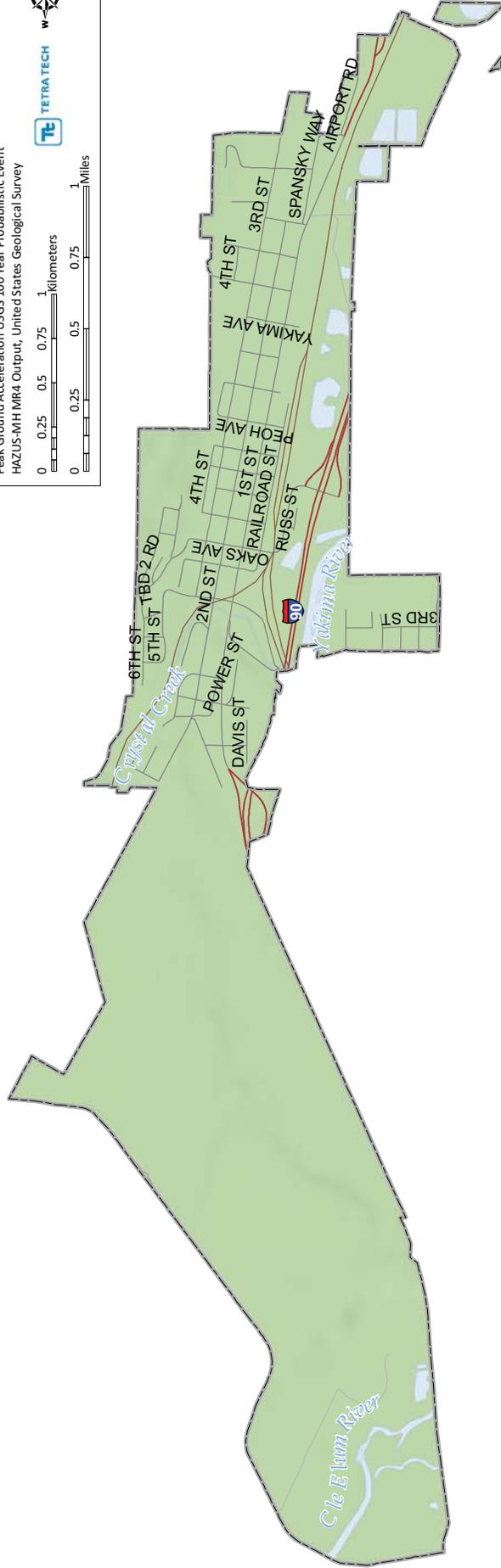
Peak Ground Acceleration
USGS 100 Year
Probabilistic Event

Mercalli Scale, Potential Damage

- V, Very Light
- VI, Light
- VII, Moderate

1:36,000

Peak Ground Acceleration USGS 100 Year Probabilistic Event
HAZUS-MH MR4 Output, United States Geological Survey



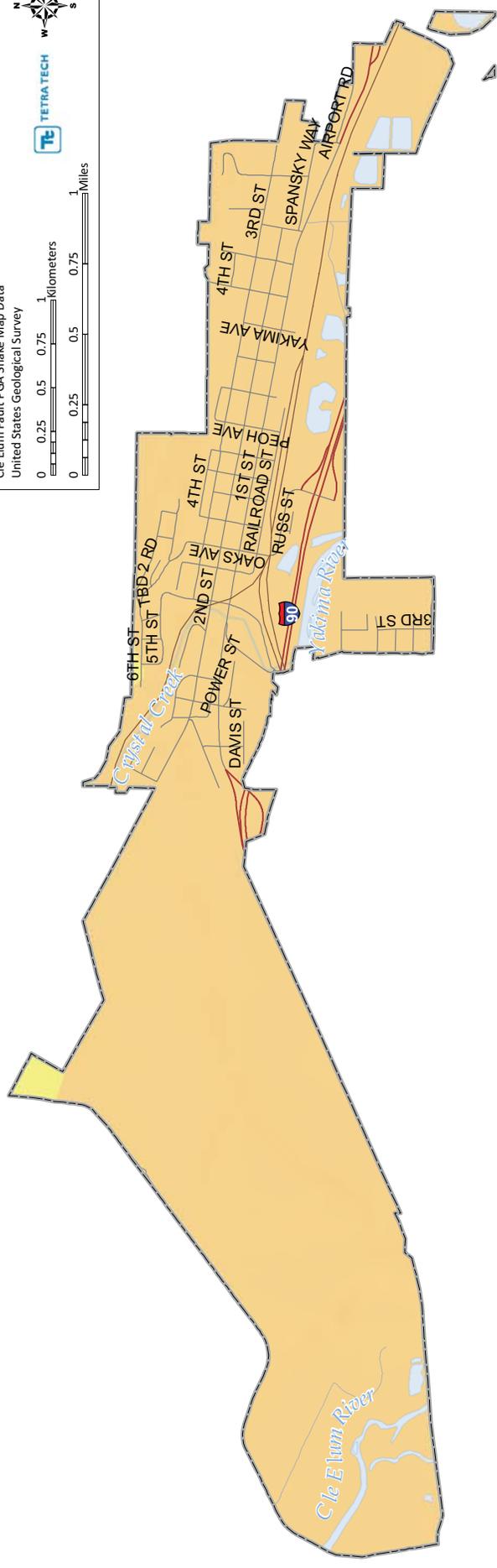
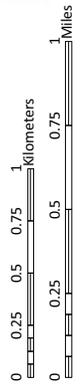
CITY OF CLE ELUM

Cle Elum Fault Peak Ground Acceleration 6.8 Magnitude Scenario

- Mercalli Scale, Potential Damage
- V, Very Light
 - VI, Light
 - VII, Moderate
 - VIII, Moderate-Heavy
 - IX, Heavy

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Cle Elum Fault PGA Shake Map Data
United States Geological Survey

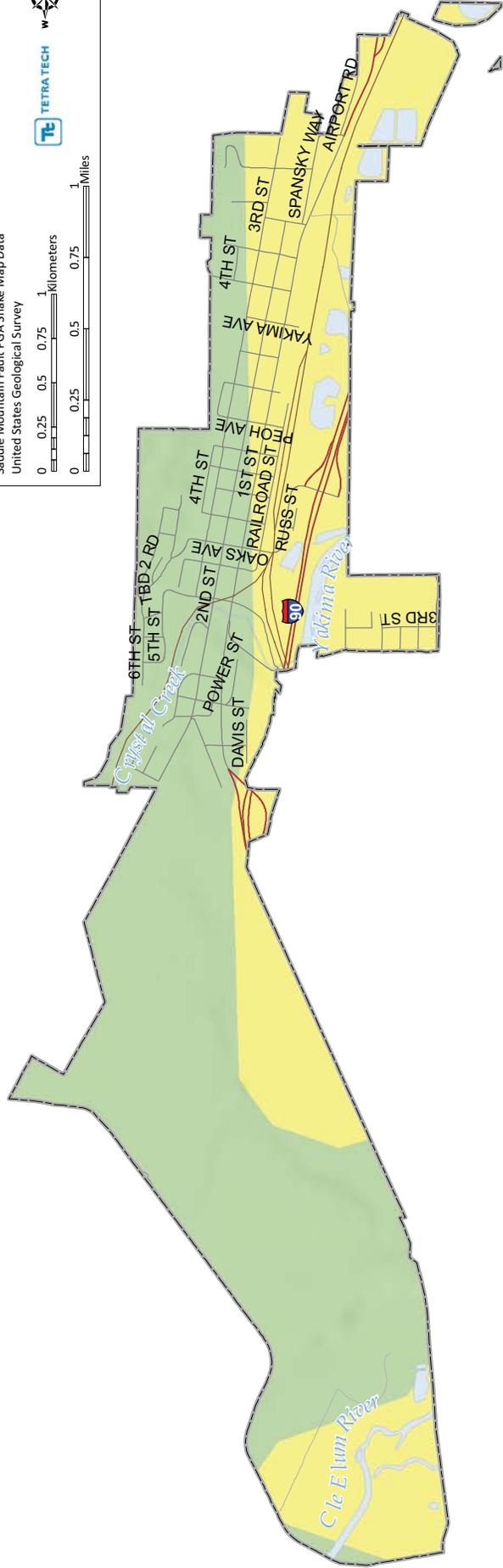
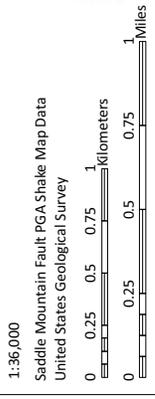


CITY OF CLE ELUM

Saddle Mountain Peak Ground Acceleration 7.3 Magnitude Scenario

Mercalli Scale, Potential Damage

-  V, Very Light
-  VI, Light
-  VII, Moderate
-  VIII, Moderate-Heavy
-  IX, Heavy



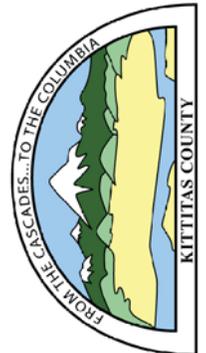
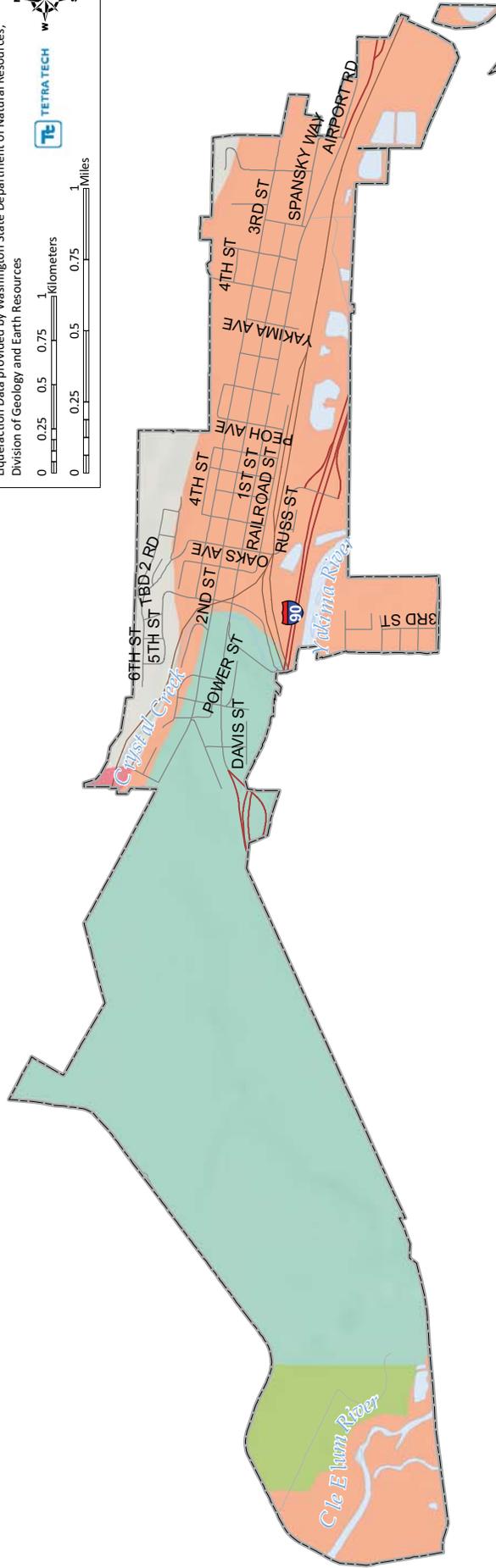
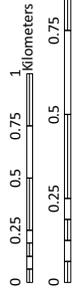
CITY OF CLE ELUM

Liquefaction Susceptibility

- | | | | |
|--|------------------|--|----------|
| | High | | Very Low |
| | Moderate to High | | Bedrock |
| | Moderate | | Peat |
| | Low to Moderate | | Water |
| | Low | | Ice |
| | Very Low to Low | | |

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Liquefaction Data provided by Washington State Department of Natural Resources,
Division of Geology and Earth Resources



CITY OF CLEELUM

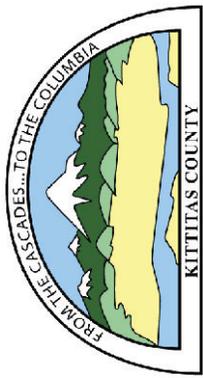
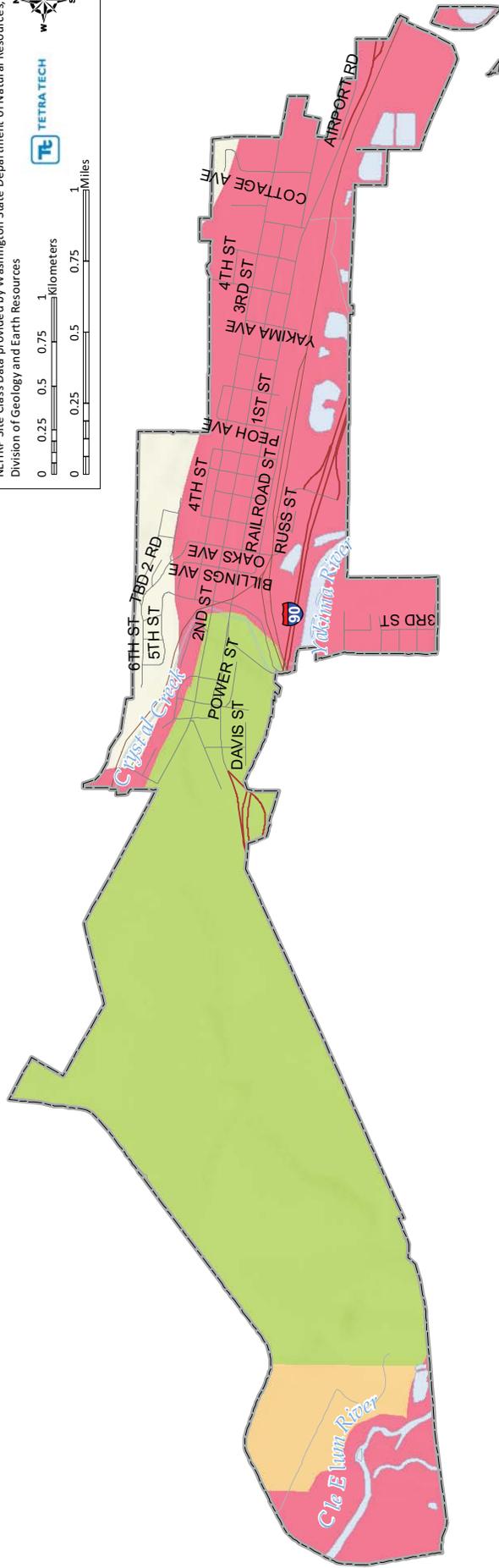
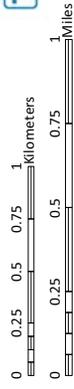
National Earthquake Hazard Reduction Program (NEHRP)

Soil Site Classes

- F - Requires site-specific investigation
- E - Soft Soil
- D - Stiff Soil
- C - Very Dense Soil and Soft Rock
- B - Rock
- Water
- Ice

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NEHRP Site Class Data provided by Washington State Department of Natural Resources, Division of Geology and Earth Resources



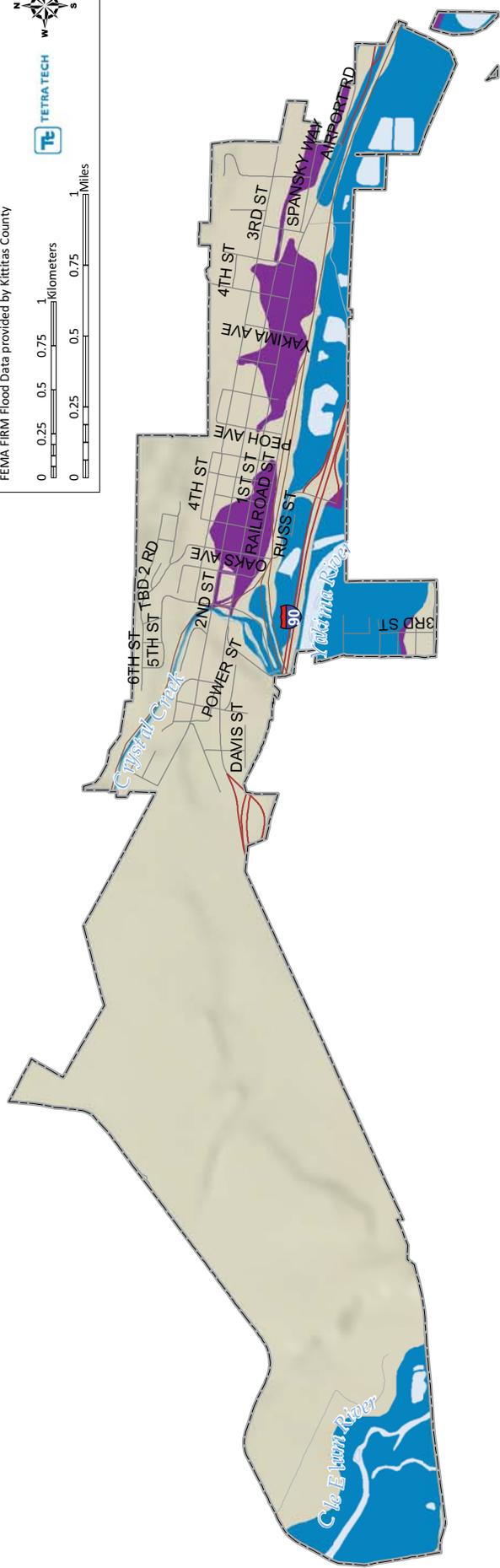
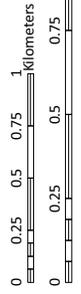
CITY OF CLE ELUM

FEMA FIRM Flood Hazard Areas

-  1-percent annual chance flood (100 Year)
-  0.2-percent annual chance flood (500 Year)

1:36,000

FEMA FIRM Flood Data provided by Kittitas County



CITY OF CLE ELUM

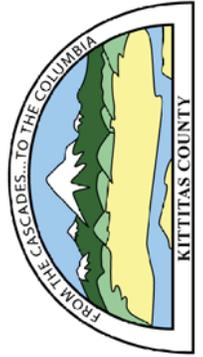
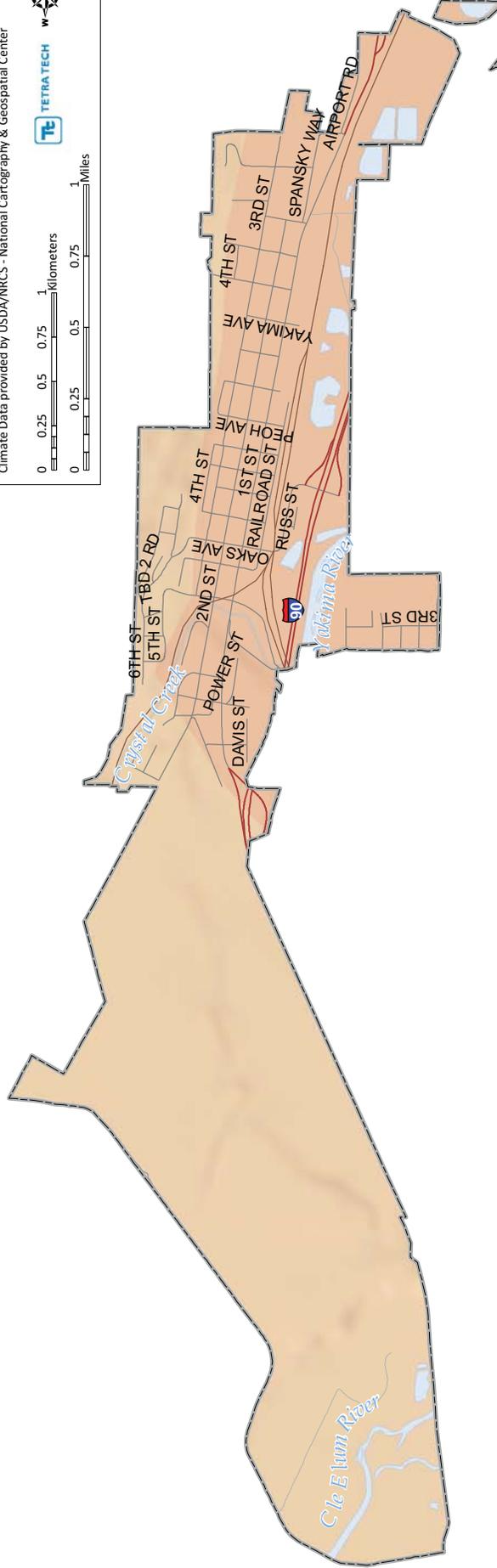
Average Maximum Temperature (F)

High : 91
 Low : 59

Average Maximum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000.
 USDA/NRCS

1:36,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



CITY OF CLE ELUM

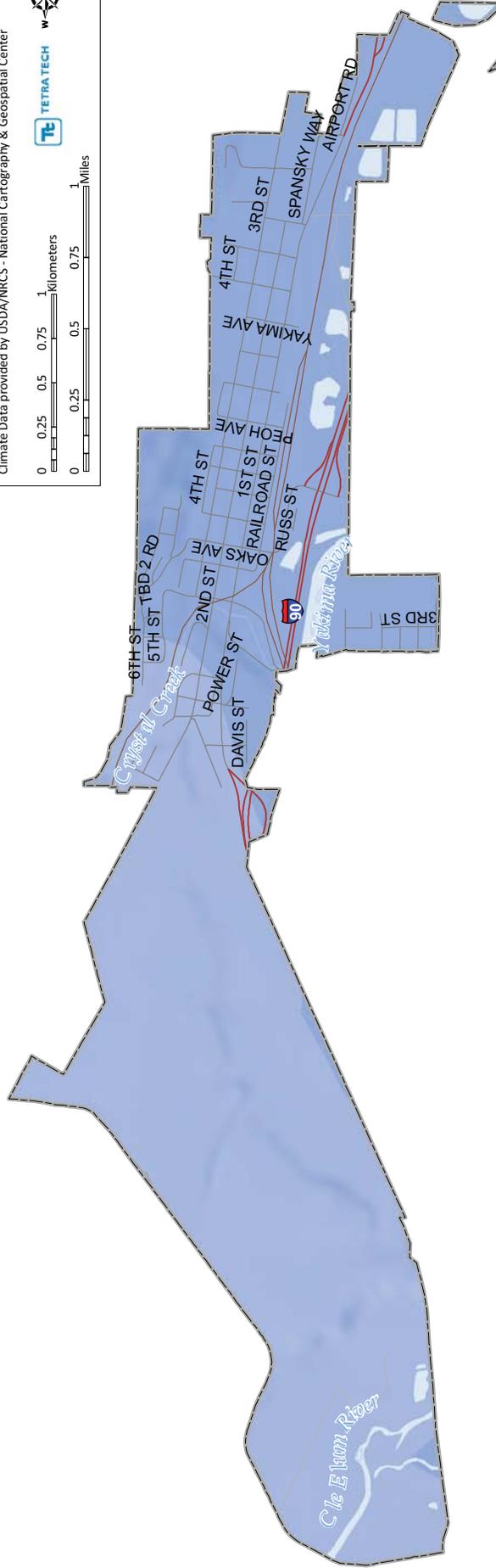
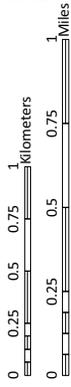
Average Minimum Temperature (F)

Average Annual Minimum Temperature (F)
 High : 25
 Low : 15

Average Minimum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000. USDA/NRCS

1:36,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



CITY OF CLE ELUM

Average Annual Precipitation

Average Annual Precipitation (inches)

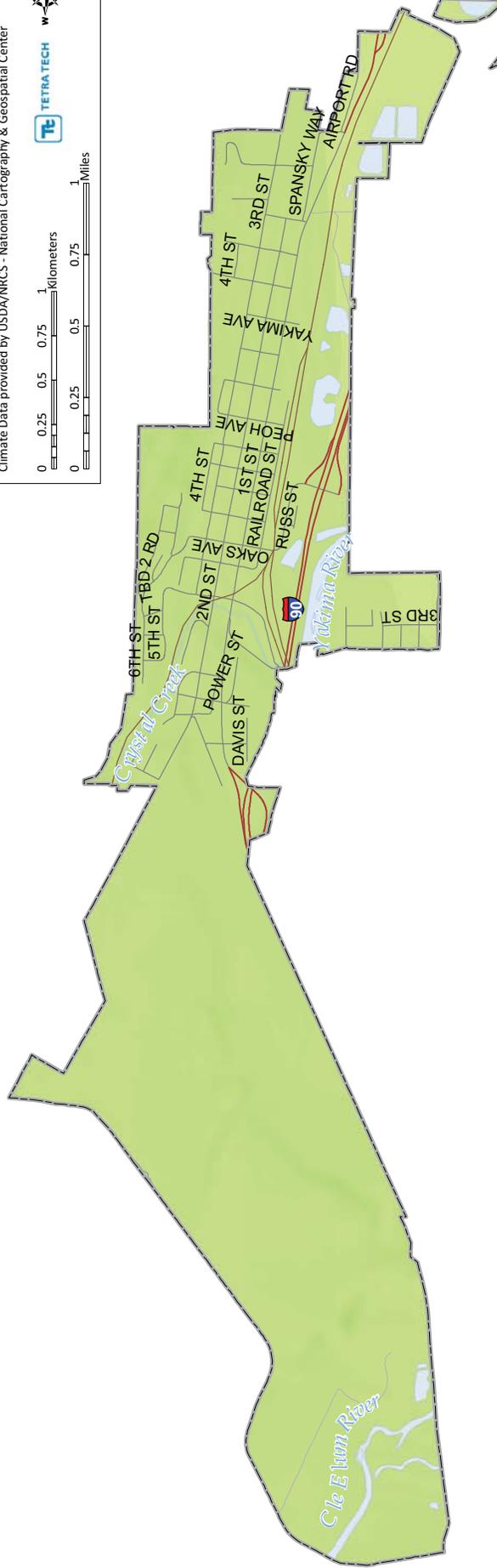
High : 147

Low : 7

Average annual precipitation is according to a model using point precipitation and elevation data for the 30-year period of 1971-2000.
USDA/NRCS

1:36,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



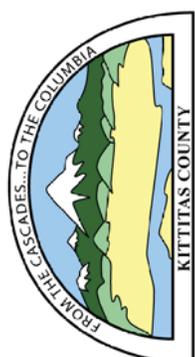
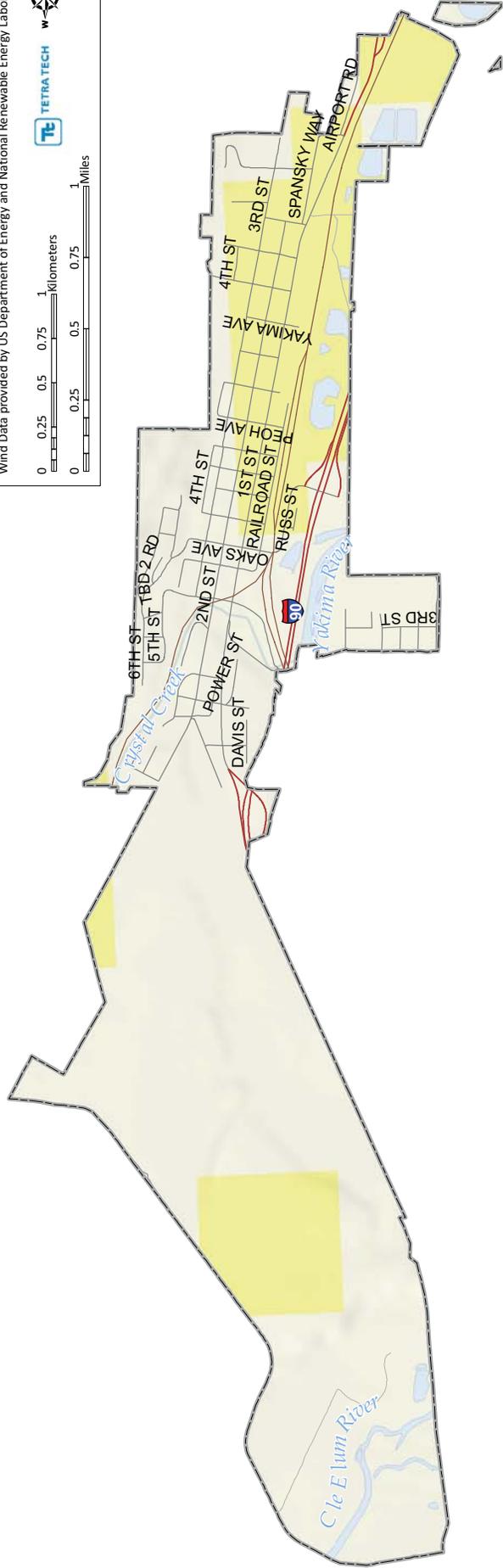
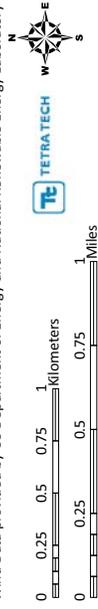
CITY OF CLE ELUM

Potential Wind Power

Wind Power Class	Resource Potential	Wind Power Density at 50m W/m ²	Wind Speed at 50m m/s	Wind Speed at 50m mph
1	None	0	0	0
2	Marginal	200-300	5.6-6.4	12.5-14.3
3	Fair	300-400	6.4-7.0	14.3-15.7
4	Good	400-500	7.0-7.5	15.7-16.8
5	Excellent	500-600	7.5-8.0	16.8-17.9
6	Outstanding	600-800	8.0-8.8	17.9-19.7
7	Superb	>800	>8.8	>19.7

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Wind Data provided by US Department of Energy and National Renewable Energy Laboratory



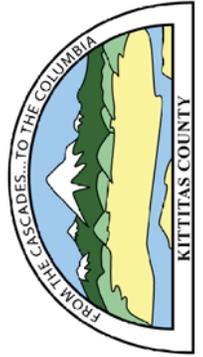
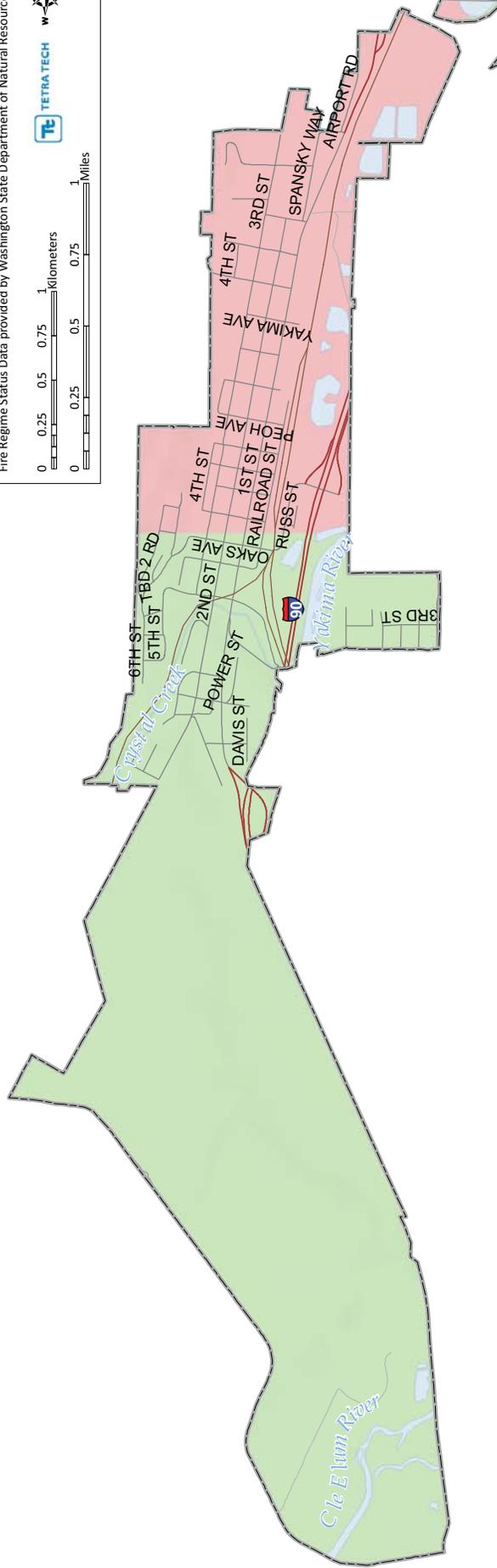
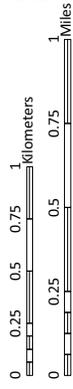
CITY OF CLE ELUM

Fire Regime Status

- 0-35 yrs, Low Severity
- 0-35 yrs, Stand Replacement
- 35-100+ yrs, Mixed Severity
- 35-100+ yrs, Stand Replacement
- 200+ yrs, Stand Replacement

1:36,000

Fire Regime Status Data provided by Washington State Department of Natural Resources



CHAPTER 4. CITY OF ELLENSBURG ANNEX

4.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mike Smith, Community Development Director
501 N. Anderson
Ellensburg, WA 98926
Telephone: 509-962-7231
e-mail Address: smithm@ci.ellensburg.wa.us

Alternate Point of Contact

Lance Bailey, Planning Supervisor
501 N. Anderson
Ellensburg, WA 98926
Telephone: 509-962-7231
e-mail Address: bailey1@ci.ellensburg.wa.us

4.2. JURISDICTION PROFILE

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

- **Date of Incorporation**—1883
- **Current Population**— 18,174 as of 2010 Census
- **Population Growth**— The population growth rate for the City of Ellensburg has remained low but consistent throughout the past few decades, with clear correlation to changes in student population at Central Washington University (CWU). Between the 2000 Census and the 2010 Census, the City population increased by 2,760, an 18 percent increase and an average annual growth rate of 1.8 percent.
- **Location and Description** –The City of Ellensburg is in central Kittitas County at the intersection of Interstate 90, Interstate 82, and US Highway 97 and is near the center of Washington State. The elevation is approximately 1,500 feet with topography sloping gradually from northeast to southwest and the Yakima River. The City is located in a fertile plateau valley adjacent to the Yakima River, with ridges and mountains associated with the Cascade mountain range surrounding it. The surrounding area is primarily composed of irrigated agricultural land or semi-arid desert lands that are not irrigated. Six perennial creeks that convey runoff and snow melt water from the mountain range watersheds to the north run through the developed City from the northeast to the southwest where they flow into the Yakima River which then flows into the Columbia River some 130 miles to the south. In addition, three large irrigation canals traverse the City from the northwest to the southeast and provide irrigation water to the surrounding agricultural lands.

Interstate 90, Interstate 82 and US Highway 97, which all intersect at Ellensburg, provide direct access to the Puget Sound area in the west, Canada to the north, and the greater US to the south and east. BNSF Railway has a main line that runs through the City.

Central Washington University is located in Ellensburg and has a student population of approximately 8,000 and associated staff.

The City has two national historic districts—the Downtown National Historic District and the First Railroad Historic District—which consist of commercial and residential structures from the late 1800s and help make the City a regional historic preservation destination.

- **Brief History**—Ellensburg is located on the western slopes of the Columbia Plateau, site of some dramatic geological events that have occurred over time. Basaltic lava flows took place

some 15 million years ago, with a series of giant glacial flood events after the ice age. The largest documented flood in geologic history occurred when a very large water body in the Montana region suddenly breached, causing huge volumes of water to rapidly sweep across the basaltic plateau as it made its way westward to sea level at the Pacific Ocean. More recently, in 1980 Mt. St. Helens, one of a string of active volcanoes in the Cascade Mountain Range, erupted and caused significant property damage and loss of life in the immediate vicinity of the mountain; Ellensburg was impacted with significant ash from that eruption, causing property damage, health issues, and general disruption to the normal activities of the community. Those events have shaped the landscape of central and eastern Washington where Ellensburg is located.

The first inhabitants of the Ellensburg area were the *Psch-wan-wap-pams* (stony ground people) also known as the Kittitas band of the Yakama or Upper Yakama Tribe. The Ellensburg area was one of the few areas in Washington where both camas and kouse (a root used to bread) grew, which made it an important gathering place for regional tribes. Eventually fur trading and missionary activity entered the valley in the 1860s and by the end of that decade a trading post known as “Robber’s Roost” was established.

The late 1800s saw the community prosper as the Northern Pacific Railroad established a rail siding facility in Ellensburg in 1886 that helped create markets for cattle, dairy products, timber, wool and hay. There was speculation that as part of the region’s effort to petition Congress to admit Washington into the union in 1889, Ellensburg would be named the new state capitol due to its central location. A disastrous fire on July 4, 1889, fanned by the winds that regularly flow down from the Cascade Mountain Range to the west, ended that speculation and destroyed most of the downtown business district and many homes. The community rebuilt itself, using brick and stone masonry rather than wood, within a year.

Although Ellensburg lost the state capitol decision to Olympia, the new State Legislature established the Washington State Normal School (a teacher’s college now known as Central Washington University) in Ellensburg. The school opened in 1891 with 86 students and today CWU has an enrollment exceeding 8,000 students, occupies more than 300 acres, is the county’s largest employer with more than 1,300 employees, and is estimated to contribute some \$170 million annually to the local economy.

The timing of the fire and the rapid reconstruction of the destroyed downtown produced a unified and attractive appearance dominated by late Victorian architectural styles that have subsequently been filled in with a few early twentieth-century neoclassic and art deco-styled buildings. That historical style has defined the community and continues to serve as one of its biggest assets. Ellensburg has grown from its re-birth and has established itself as a vital, rooted, and unique community in which the residents consider it as being a quiet, clean, comfortable, safe, and family-oriented city.

- **Climate**—Ellensburg has strong summers and winters. Temperatures vary considerably within the seasons. There are four distinct seasons and a strong and regular breeze from the west throughout much of the year. Average mean temperatures range in the high 50s F with summertime temperatures averaging near 80° F and winter lows often getting below freezing. The mountains to the west and north effectively block much of the rain from the “wet” side of the state, producing a dry climate with less than 10 inches of rain a year. The combination of large snow pack in the mountains, strong westerly winds and occasional unseasonal warm rain events, however, results in regular flood events from February through May for the streams that run from the mountains through the city to the Yakima River.
- **Governing Body Format**—The City of Ellensburg utilizes the council-manager form of government with a city manager hired by the city council. The city council elects a mayor and

mayor pro tem from the council to serve two-year terms. The City also uses an appointed planning commission to provide land use recommendations to City Council and to hear quasi-judicial land use permit application matters. A number of citizen boards and commissions have been established to provide recommendation and guidance to council on a variety of issues, including the downtown, the environment, energy, historic preservation and design review.

- **Development Trends**—Beginning in the late 1990s and continuing up to the economic downturn in the late 2000s, the City experienced greater than usual growth, primarily in residential structures, although the population growth did not match that rate of residential growth. That is primarily due to the housing boom in the early to mid-2000s and the reality that Ellensburg is a college town and it became easier for some families to purchase a second, speculative residence in which to house their child while attending CWU and to utilize the rent payment from roommates to pay the mortgage. The economic downturn of the late 2000s, however, put an end to that growth spurt and it is anticipated that Ellensburg will revert to its more traditional levels of low and slow growth for the foreseeable future.

4.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 4-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 0
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

4.4. HAZARD RISK RANKING

Table 4-2 presents the ranking of the hazards of concern.

4.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 4-3. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 4-4. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 4-5. Classifications under various community mitigation programs are presented in Table 4-6.

4.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 4-7 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 4-8 identifies the priority for each initiative. Table 4-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

4.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The biggest future need to better understand risk/vulnerability would be a re-mapping of the floodplain by FEMA. Ellensburg annually experiences sheet-flow floods, and the floods are not uniformly in flood locations identified on the 1981 FIRM maps. People suffer property damage but are not within a FIRM floodplain and are not eligible for federal flood insurance. People want to develop their properties that are not identified in the floodplain but that consistently flood, and it becomes a regulatory issue for which there is no solid documented basis to regulate the property for flooding. FEMA intends to remap the floodplain along the Yakima River, which is immediately southwest of the City of Ellensburg. The City

has requested that some remapping of the tributaries that run through the City into the Yakima be part of that project, but it does not appear that will occur.

4.8. ADDITIONAL COMMENTS

Due to its climate and topography, Ellensburg is prone to unpredictable flood events when there is significant snow pack in the foothills surrounding the City during early and late winter and a heavy rain event occurs combined with warm temperatures and strong winds (strong winds are the norm for this area). The creek that experiences the flood event varies and is dependent on the temperature and the degree of compactness of the snowpack within the creek watersheds. The result is significant overbank flow in the six creeks that run northeast to southwest through the developed city toward the Yakima River, which becomes sheet-flow flooding over large areas of the community. This regular pattern of flooding does not pose major risks to life, but it does cause significant annual damage to public and private property. Although the City's risk rating for the flood hazard is 36, the regularity of annual flooding and associated property damage makes this hazard risk much higher.

In addition, because most of the City's historic downtown structures are masonry buildings constructed in the late 1880s, they are not likely to perform well in earthquake events. The 2001 Nisqually Earthquake, while causing significant damage to the Puget Sound region, in particular the older historic structures, did not cause significant damage in Ellensburg. However, a more local earthquake event, or a much stronger event in the Puget Sound region would likely cause significant property loss and the potential for significant personal injury in the historic downtown area if the two-story brick buildings were to collapse. Retrofitting those historic structures would be an expensive task that is beyond the City's ability to address and beyond the individual property owner's ability to finance.

Large earthquake events in the Puget Sound region also will likely result in significant logistical problems for the Ellensburg community. I-90 is the major east/west interstate that connects the more rural eastern Washington to the more populated western Washington. Large-scale earthquake damage in the Puget Sound region will likely cause serious disruption to food service delivery from the regional warehouses located in Puget Sound, as well as damage to telecommunications. And if the event is serious enough there is likely to be an exodus of displaced Puget Sound residents seeking shelter elsewhere and if the interstate is open Ellensburg is the first larger city over the mountain passes from Puget Sound and is likely to be impacted by displaced Puget Sound people seeking a safe place.

4.9. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the City of Ellensburg are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE 4-1. NATURAL HAZARD EVENTS		
Type of Event	Date	Preliminary Damage Assessment
Severe Flooding	5/15/11	N/A
Severe Flooding	3/25/11	N/A
Severe Flooding	01/30/09	N/A
Severe Flooding	01/07/09	N/A
Earthquake (Nisqually)	03/01/01	N/A
Severe Winter Storm	01/17/97	N/A
Severe Winter Storm/Flooding	02/09/96	N/A
Storms/High Winds/Floods	01/03/96	N/A
Flooding, Severe Storm	11/26/90	N/A
Severe Flooding	8/21/90	N/A
Severe Winter Weather	01/18/86	N/A
Severe Storm	12/24/80	N/A
Volcanic Eruption, Mt. St. Helens	05/21/80	N/A
Severe Storms, Flooding	12/10/77	N/A
Severe Storms, Flooding	12/13/75	N/A
Heavy Rains & Flooding	12/29/64	N/A

TABLE 4-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	36
2	Flood	36
3	Severe Weather	36
4	Dam Failure	30
5	Volcano	24
6	Landslide	6
7	Drought	3
8	Wildfire	3
9	Avalanche	0
10	Seiche	0

**TABLE 4-3.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	N	N	Y	2009 International Building Codes
Zoning Code	Y	N	N	Y	Title 13 ECC
Subdivisions	Y	N	N	N	Title 12 ECC
Post Disaster Recovery	Y	N	N	Y	Stormwater Utility Adopted
Real Estate Disclosure	N	N	N	N	
Growth Management	Y	N	N	N	For Critical Areas Only
Site Plan Review	Y	N	N	N	GMA compliant 1995 to current with 2007 Update
Special Purpose (flood management, critical areas)	Y	N	N	N	Site plans are reviewed for compliance with codes and development regulations
Planning Documents					
General Plan	Y	Y	N	Y	GMA compliant 1995 to current with 2007 Update
Floodplain or Basin Plan	N	N	N	N	
Stormwater Plan	N	N	N	N	Adopted stormwater utility and working on plan
Capital Improvement Plan	Y	N	N	N	Specific 6-Year and more general 12 and 18-year plans included in Comp Plan
Habitat Conservation Plan	N	N	N	N	Regulated through Critical Area Ordinance in ECC Chapter 39
Economic Development Plan	Y	N	N	N	An element in the Comp Plan
Emergency Response Plan	Y	N	N	N	Contracted for through Fire District
Shoreline Management Plan	N	N	N	N	Adopted by reference the Kittitas County SMP. In process of adopting City SMP
Post Disaster Recovery Plan	Y	N	N	N	Contracted for through Fire District

**TABLE 4-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Community Development – Planners Public Works and Energy Services-Engineers
Engineers or professionals trained in building or infrastructure construction practices	Y	Building Department – Building Inspectors Public Works and Energy Services-Engineers
Planners or engineers with an understanding of natural hazards	Y	Public Works – Flood Hazards
Staff with training in benefit/cost analysis	Y	Various departments with basic capability
Floodplain manager	Y	Community Development Director
Surveyors	N	
Personnel skilled or trained in GIS applications	Y	IT Department – GIS division
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	Contracted with Fire District
Grant writers	Y	On-call contract grant writers

**TABLE 4-5.
FISCAL CAPABILITY**

Financial Resources	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
Incur Debt through General Obligation Bonds	Y
Incur Debt through Special Tax Bonds	Y
Incur Debt through Private Activity Bonds	uncertain
Withhold Public Expenditures in Hazard-Prone Areas	N
State Sponsored Grant Programs	Y
Development Impact Fees for Homebuyers or Developers	Y
Other	

	Participating?	Classification	Date Classified
Community Rating System	No	—	—
Building Code Effectiveness Grading Schedule	Yes	4/4	—
Public Protection	Yes	4/9	—
Storm Ready	No	—	—
Firewise	No	—	—

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative E-1—West Ellensburg Flood Mitigation Project – Reecer and Currier Creeks from I-90 to University Way						
Existing/New	Flooding	1, 3, 6, 7, 9, 10	City	\$2,100,000, Medium	Grants, General Fund, Bonds	Included in 6-Year Capital Facility Plan
Initiative E-2—Wilson Creek Flood Control Project						
Existing/New	Flooding	1, 3, 6, 7, 9, 10	City	\$8,900,000, High	General Fund, Bonds, Grants	Included in 12-Year Capital Facility Plan
Initiative E-3—Update FEMA Floodplain Maps						
Existing/New	Flooding	1, 3, 4, 5, 6, 7, 9, 10	City	High	General Fund, FEMA RiskMAP program, Grants	Long Term, depends on funding
Initiative E-4—Clear storm drains and culverts for stormwater management						
Existing	Flooding	1, 6, 7, 10	City	Low	General Fund, Grants Stormwater Utility	Short Term, Ongoing
Initiative E-5—Enhance existing stormwater facilities that lack capacity or functionality and construct new local stormwater facilities where there is identified need.						
Existing/New	Flooding	1, 6, 7, 10	City	High	Stormwater Utility, Bonds, HMGP	Short-term, Ongoing
Initiative E-6—Control land use in flood-prone areas (by zoning setbacks, greenways, and buffers)						
New	Flooding	1, 2, 3, 4, 5, 6, 7, 9, 10	City	Low	HMGP	Long Term

**TABLE 4-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative E-7 —Acquisition of flood-prone structures and conversion of land to open space						
Existing/New	Flooding	1, 2, 3, 4, 5, 6, 7, 8, 10	City	High	HMGP	Long Term, depends on funding
Initiative E-8 —Continue to maintain compliance and good standing under the National Flood Insurance Program.						
Existing/New	Flooding	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City	low	General fund	Ongoing
Initiative E-9 —Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.						
Existing	All Hazards	1, 2, 8, 10	City	high	HMGP	Long Term
Initiative E-10 —Conduct a seismic retrofit of the Ellensburg Public Safety Building that houses the Ellensburg Police Department and Kittitas Valley Fire And Rescue (Fire District) Headquarters.						
Existing	Earthquake	1, 2, 5, 6, 7, 8, 9, 10	City	medium	HMGP, General Funds, Bonds	Long Term
Initiative E-11 —Collect improved data (hydrologic, geologic, topographic, etc.) to assess risks and vulnerabilities.						
Existing/New	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City	medium	Grants, General fund	Ongoing
Initiative E-12 —Consider adoption of appropriate regulatory standards, through updates as needed and/or required, affecting critical areas regulations, flood hazard regulations, shoreline regulations, and to the city’s growth management comprehensive plan.						
New	Flooding	1, 2, 3, 4, 5, 6, 7, 9, 10	City	medium	General fund	Ongoing
Initiative E-13 —Inform and educate the public on hazard mitigation and preparedness via the city’s website.						
Existing	All Hazards	1, 2, 5, 6, 10	City	low	General fund	Ongoing
Initiative E-14 —Replace inadequately sized culvert for Reecer Creek at University Way.						
Existing	Flooding	1, 2, 7, 8, 9, 10	City	high	Grants, Road Fund, CIP	Long Term
Initiative E-15 —Relocate City-owned critical facilities out of identified high hazard risk zones						
Existing	All Hazards	1, 2, 5, 7, 8, 9, 10	City	Unknown	HMGP, Bond	Long Term
Initiative E-16 —Install stream gauge stations with communication links for early flood warning on all local tributaries						
Existing/New	Flooding	1, 7, 9	City	\$160,000	Stormwater Utility	Long Term

**TABLE 4-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative E-17 —Consider participation in the Community Rating System						
New and existing	Flood	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	City	low	General fund	Short-term
Initiative E-18 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New and Existing	All Hazards	All	City Council, Community Development	Low	HMGP, General Fund, Road Fund	Short-term, ongoing
Initiative E-19 —Continue to support through active participation the countywide initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	All City Agencies	Low	General Fund	Short-term, Ongoing
Initiative E-20 —Consider participation in the National Weather Service “Storm Ready” program.						
New and Existing	Flood, Severe Weather	6, 7, 9	Public Works	Low	General Fund	Short term

**TABLE 4-8.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
E-1	6	High	High	Y	Y	N	High
E-2	6	High	High	Y	Y	N	High
E-3	8	High	High	Y	Y	N	High
E-4	4	Medium	Medium	Y	Y	N	Medium
E-5	4	Medium	High	N	Y	N	Low
E-6	9	High	Medium	Y	Y	N	High
E-7	9	Medium	High	N	Y	N	Medium
E-8	10	High	Low	Y	N	Y	High
E-9	4	Medium	High	N	Y	N	Low
E-10	8	Medium	High	N	Y	N	High
E-11	10	High	High	Y	Y	N	High
E-12	9	Medium	Medium	Y	N	N	Medium
E-13	5	Medium	Low	Y	N	Y	Medium
E-14	6	High	High	Y	Y	N	High
E-15	7	Medium	High	N	Y	N	Medium
E-16	3	Medium	Medium	Y	N	Y	High
E-17	10	Medium	Low	Y	N	Y	Medium
E-18	10	High	Low	Y	Y	Y	High
E-19	3	Medium	Low	Y	N	Y	High
E-20	3	High	Low	Y	Y	Y	High

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 4-9.
ANALYSIS OF MITIGATION INITIATIVES**

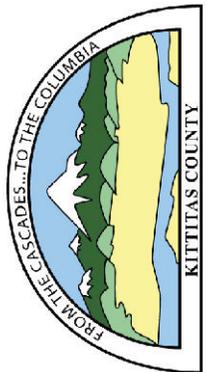
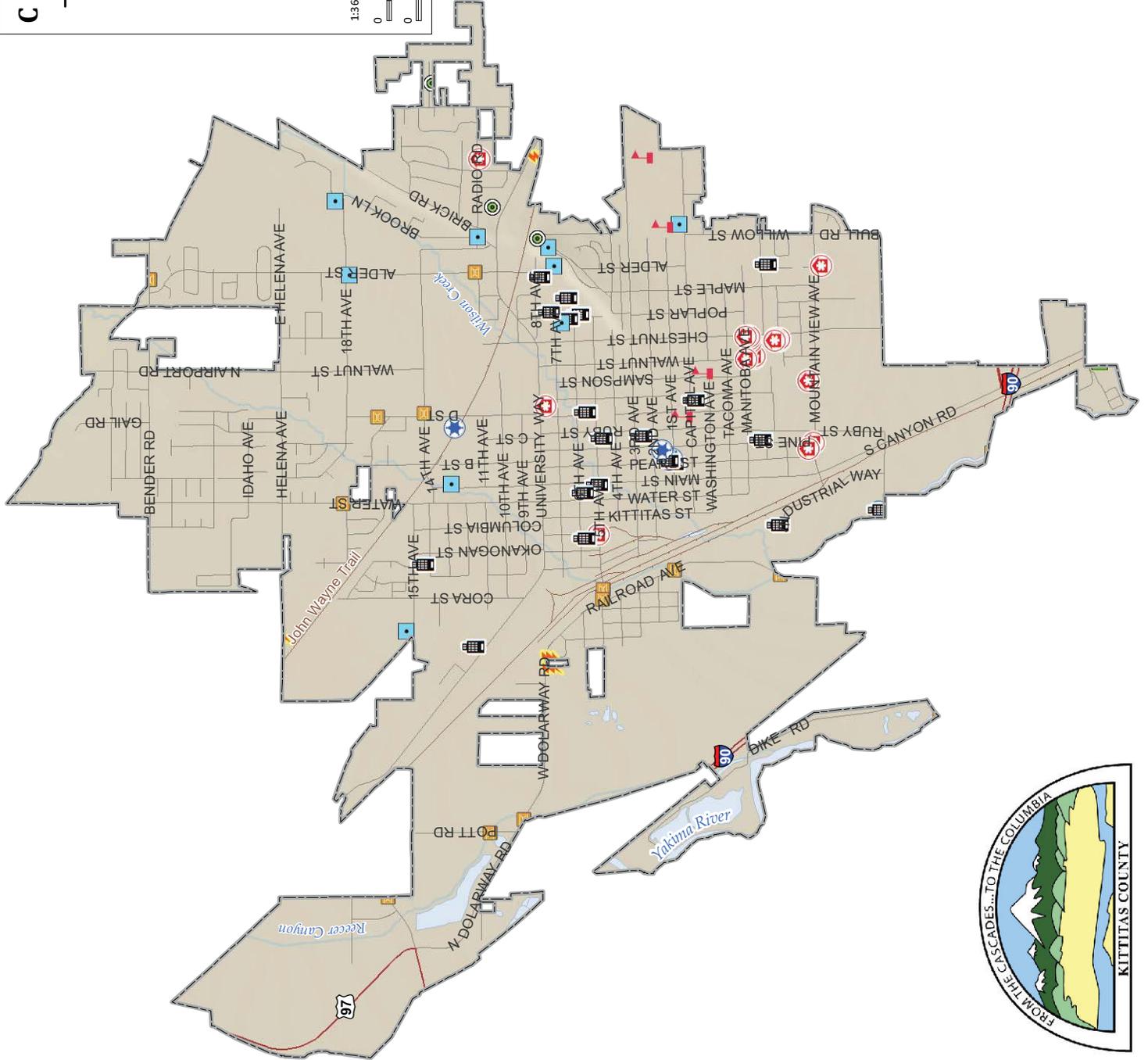
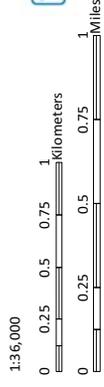
Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	18		18, 19		19	
Dam Failure	18	6, 9, 11, 12, 13, 15	13, 18, 19		19	9, 15
Drought	18		18, 19		19	
Earthquake	18	9, 10, 11, 15	13, 18		10, 19	9, 10, 15
Flood	1, 2, 3, 4, 5, 16, 17, 18	1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, 15, 16, 17	6, 8, 12, 13, 16, 17, 18, 19	3, 11, 12, 17	17, 19, 20	1, 2, 3, 4, 5, 9, 14, 15, 16, 17
Landslide	18		18, 19		19	
Severe Weather	18	1, 2	13, 18, 19	1, 2	19, 20	1, 2
Seiche	18		18, 19		19	
Volcano	18		13, 18, 19		19	
Wildfire	18		18, 19		19	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CITY OF ELLENSBURG

Critical Facilities

- | | | | |
|---|---|---|---|
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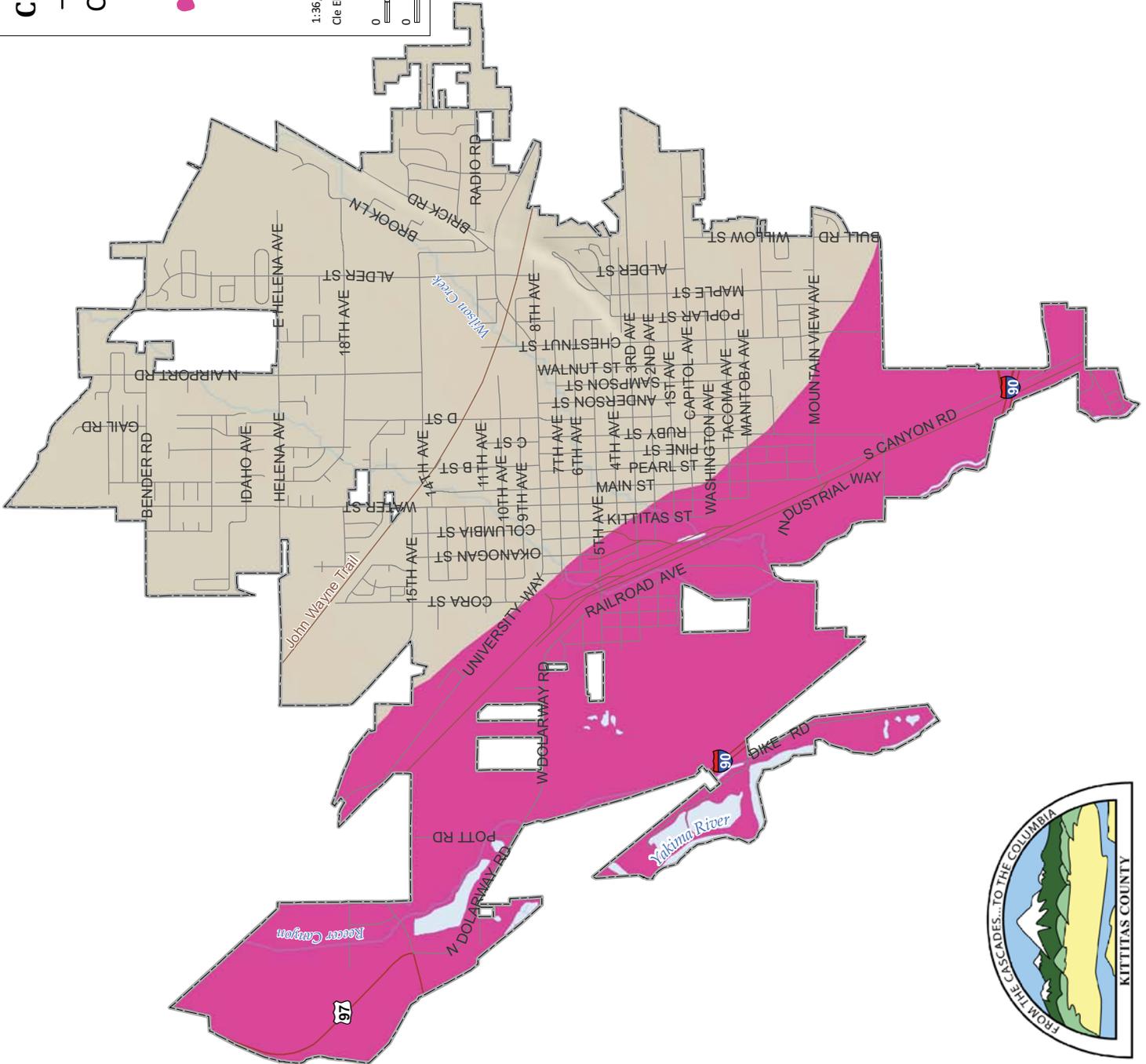
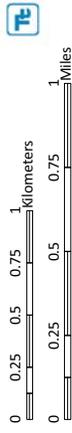
CITY OF ELLENSBURG

Cle Elum Dam Inundation Area

 Cle Elum Dam Failure Probable Maximum Flood

1:36,000

Cle Elum Dam Inundation Area data provided by Kittitas County



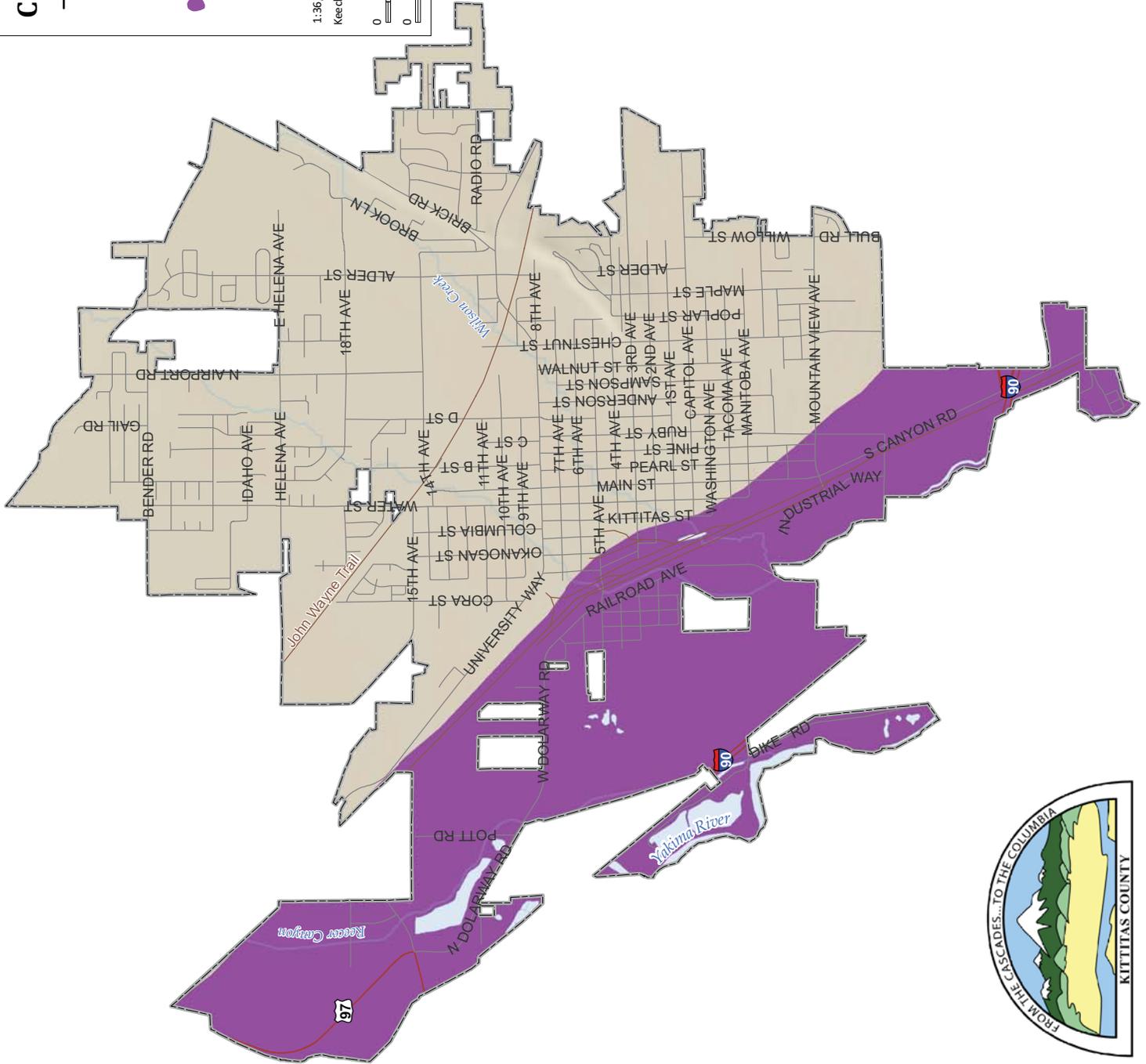
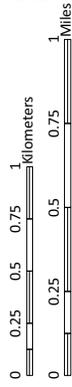
CITY OF ELLENSBURG

Keechelus & Kachees Dam Inundation Area Probable Maximum Flood

 Keechelus & Kachees Dam Inundation Area
Probable Maximum Flood

1:36,000

Keechelus and Kachees Dam Inundation Area data provided by Kittitas County



CITY OF ELLENSBURG

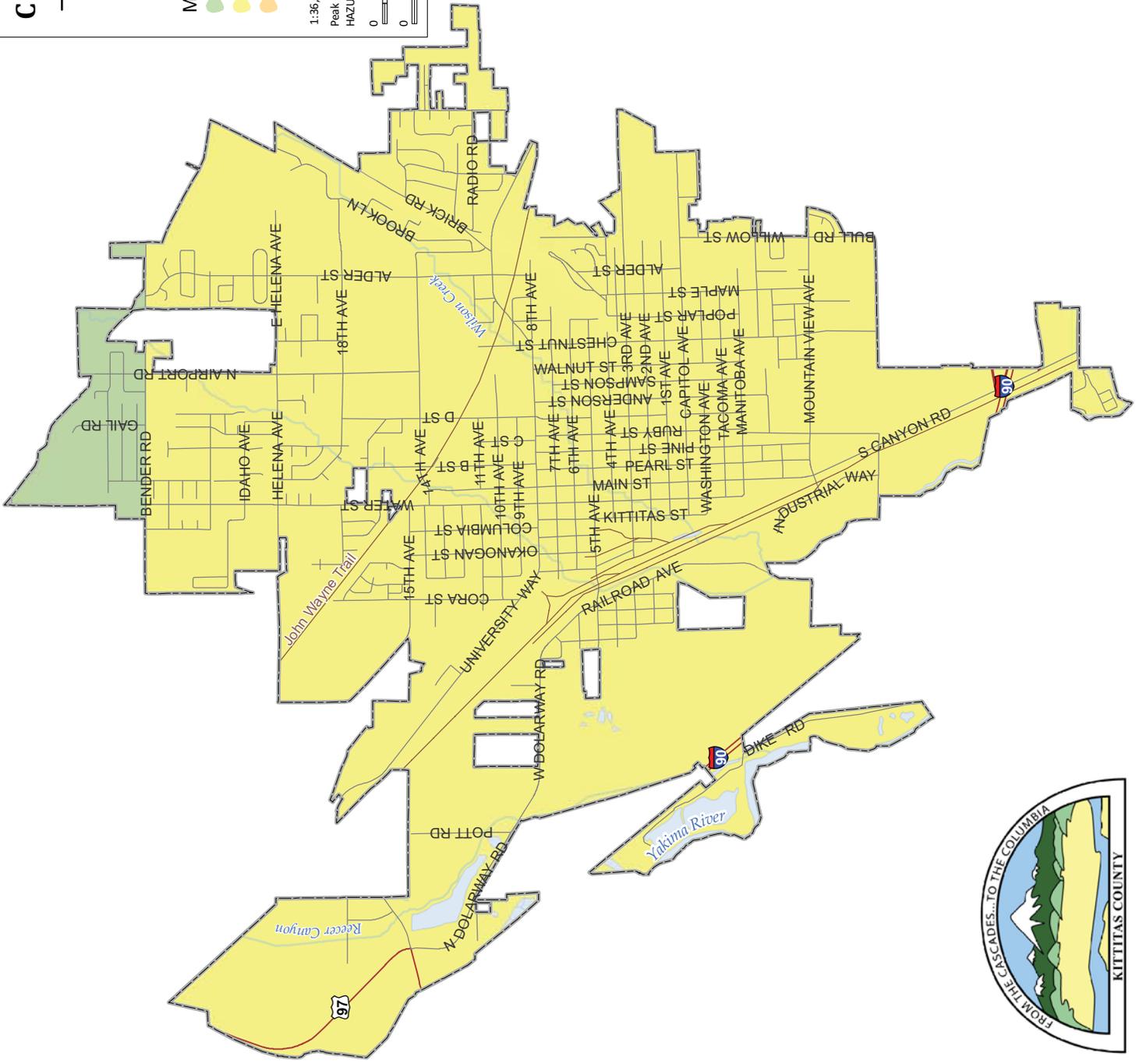
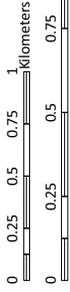
Peak Ground Acceleration
USGS 100 Year
Probabilistic Event

Mercalli Scale, Potential Damage

- V, Very Light
- VI, Light
- VII, Moderate

1:36,000

Peak Ground Acceleration USGS 100 Year Probabilistic Event
HAZUS-MH MR4 Output, United States Geological Survey



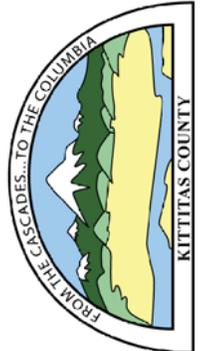
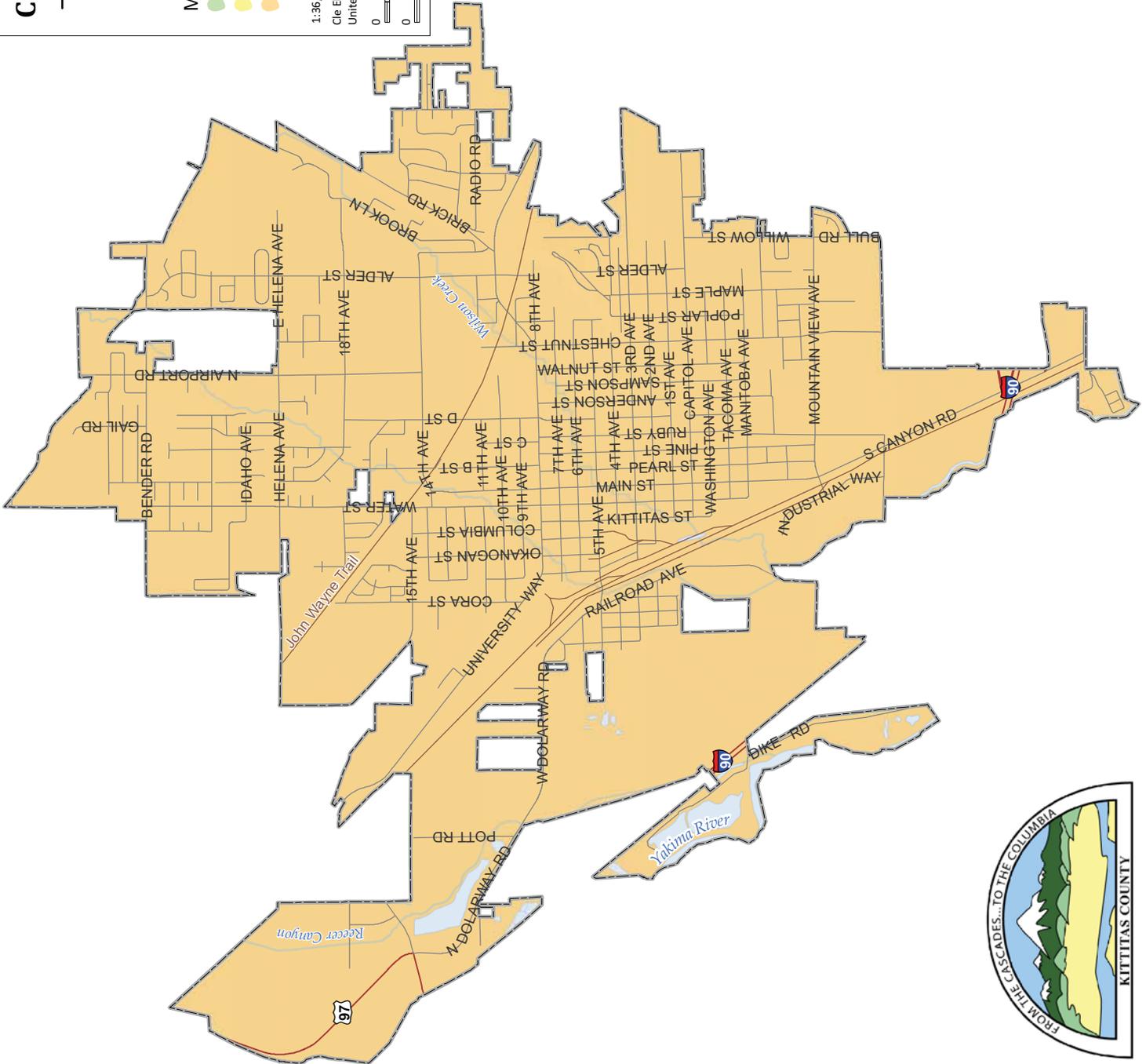
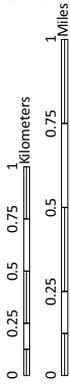
CITY OF ELLENSBURG

Cle Elum Fault Peak Ground Acceleration 6.8 Magnitude Scenario



1:36,000

Cle Elum Fault PGA Shake Map Data
United States Geological Survey



CITY OF ELLENSBURG

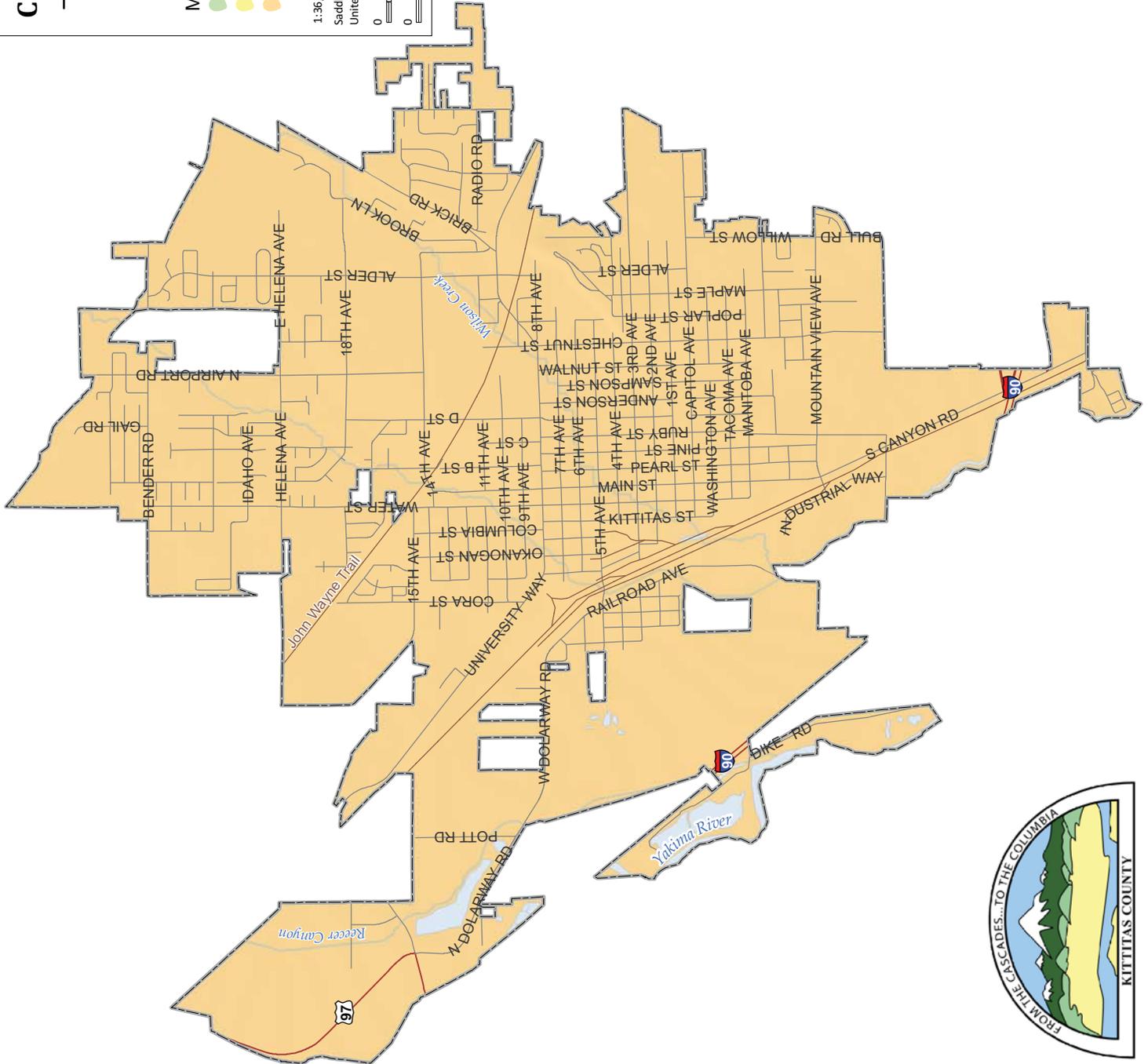
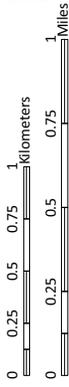
Saddle Mountain Peak Ground Acceleration 7.3 Magnitude Scenario

Mercalli Scale, Potential Damage

- V, Very Light 
- VI, Light 
- VII, Moderate 
- VIII, Moderate-Heavy 
- IX, Heavy 

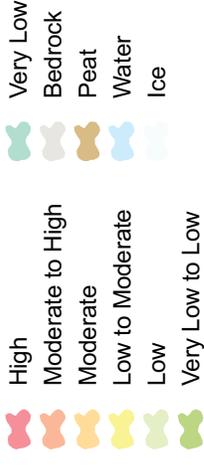
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Saddle Mountain Fault PGA Shake Map Data
United States Geological Survey



CITY OF ELLENSBURG

Liquefaction Susceptibility

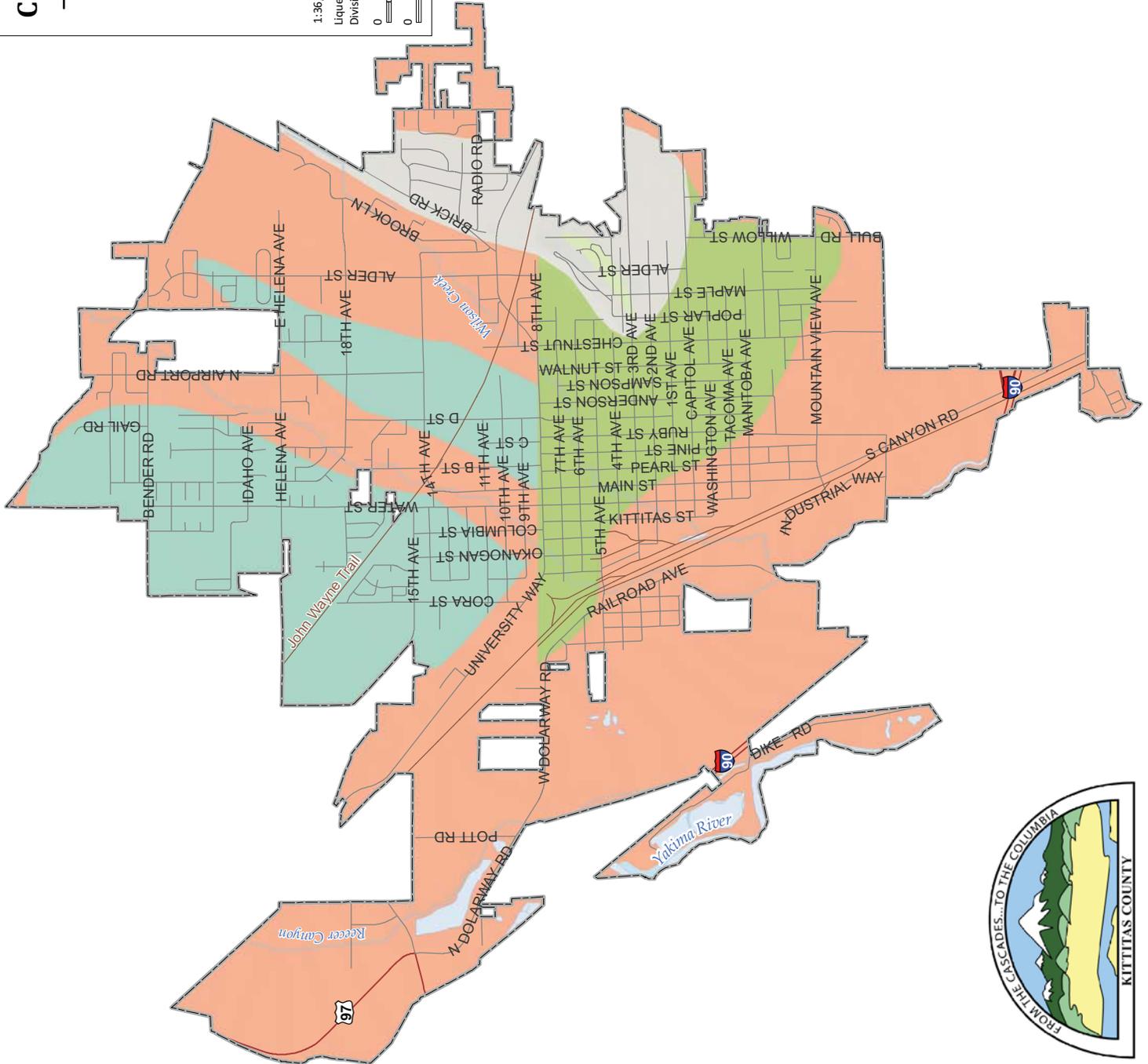
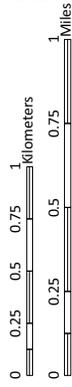


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Liquefaction Data provided by Washington State Department of Natural Resources,
Division of Geology and Earth Resources



TETRA TECH



CITY OF ELLENSBURG

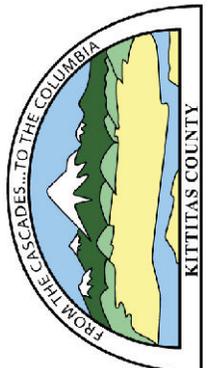
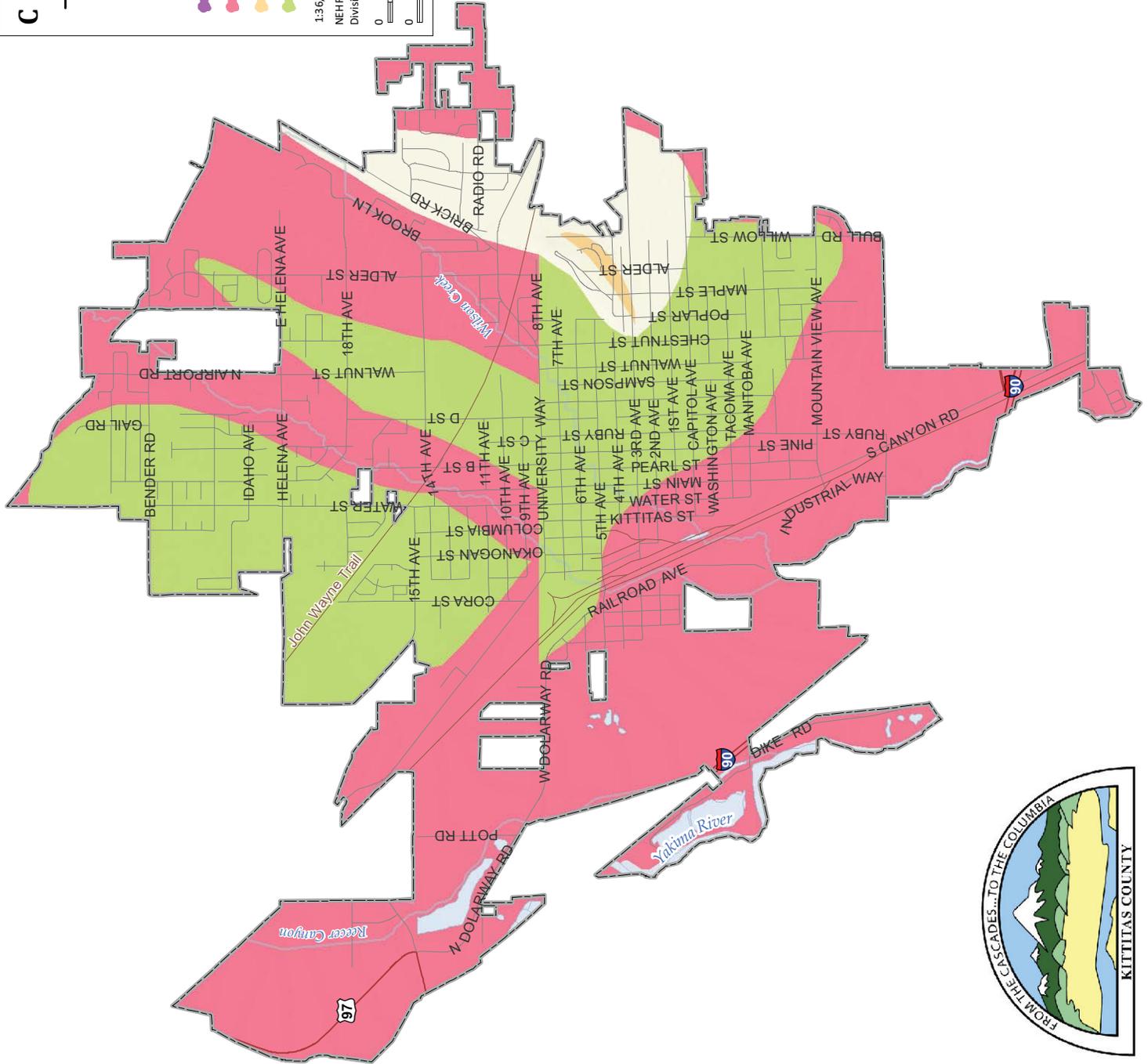
National Earthquake Hazard Reduction Program (NEHRP)

Soil Site Classes

-  F - Requires site-specific investigation
-  E - Soft Soil
-  D - Stiff Soil
-  C - Very Dense Soil and Soft Rock
-  B - Rock
-  Water
-  Ice

1:36,000

NEHRP Site Class Data provided by Washington State Department of Natural Resources, Division of Geology and Earth Resources



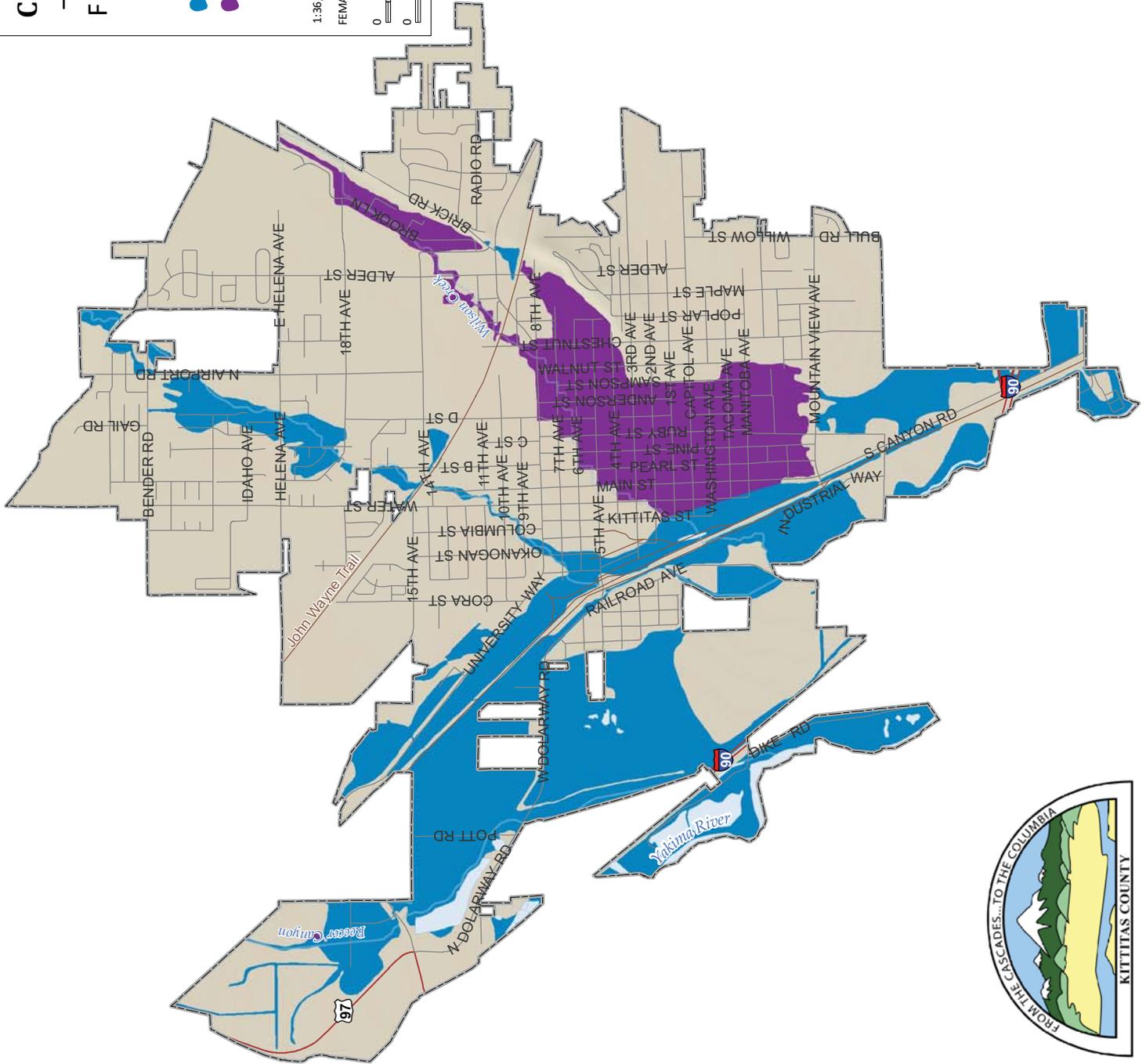
CITY OF ELLENSBURG

FEMA FIRM Flood Hazard Areas

-  1-percent annual chance flood (100 Year)
-  0.2-percent annual chance flood (500 Year)

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FEMA FIRM Flood Data provided by Kittitas County



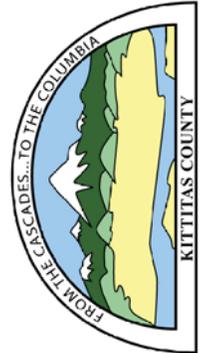
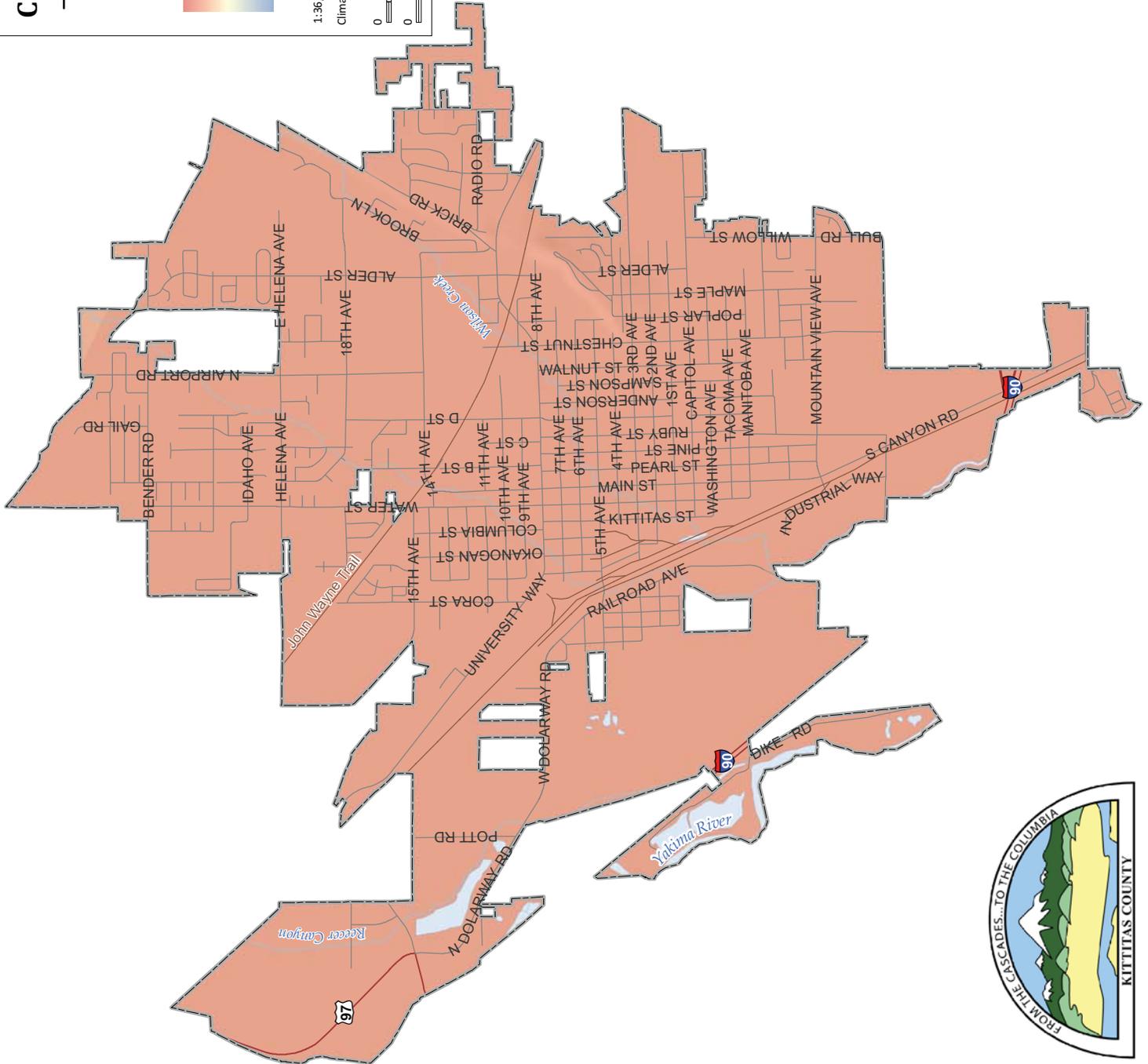
CITY OF ELLENSBURG

Average Maximum Temperature (F)



1:36,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



CITY OF ELLENSBURG

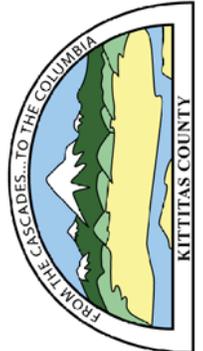
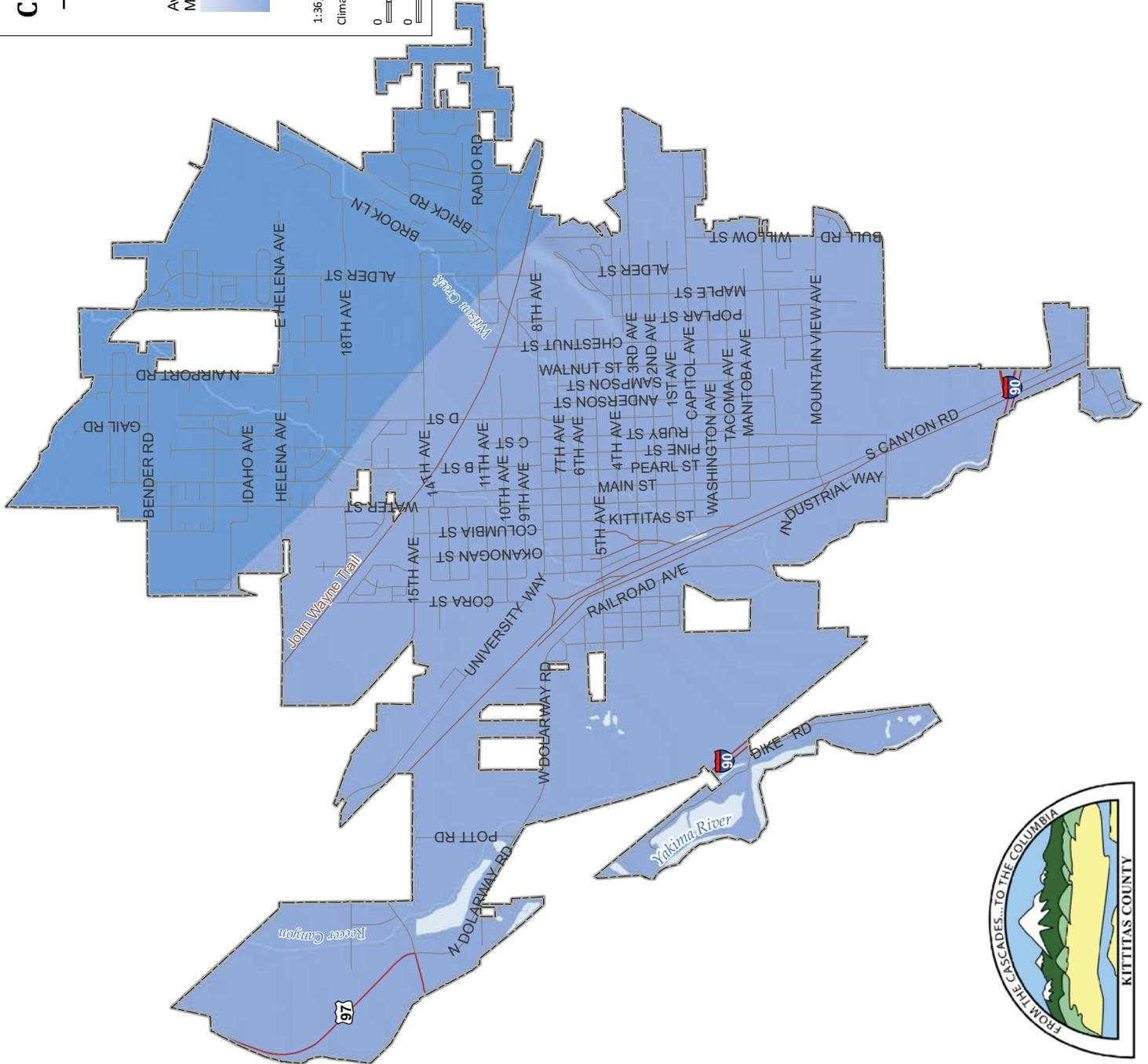
Average Minimum Temperature (F)

Average Annual Minimum Temperature (F)
 High : 25
 Low : 15

Average Minimum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000. USDA/NRCS

1:36,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



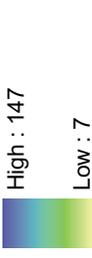
CITY OF ELLENSBURG

Average Annual Precipitation

Average Annual Precipitation (inches)

High : 147

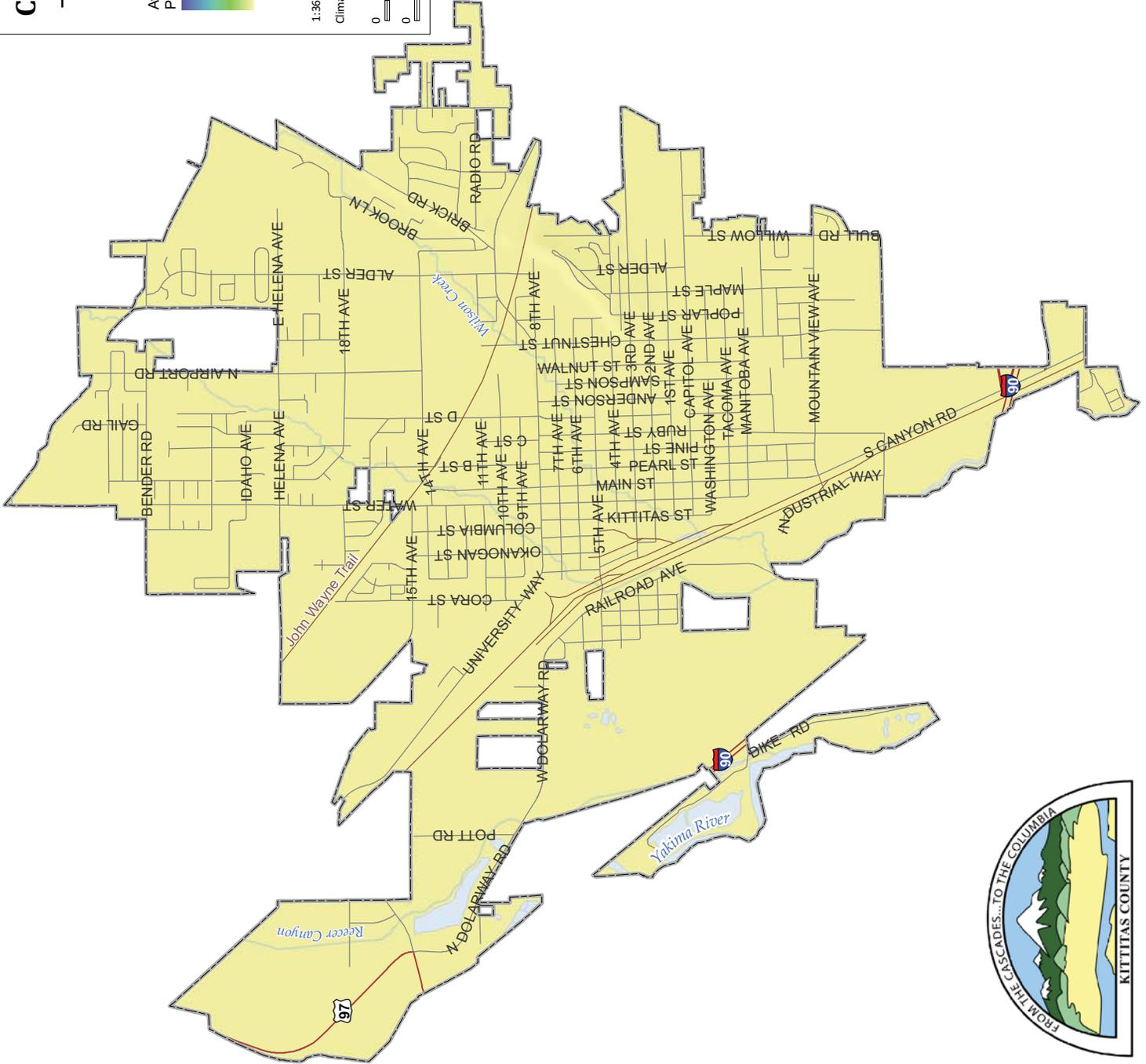
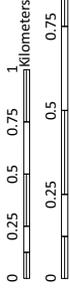
Low : 7



Average annual precipitation is according to a model using point precipitation and elevation data for the 30-year period of 1971-2000.
USDA/NRCS

1:36,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



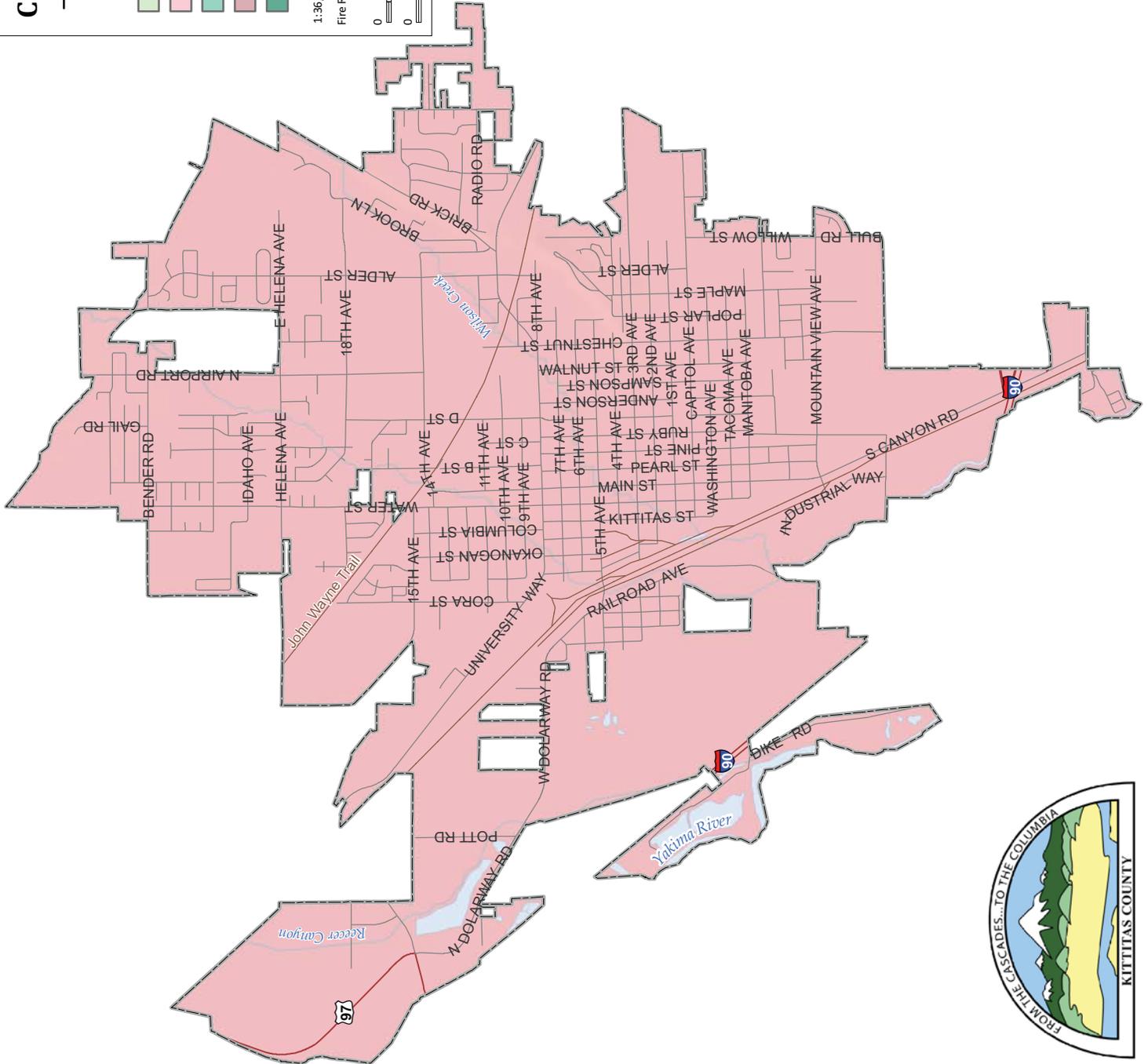
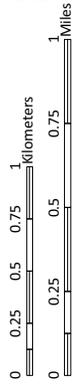
CITY OF ELLENSBURG

Fire Regime Status

- 0-35 yrs, Low Severity
- 0-35 yrs, Stand Replacement
- 35-100+ yrs, Mixed Severity
- 35-100+ yrs, Stand Replacement
- 200+ yrs, Stand Replacement

1:36,000

Fire Regime Status Data provided by Washington State Department of Natural Resources



CHAPTER 5. CITY OF ROSLYN ANNEX

5.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mitchell Long, Public Works
PO Box 451
Roslyn, WA 98941
Telephone: 509-649-3105
e-mail Address: publicworks@inlandnet.com

Alternate Point of Contact

Stan Georgeson, Public Works Director
PO Box 451
Roslyn, WA 98941
Telephone: 509-649-3105
e-mail Address: publicworks@inlandnet.com

5.2. JURISDICTION PROFILE

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

- **Date of Incorporation**—1886
- **Current Population**—893
- **Population Growth**—While Roslyn has experienced a 12.4 percent decrease in population from 2000 to 2011, the surrounding communities and county have seen a net increase in population.
- **Location and Description**—Roslyn is nestled in the foothills of the east-central Cascades in predominantly Ponderosa pine and Douglas fir forest. The City is a gateway to the Alpine Lakes Wilderness Area and Lake Cle Elum. To the north of Roslyn there is a 300+ acre urban forest that is abutted by 20-acre parcels and Plum Creek Timber holdings to the top of the Cle Elum Ridge. To the west is the township of Ronald, to the east Cle Elum, and south is the Master Planned Resort of Suncadia. SR 903 runs through Roslyn from the southeast to the northwest. Exit 80 (just east of Snoqualmie Pass) is the turn off for Roslyn from Interstate 90, which runs from Seattle to Spokane (and beyond).
- **Brief History**—Incorporated in 1886, the coal-mining town of Roslyn played an important role in Washington State history. Extensive coal fields in the area fueled the Northern Pacific Railroad's trains during construction and early operation of a direct rail line through the Cascade Mountains.

Men from coal mining regions in the United States, Europe and elsewhere came to work in the mines. English, Italian and Slavic immigrants were among the early settlers and a significant proportion of the town's early residents were foreign born. In 1888, responding to a strike, the Northern Pacific Coal Company recruited more than 300 African-American miners from Virginia, North Carolina and Kentucky and brought them, with their families, to work in the mines. At one time, 24 ethnic groups and nationalities were living in Roslyn. Today, many of the original families continue to make Roslyn their home.

- **Climate**—The climate of Roslyn is a mountainous climate that can be quite variable. Summers are generally warm and sunny; the months of July, August and September are usually characteristic of this season. The average temperatures in the high 70s to the mid-80s with a highest recorded temperature of 105°F in 1967. There is little to no rainfall during these months, and the danger of wildfire is extremely high. Winter is typically at its peak

from November through February and typically has temperatures ranging from the mid-teens to mid-30; the lowest recorded temperature was -33°F in 1950. Most of the precipitation falls during these months in the form of snow with heavy accumulations. Average snowfall for the City of Roslyn is 78.5 inches per year. This is also the period when Roslyn experiences flooding events, when there is a rain-on-snow event. This occurs when warm moist air from the Pacific is channeled into the area, often leading to extended periods of rain.

- **Governing Body Format**—Roslyn is governed by an elected mayor/council form of government with seven council seats. The City is run through the administrative office. Current departments include Administrative/Finance, Planning, Public Works, and Volunteer Fire Department. The Police Department is a part of a regional partnership between Roslyn, Cle Elum, and the Town of South Cle Elum.

The City operates a water system managed through the Public Works Department. The City provides water to the City of Roslyn, Kittitas Water District #2 (Ronald), the Roslyn/Cle Elum School District, and other homes and businesses south of the City. The water source is Domerie Creek, located approximately 5-½ miles from Roslyn on the east side of the Cle Elum River. Water is gravity fed from the source to a slow sand filtration treatment plant located outside of Ronald, where it continues to a 1 million gallon reservoir above the Roslyn historic cemeteries.

Sanitary services are provided by the City of Roslyn in its transmission facilities and a Regional Wastewater Treatment plant located in and owned by the City of Cle Elum. The Kittitas Water District #2 (Ronald) is connected to the transmission system at Runje Field. Sewage flows via gravity toward Roslyn’s old sewage lagoons where flow data is captured as it continues towards Cle Elum. One 5-acre lagoon is maintained as a stormwater attenuation facility during times of heavy rain and flood events.

Fire service is provided by the Roslyn Fire Department, which has a 100-percent volunteer staff and one fire station.

- **Development Trends**—There are significant impacts due to increase development pressures outside of the city limits. Little to no regulation of grade and fill through the county and increased impervious surfaces have created increased stormwater runoff that causes the City’s stormwater system to flood on a regular basis. The City of Roslyn is currently working with engineers to complete a stormwater study and create a stormwater utility to help and protect public and private property from such incidences.

5.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 5-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 0
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

5.4. HAZARD RISK RANKING

Table 5-2 presents the ranking of the hazards of concern.

5.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 5-3. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 5-4. The

assessment of the jurisdiction's fiscal capabilities is presented in Table 5-5. Classifications under various community mitigation programs are presented in Table 5-6.

5.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 5-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 5-8 identifies the priority for each initiative. Table 5-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

5.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A stormwater study is in the process of being produced by Grey and Osborne.

5.8. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the City of Roslyn are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

**TABLE 5-1.
NATURAL HAZARD EVENTS**

Type of Event	Date	Preliminary Damage Assessment
Flooding	3/31/2011	N/A
Flooding	1/17/2011	N/A
Flooding	1/9/2009	\$51,446.96
Winter Weather	12/2008	\$5,113.04
Winter Weather	12/15/2006	\$150,000 ^a
Drought	5/2005	N/A
Winter Weather	1/17/2005	\$333 ^a
Drought	5/2004	N/A
Drought	7/2001	N/A
Earthquake	2/28/2001	N/A
Winter Weather	1/14/1998	N/A
Winter Weather/Flooding	12/27/1996	N/A
Winter Weather	1/6/1996	\$5,333 ^a
Flooding	02/1995	N/A
Flooding	11/1995	N/A
Winter Weather	2/18/1993	\$2,381 ^a
Winter Weather	12/8/1992	\$714 ^a
Winter Weather	12/29/1990	\$1,282 ^a
Flooding	11/25/1990	N/A
Winter Weather	2/1/1989	\$128,205 ^a
Winter Weather	12/2/1985	N/A
Winter Weather	1/2/1974	\$5,000 ^a
Winter Weather	1/24/1972	\$25,642 ^a
Winter Weather	12/30/1968	N/A

a. Loss data taken from SHEL DUS

TABLE 5-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	54
2	Wildfire	54
3	Severe Weather	51
4	Earthquake	30
5	Drought	18
6	Volcano	16
7	Landslide	6
8	Dam Failure	1
9	Avalanche	0
10	Seiche	0

TABLE 5-3. LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	N	N	Y	RMC, IBC/IRC 2009
Zoning Code	Y	N	N	Y	Title 18 RMC, WA GMA 2007
Subdivisions	Y	N	N	Y	Title 17 & 18 RMC
Post Disaster Recovery	Y	N	Y	Y	Eastern Washington Stormwater Management Plan
Real Estate Disclosure	N	N	Y	Y	RCW 64.06.020
Growth Management	Y	N	N	Y	RCW 36.70A
Site Plan Review	Y	N	Y	Y	WA GMA 2007
Special Purpose (flood management, critical areas)	Y	N	N	N	Title 18 RMC
Planning Documents					
General Plan	Y	N	N	Y	2007 (updated)
Floodplain or Basin Plan	Y	N	Y	Y	RMC Title 15.15
Stormwater Plan	N	N	N	Y	Eastern Washington Stormwater Management Plan
Capital Improvement Plan	Y	N	N	Y	Water and Sewer Comp. Plans
Habitat Conservation Plan	Y	N	Y	Y	Roslyn Urban Forest Land Stewardship Plan
Economic Development Plan	Y	N	N	Y	Roslyn's Comprehensive Plan
Emergency Response Plan	N	N	N	N	
Shoreline Management Plan	N	N	N	Y	
Post Disaster Recovery Plan	N	N	N	N	

**TABLE 5-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Planning Dept./City of Roslyn/Planner, Dohrn and Associates (Planning), Grey and Osborne (Engineer)
Engineers or professionals trained in building or infrastructure construction practices	Y	Grey and Osborne (Engineer), the Building Department Inc. (Building Inspectors)
Planners or engineers with an understanding of natural hazards	Y	Grey and Osborne (Engineer), Dohrn and Associates (Planning)
Staff with training in benefit/cost analysis	Y	
Floodplain manager	N	
Surveyors	Y	Grey and Osborne (Engineer)
Personnel skilled or trained in GIS applications	Y	Grey and Osborne (Engineer)
Scientist familiar with natural hazards in local area	Y	Grey and Osborne (Engineer)
Emergency manager	N	
Grant writers	Y	Staff and Contracted

**TABLE 5-5.
FISCAL CAPABILITY**

Financial Resources	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
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	Can, but don't
State Sponsored Grant Programs	Y
Development Impact Fees for Homebuyers or Developers	Y
Other	

	Participating?	Classification	Date Classified
Community Rating System	No	—	—
Building Code Effectiveness Grading Schedule	Yes	3/3	—
Public Protection	Yes	6/9	—
Storm Ready	No	—	—
Firewise	Yes	Mod/High	2001/2011

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #R-1 —Utilize and enhance existing programs to raise public awareness about natural hazards, the risk they pose and ways to reduce those risks.						
New and Existing	All Hazards	1,2,3,4, 5, 6, & 9	City	Low	General Revenue	Short-term, Ongoing
Initiative #R-2 —Maintain political support for hazard mitigation and response planning and programs by annually monitoring the progress of initiatives identified in this plan.						
New and Existing	All Hazards	1, 2, 3, 4, 5, & 9	City	Low	General revenue	Short-term, Ongoing
Initiative #R-3 —Leverage mitigation opportunities by establishing and maintaining partnerships between public and private sectors						
Existing	All Hazards	1, 5, & 9	City	Low	General Revenue	Ongoing
Initiative #R-4 —Set the course for sustained operations of critical city functions by the development of a continuity of operations plan and/or a post-disaster recovery plan.						
New and existing	All Hazards	1,6,9	City	Medium	General fund, DHS grant funding	Long-term, depends on funding
Initiative # R-5 —Replace vulnerable bridge crossings with restrained piping where feasible and cost-effective.						
Existing	Flood, Dam Failure, Earthquake	1, 7	City	\$367,744, High	Grants, Loans, Enterprise & Surplus Funds	Short-term, Ongoing
Initiative #R-6 —Replace transmission main (to bridge)						
Existing	Earthquake	1, 7	City	\$2,000,000 , High	Grants, Loans, Enterprise & Surplus Funds	Short-term
Initiative #R-7 —Replace transmission main (bridge to Tx plant)						
Existing	Earthquake	1, 7	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-term, depends on funding

**TABLE 5-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #R-8—Replace transmission main (Tx plant to reservoir)						
Existing	Earthquake	1, 7	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-term, depends on funding
Initiative #R-9—Replace pinch point (storm system) at Penn Place Apartments						
New and Existing	Flooding	1, 7, 8	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-Term, depends on funding
Initiative #R-10—Replace V-ditch catch basins with Type 40 catch basins						
New and Existing	Flooding	1, 7, 8, 10	City	\$350/ Catch basin, Medium	Grants, Loans, Enterprise & Surplus Funds	Short-term, Ongoing
Initiative #R-11—Replace trunk lines and add access points for stormwater transmission system						
New and Existing	Flooding	1, 7, 8	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-Term, depends on funding
Initiative #R-12—Construct adequate intake structures at inlets to stormwater system						
New and Existing	Flooding	1, 7, 8, 9, 10	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-term, depends on funding
Initiative #R-13—Create channel roughness and other water-retaining systems in the Roslyn Urban Forest						
New and Existing	Flooding	1, 9, 10	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-Term, depends on funding
Initiative #R-14—Provide adequate drainage for road beds and trails in the Roslyn Urban Forest						
New and Existing	Flooding, Severe weather	1, 9, 10	City	High	Grants, Loans, Enterprise & Surplus Funds	Long-term, depends on funding
Initiative #R-15—Maintain shaded fuel break at forested perimeter						
New and Existing	Wildfire	1, 2, 4, 10	City	\$300/acre, Low	Grants & General Revenue	Short-term, Ongoing
Initiative #R-16—Implement Land Stewardship Plan and dry site management techniques to increase forest health and Firewise entire forest						
New and Existing	Wildfire	1, 2, 10	City	High	Grants & General Revenue	Long-term, depends on funding

**TABLE 5-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #R-17—Purchase water tender for fire department						
New and Existing	Wildfire	1, 6, 9	City/RFD	High	AFG Grants & General Revenue	Long-term, depends on funding
Initiative #R-18—Provide wildland fire training for fire department						
New and Existing	Wildfire	1,6,9	City/RFD	Low	AFG Grants & General Revenue	Short-term, Ongoing
Initiative #R-19—Maintain road beds in the Roslyn Urban Forest for emergency traffic						
New and existing	Wildfire	1, 9, 10	City	Medium	AFG Grants & General Revenue	Short-term, depends on funding
Initiative #R-20—Retrofit buildings for earthquake protection						
Existing	Earthquake	1, 2, 4, 7, 8	City	High	Grants	Long-term, depends on funding
Initiative #R-21—Purchase land for stormwater retention (Duck Town)						
New and Existing	Flooding, Severe Weather	1, 4, 7, 8, 10	City	High	Grants, Stormwater Funds	Long-term, depends on funding
Initiative #R-22—Clear and maintain creeks that capture flows from storm system (Park & Duck Town)						
New and Existing	Flooding	1, 2, 8, 10	City	Medium	Grants, Stormwater Funds	Short-term
Initiative #R-23—Install adequate storm system in Brookside Neighborhood						
New and Existing	Flooding	1, 2, 10	City	High	Grants, Stormwater Funds	Long-term, depends on funding
Initiative #R-24—Install adequate storm system in Downtown core						
New and Existing	Flooding	1, 2, 10	City	High	Grants, Stormwater Funds	Long-term, depends on funding
Initiative #R-25—Install adequate storm system in Park (neighborhoods N)						
New and Existing	Flooding	1, 2, 10	City	High	Grants, Stormwater Funds	Long-term, depends on funding
Initiative #R-26—Install adequate storm system in 5th Street addition neighborhood						
New and existing	Flooding	1, 2, 10	City	High	Grants, Stormwater Funds	Long-term, depends on funding

**TABLE 5-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #R-27—Install adequate storm system in 3rd street neighborhood						
New and Existing	Flooding	1, 2, 10	City	High	Grants, Stormwater Funds	Long-term, depends on funding
Initiative #R-28—Manage potential increased runoff from new development by adopting regulations that require new developments to mitigate their impacts.						
New	Flooding, Severe Weather	1, 2, 3, 4, 7, 9, 10	City/County	Low	General revenue	Short-term
Initiative #R-29—Reduce water system losses						
Existing	Drought	1, 2, 4, 5, 6, 7, 9	City	Medium	Water Fund/Grants	Short-term, Ongoing
Initiative #R-30—Adopt development practices that require new developments to bury utility cables in business zones and major transportation routes						
New and Existing	Severe Weather	1, 2, 4, 8, 9	City	Low	Developer	Short-term
Initiative #R-31—Utilize native planting on City-owned facilities						
Existing	Drought	1, 3, 4, 6, & 7	City	Low	General and Enterprise Funds/Grants	Short-term, Ongoing
Initiative # R-32—Integrate Hazard Mitigation Plan into future updates of the Roslyn Comprehensive Plan.						
New	All Hazards	All	City	Low	General Revenue	Short-term
Initiative #-33—Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New and Existing	All Hazards	All	City	Low	HMGP, General Fund, Road Fund	Short-term, ongoing
Initiative #R-34—Continue to support through active participation the countywide initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	All City Agencies	Low	General Fund	Short-term, Ongoing
Initiative #R-35—Consider participation in the National Weather Service “Storm Ready” program.						
New and Existing	Flood, Severe Weather	6, 7, 9	City	Low	General Fund	Short term

**TABLE 5-8.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
R-1	7	Medium	Low	Yes	Yes	Yes	High
R-2	7	Medium	Low	Yes	Yes	Yes	High
R-3	3	Medium	Low	Yes	No	Yes	High
R-4	1	High	High	Yes	No	Yes	Med
R-4	2	High	Medium	Yes	Yes	Yes	Med
R-6	2	High	High	Yes	Yes	No	Med
R-7	2	High	High	Yes	Yes	No	Low
R-8	2	Medium	High	No	Yes	No	Low
R-9	3	High	High	Yes	Yes	No	Med
R-10	4	High	Medium	Yes	Yes	Yes	High
R-11	3	High	High	Yes	Yes	No	Med
R-12	5	High	High	Yes	Yes	No	Med
R-13	3	High	High	Yes	Yes	No	Med
R-14	4	Medium	Low	Yes	Yes	Yes	Low
R-15	5	High	Medium	Yes	Yes	No	Low
R-16	3	Medium	Medium	Yes	Yes	No	Low
R-17	3	High	Medium	Yes	Yes	No	Med
R-18	3	High	Low	Yes	No	Yes	High
R-19	3	Medium	Medium	Yes	Yes	Yes	Med
R-20	5	Medium	High	No	Yes	No	Low
R-21	5	High	High	Yes	Yes	No	Med
R-22	4	Medium	Medium	Yes	Yes	No	Med
R-23	3	High	High	Yes	Yes	No	Low
R-24	3	High	High	Yes	Yes	No	Low
R-25	3	High	High	Yes	Yes	No	Low
R-26	3	High	High	Yes	Yes	No	Low
R-27	3	High	High	Yes	Yes	No	Low
R-28	7	High	High	Yes	Yes	Yes	Medium
R-29	7	Medium	Low	Yes	Yes	Yes	Medium
R-30	5	Medium	Medium	Yes	No	Yes	Medium
R-31	5	Medium	Low	Yes	No	Yes	Medium
R-32	10	High	Low	Yes	No	Yes	High
R-33	10	Medium	Low	Yes	Yes	Yes	High
R-34	3	Medium	Low	Yes	Yes	Yes	High
R-35	3	High	Low	Yes	Yes	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 5-9.
ANALYSIS OF MITIGATION INITIATIVES**

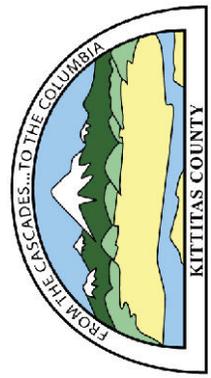
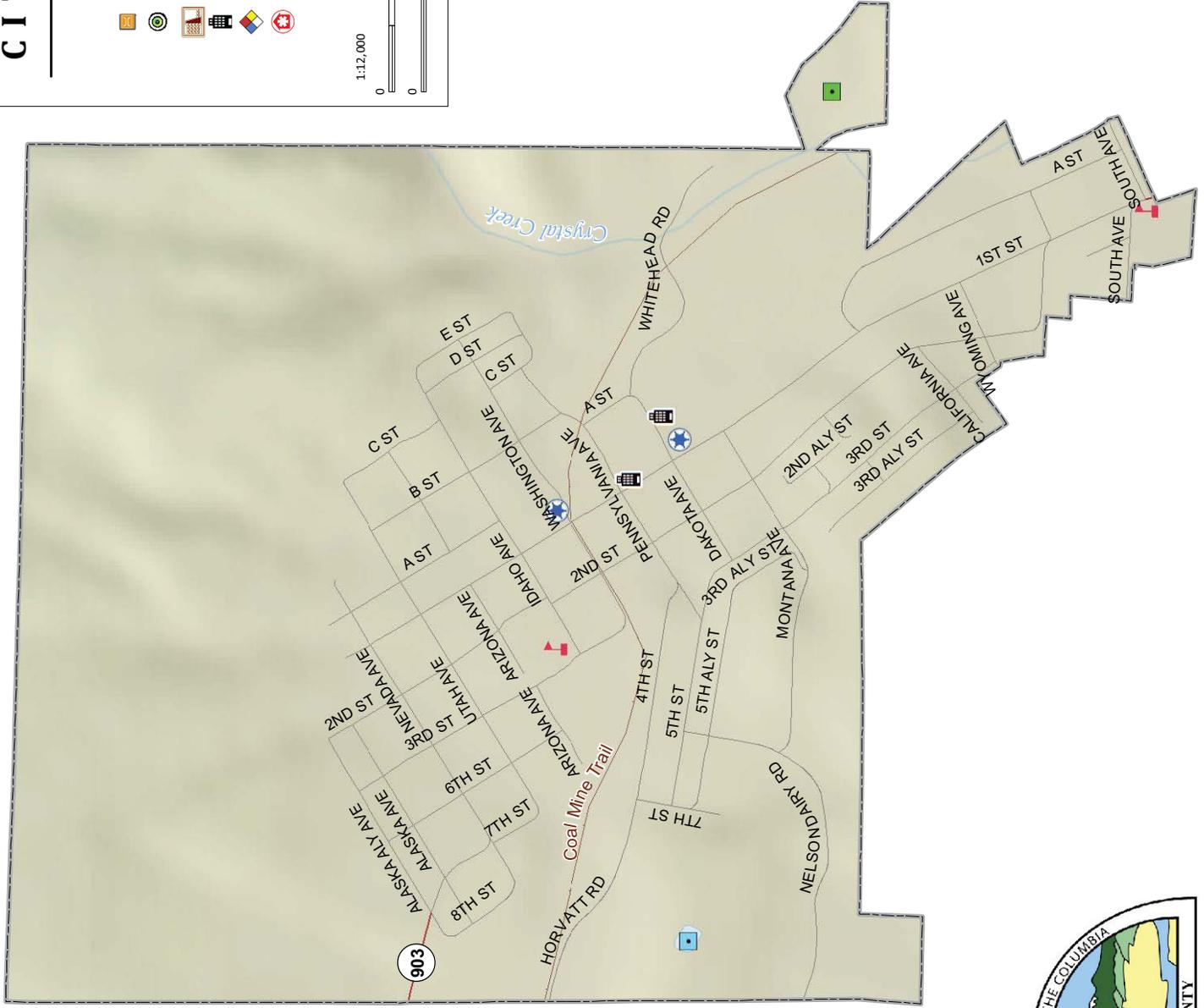
Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	—	—	—	—	—	—
Dam Failure	1, 2, 3, 4, 32, 33	1, 2, 3, 4, 5	1, 2, 3, 33, 34	1, 2, 3, 32	1, 2, 3, 34	1, 2
Drought	1, 2, 3, 4, 29, 31, 32, 33	1, 2	1, 2, 29, 31, 33, 34	1, 2, 29, 31, 32	1, 2, 3, 34	1, 2 6
Earthquake	1, 2, 3, 4, 5, 6, 7, 8, 20, 32, 33	1, 2, 3, 4, 20	1, 2, 3, 33, 34	1, 2, 3, 32	1, 2, 3, 34	1, 2, 5, 6, 7, 8, 20
Flood	1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 21, 22, 23, 24, 25, 26, 27, 28, 32, 33	1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 21, 22, 23, 24, 25, 26, 27, 28	1, 2, 3, 33, 34, 35	1, 2, 3, 28, 32	1, 2, 3, 34, 35	1, 2, 9, 10, 11, 12, 13, 23, 24, 25, 26, 27
Landslide	32, 33		33, 34	32	34	
Severe Weather	1, 2, 3, 4, 32, 33	1, 2, 3, 4, 30	1, 2, 3, 33, 34, 35	1, 2, 3, 32	1, 2, 3, 34, 35	1, 2, 30
Seiche	—	—	—	—	—	—
Volcano	1, 2, 3, 4, 32, 33	1, 2, 3, 4	1, 2, 3, 33, 34	1, 2, 3, 32	1, 2, 3, 34	1, 2
Wildfire	1, 2, 3, 4, 15, 16, 19, 32, 33	1, 2, 3, 15, 16, 17, 18, 19	1, 2, 3, 33, 34	1, 2, 3, 15, 16, 17, 18, 19, 32	1, 2, 3, 17, 18, 34	1, 2

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CITY OF ROSLYN

Critical Facilities

- | | | | | | |
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CITY OF ROSLYN

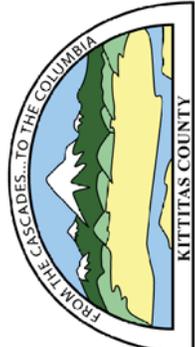
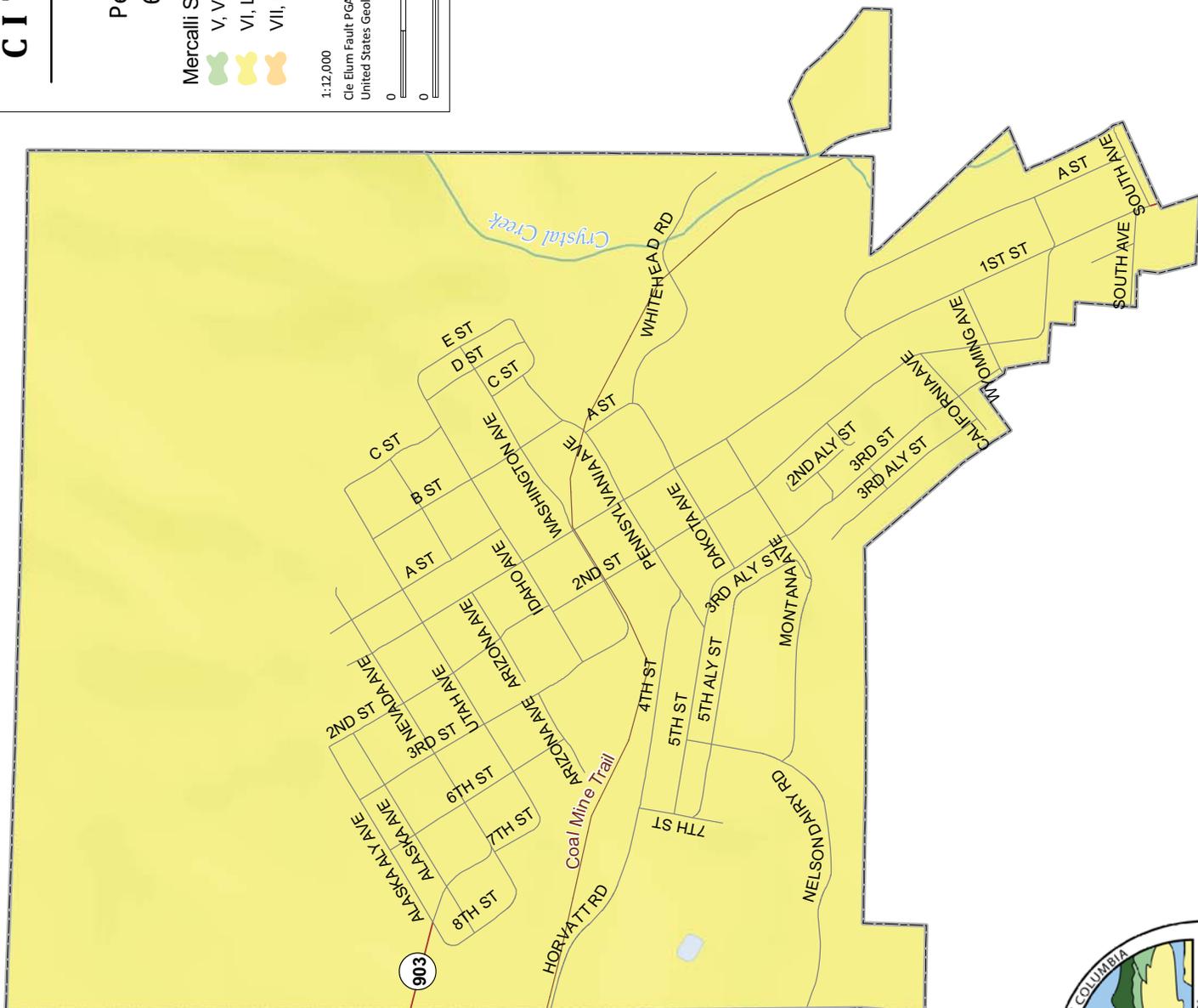
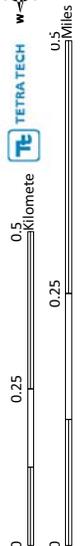
Cle Elum Fault
 Peak Ground Acceleration
 6.8 Magnitude Scenario

Mercalli Scale, Potential Damage

	V, Very Light		VIII, Moderate-Heavy
	VI, Light		IX, Heavy
	VII, Moderate		

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Cle Elum Fault PGA Shake Map Data
 United States Geological Survey



CITY OF ROSLYN

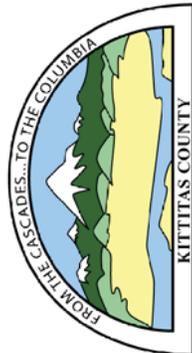
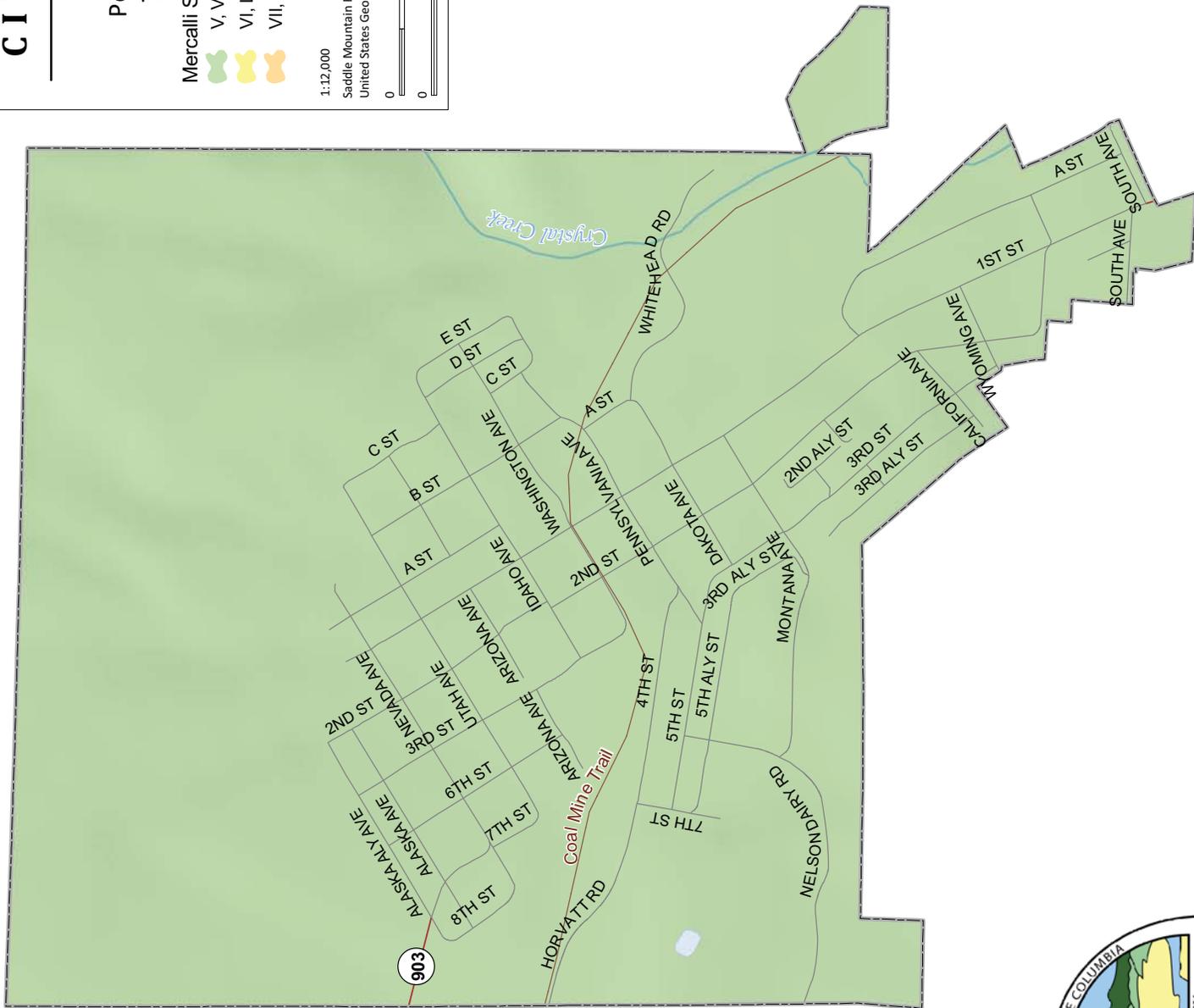
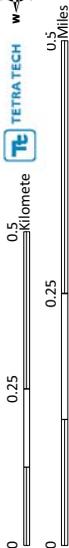
Saddle Mountain Peak Ground Acceleration 7.3 Magnitude Scenario

Mercalli Scale, Potential Damage

-  V, Very Light
-  VI, Light
-  VII, Moderate
-  VIII, Moderate-Heavy
-  IX, Heavy

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Saddle Mountain Fault PGA Shake Map Data
United States Geological Survey



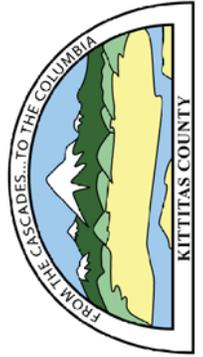
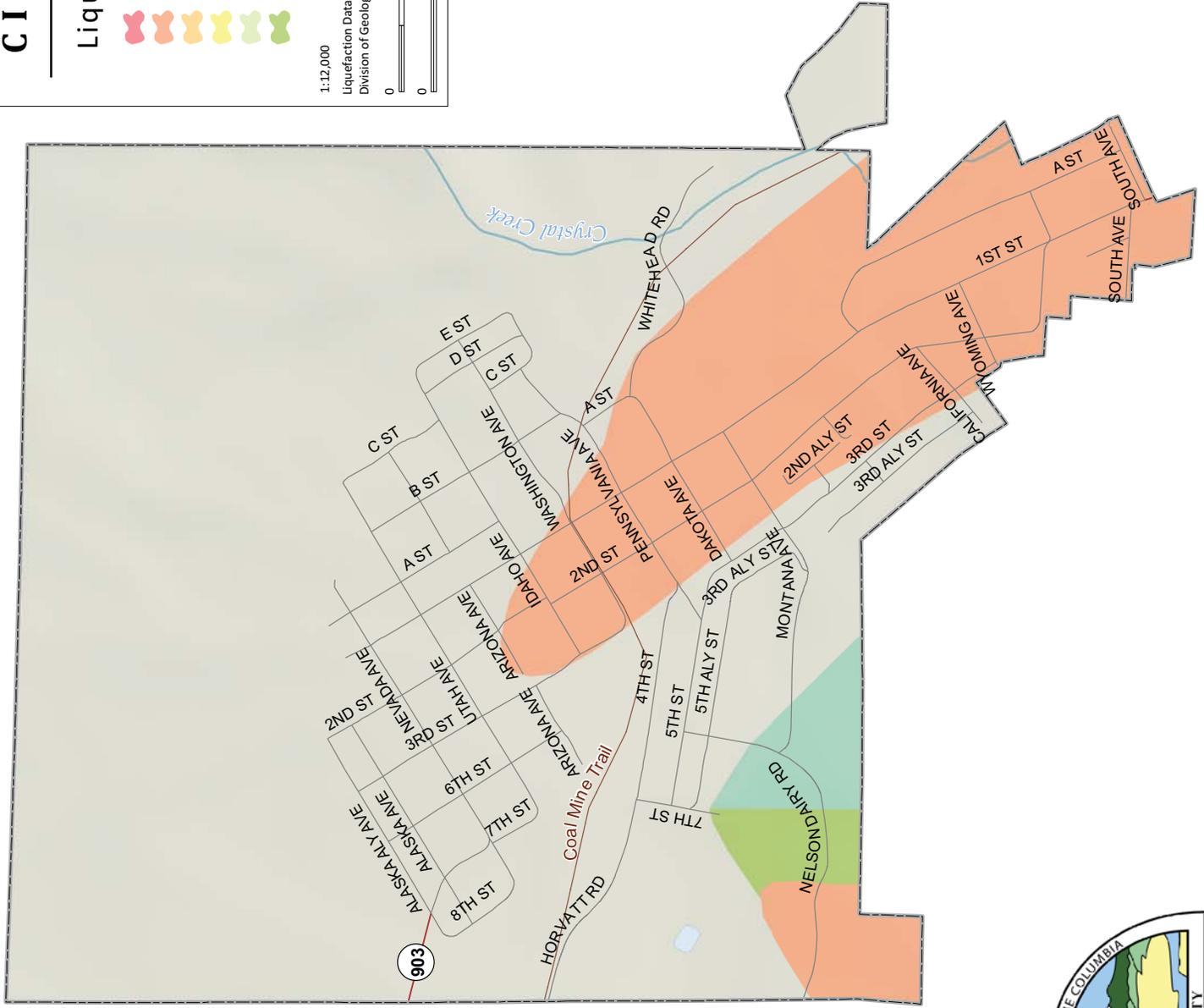
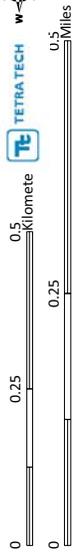
CITY OF ROSLYN

Liquefaction Susceptibility



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Liquefaction Data provided by Washington State Department of Natural Resources,
Division of Geology and Earth Resources



CITY OF ROSLYN

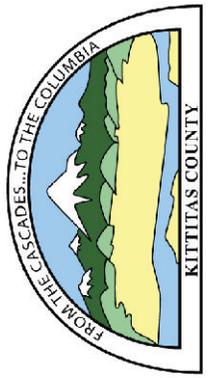
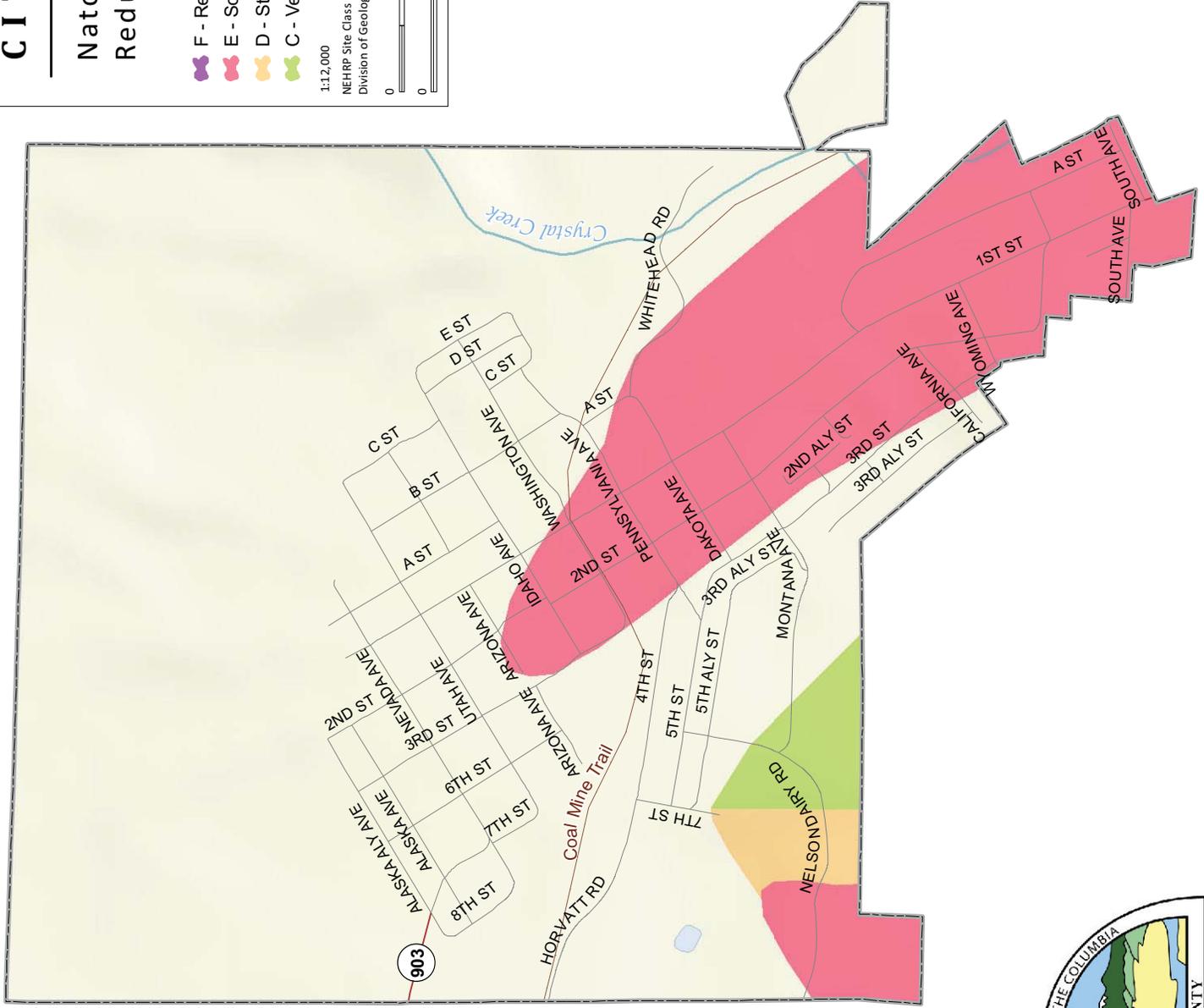
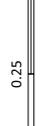
National Earthquake Hazard Reduction Program (NEHRP)

Soil Site Classes

-  F - Requires site-specific investigation
-  E - Soft Soil
-  D - Stiff Soil
-  C - Very Dense Soil and Soft Rock
-  B - Rock
-  Water
-  Ice

1:12,000

NEHRP Site Class Data provided by Washington State Department of Natural Resources, Division of Geology and Earth Resources



CITY OF ROSLYN

FEMA FIRM Flood Hazard Areas

-  1-percent annual chance flood (100 Year)
-  0.2-percent annual chance flood (500 Year)

1:12,000

FEMA FIRM Flood Data provided by Kittitas County

0.5 Kilometre



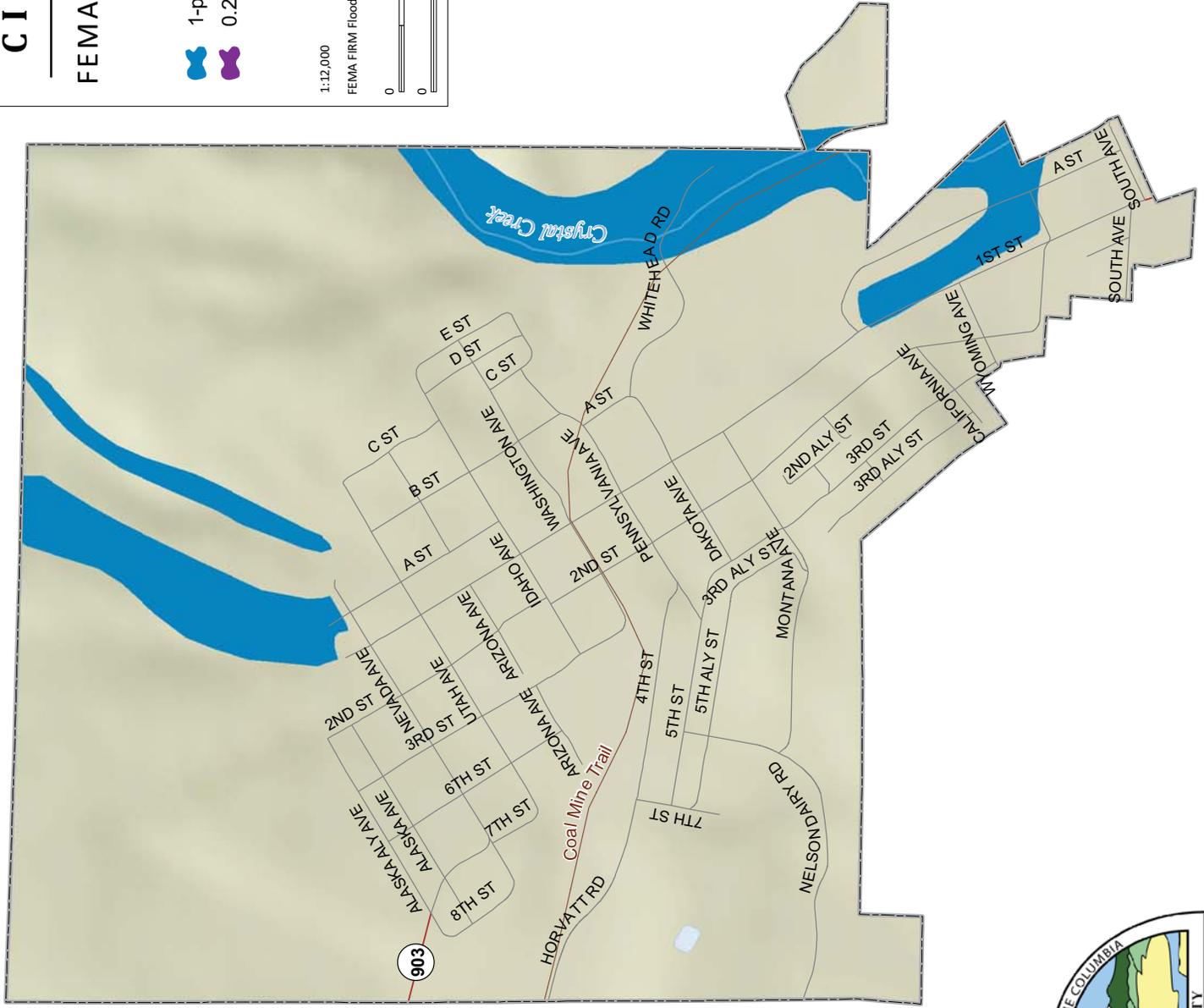
0.5 Miles

0.25

0.25

0

0



CITY OF ROSLYN

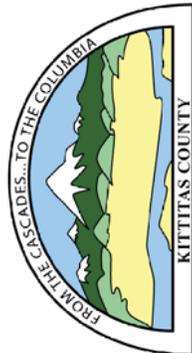
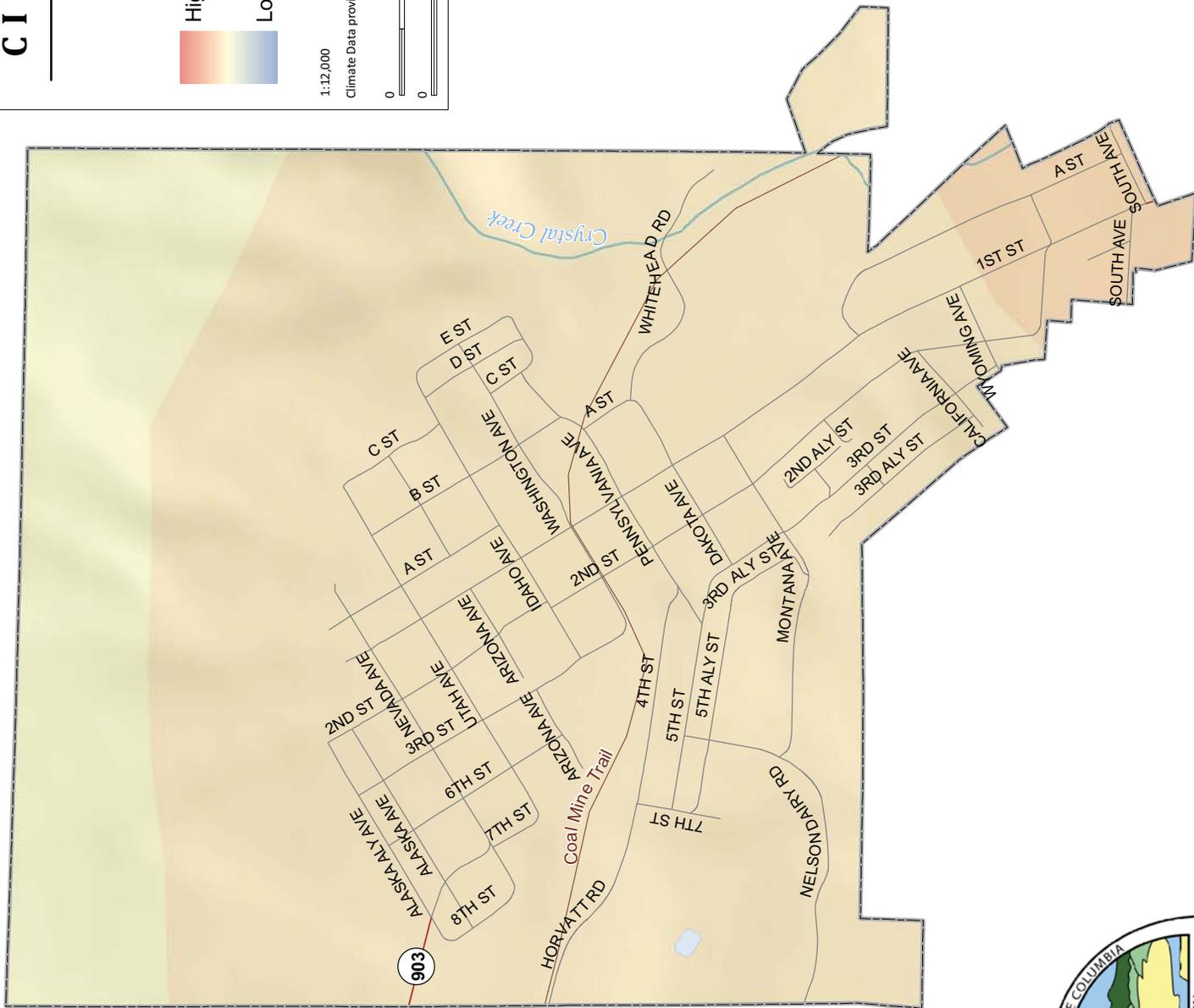
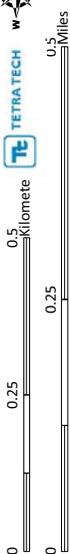
Average Maximum Temperature (F)



Average Maximum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000.
USDA/NRCS

1:12,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



CITY OF ROSLYN

Average Minimum Temperature (F)

Average Annual Minimum Temperature (F)

High : 25

Low : 15

Average Minimum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000.
USDA/NRCS

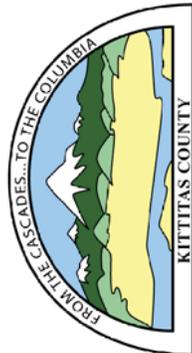
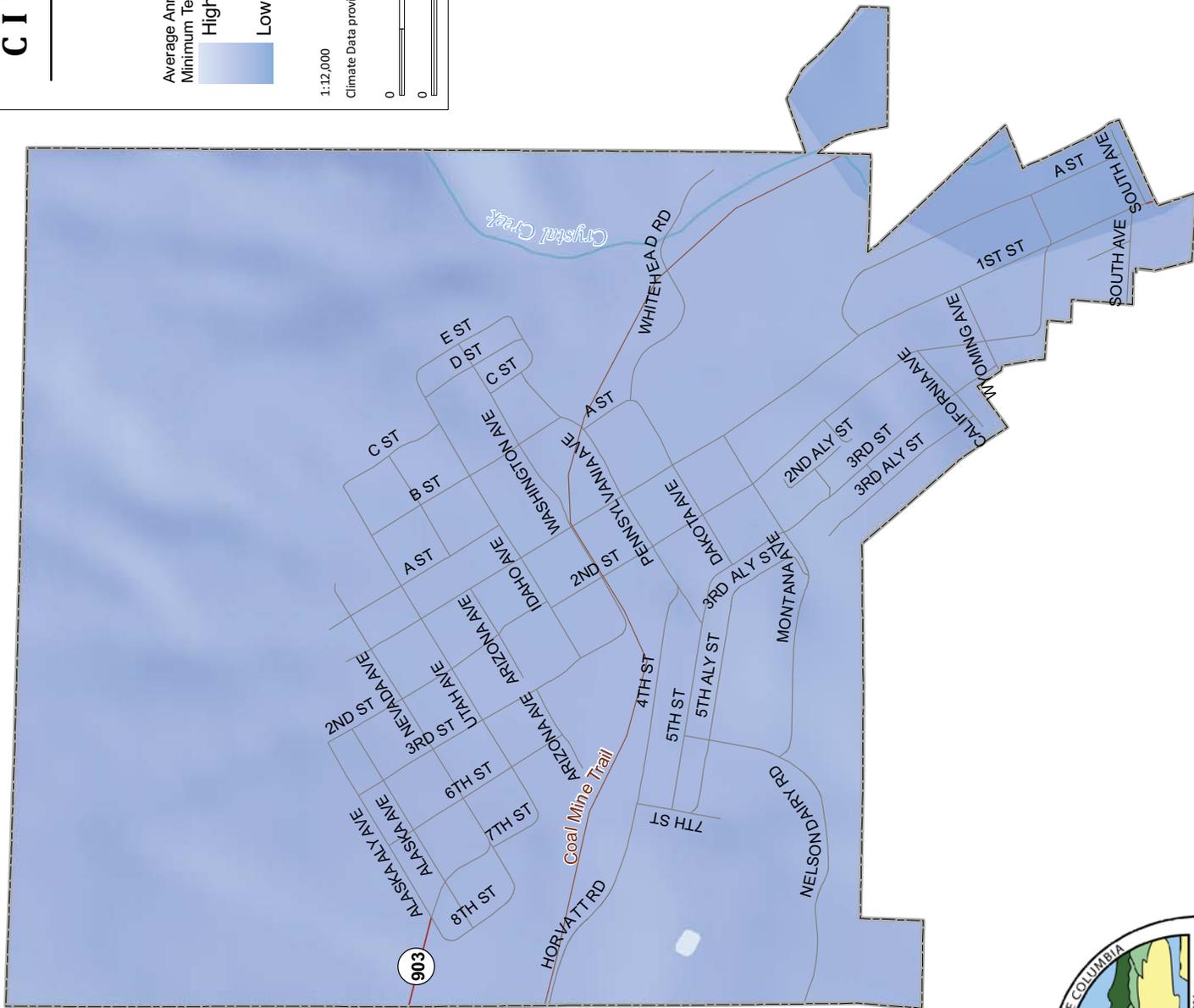
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Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



0 0.25 0.5 Kilometers

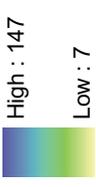
0 0.25 0.5 Miles



CITY OF ROSLYN

Average Annual Precipitation

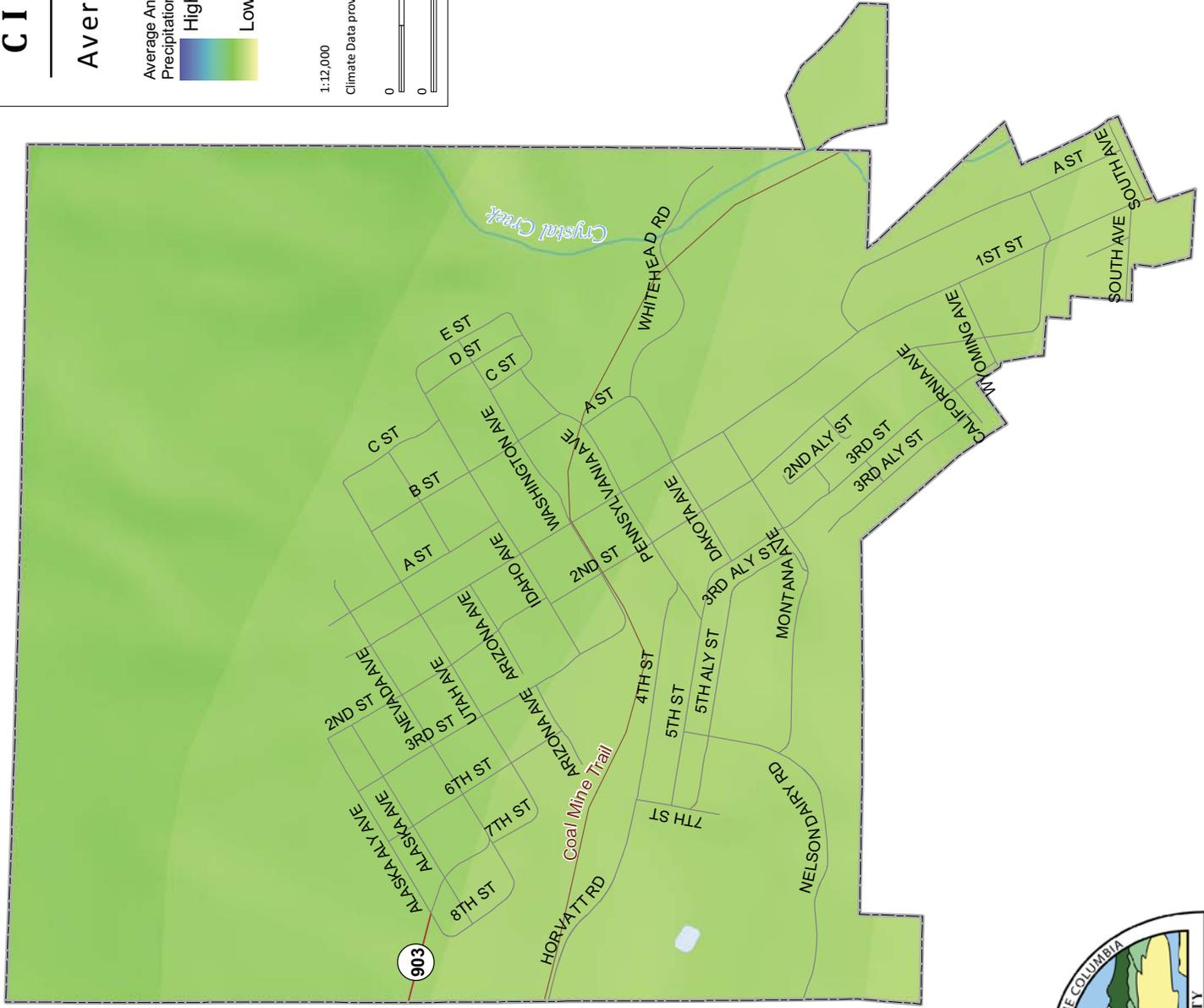
Average Annual Precipitation (inches)



Average annual precipitation is according to a model using point precipitation and elevation data for the 30-year period of 1971-2000.
USDA/NRCS

1:12,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



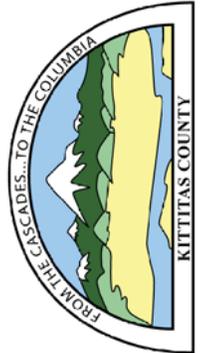
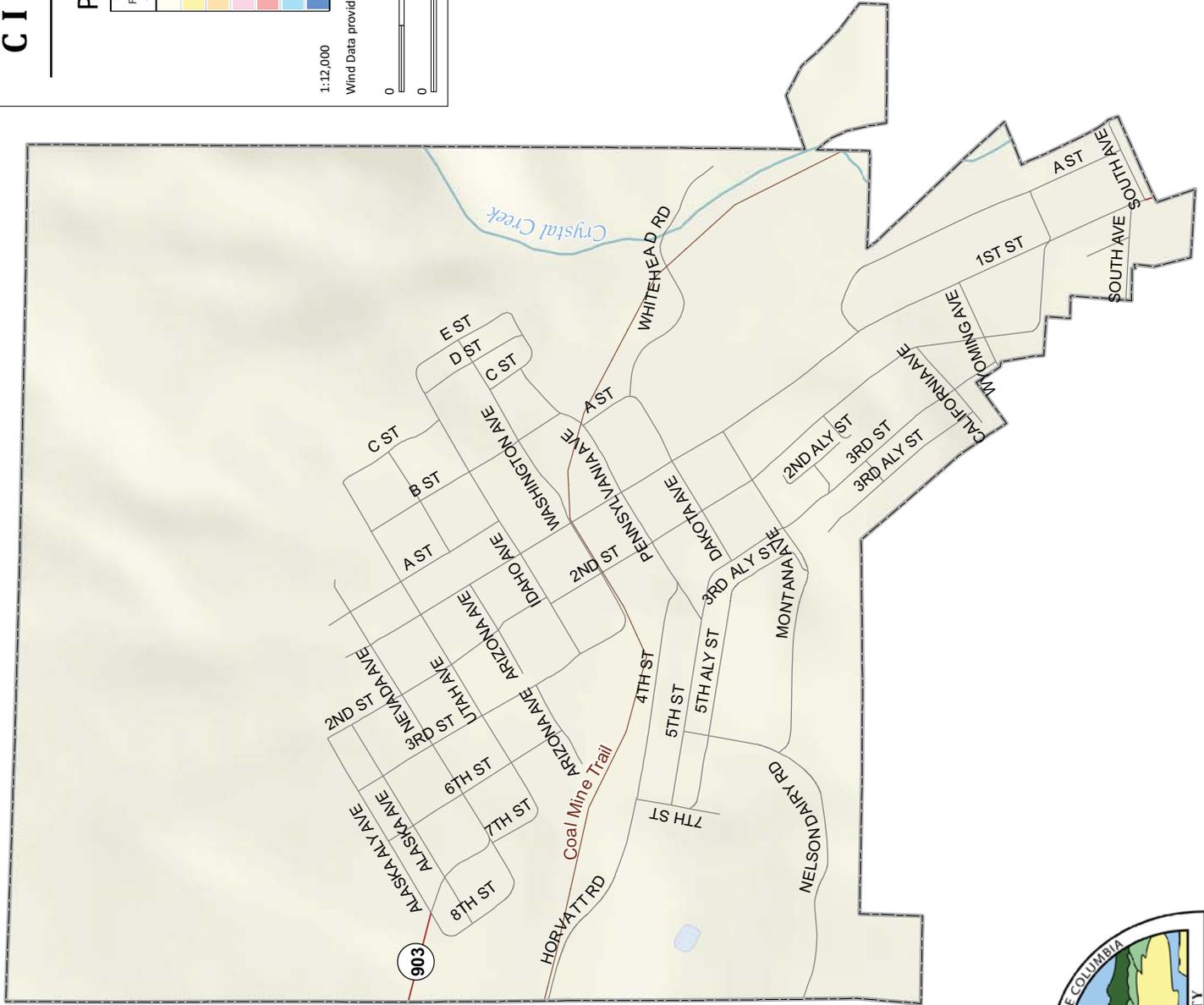
CITY OF ROSLYN

Potential Wind Power

Wind Power Class	Resource Potential	Wind Power Density at 50m W/m ²	Wind Speed at 50m m/s	Wind Speed at 50m mph
1	None	0	0	0
2	Marginal	200-300	5.6-6.4	12.5-14.3
3	Fair	300-400	6.4-7.0	14.3-15.7
4	Good	400-500	7.0-7.5	15.7-16.8
5	Excellent	500-600	7.5-8.0	16.8-17.9
6	Outstanding	600-800	8.0-8.8	17.9-19.7
7	Superb	>800	>8.8	>19.7

1:12,000

Wind Data provided by US Department of Energy and National Renewable Energy Laboratory



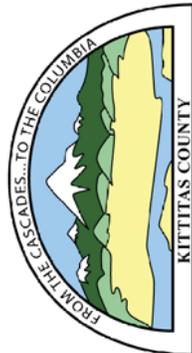
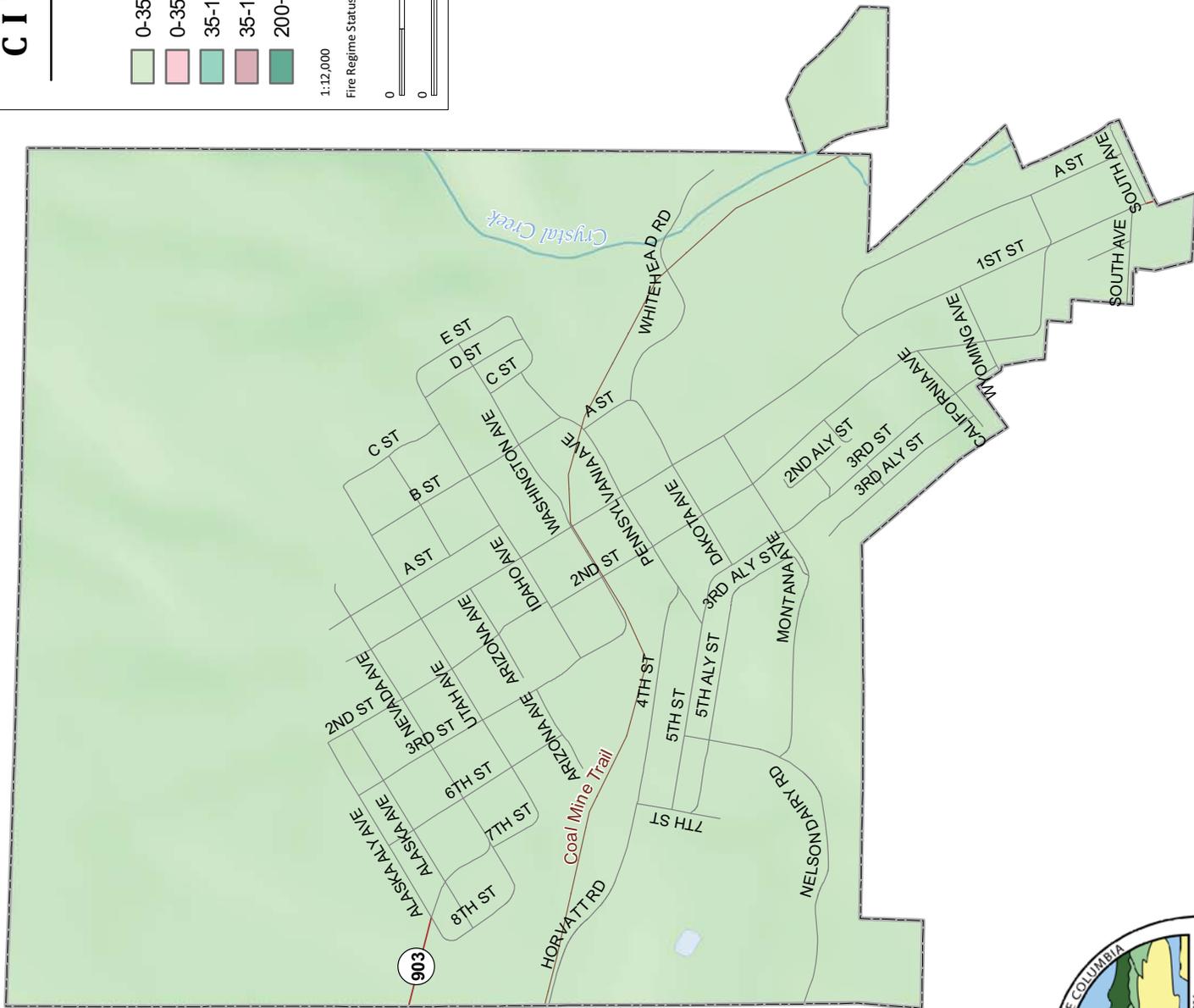
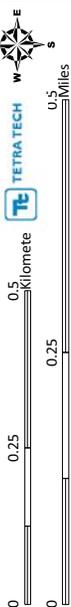
CITY OF ROSLYN

Fire Regime Status

- 0-35 yrs, Low Severity
- 0-35 yrs, Stand Replacement
- 35-100+ yrs, Mixed Severity
- 35-100+ yrs, Stand Replacement
- 200+ yrs, Stand Replacement

1:12,000

Fire Regime Status Data provided by Washington State Department of Natural Resources



CHAPTER 6. TOWN OF SOUTH CLE ELUM

6.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Jim DeVere, Mayor
P.O. Box 160
South Cle Elum, WA 98943
Telephone: (509)674-4322
e-mail Address: sce@inlandnet.com

Alternate Point of Contact

Scott McKenzie, Superintendent
P.O. Box 160
South Cle Elum, WA 98943
Telephone: (509) 674-4322
e-mail Address: sce@inlandnet.com

6.2. JURISDICTION PROFILE

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

- **Date of Incorporation**—August 20, 1911
- **Current Population**—575 as of 2011
- **Population Growth**—The population in South Cle Elum increased 21 percent between 2000 and 2010, averaging 2.32 percent per year. Future population growth is limited by remaining available water connections.
- **Location and Description**—South Cle Elum is bordered on the north by the Yakima River and the City of Cle Elum. Interstate 90 is also to the north. Unincorporated Kittitas County surrounds the Town to the east, south and west. Mt. Peoh is to the south, Lookout Mountain is to the east, Mt. Stuart is to the north and the Cascades are to the west. The Iron Horse State Park and the John Wayne Trail run along the Town’s southern border.
- **Brief History**—The Town of Cle Elum was initially developed to serve the Milwaukee Railroad. In mid-1909, the Chicago, Milwaukee & Puget Sound Railway chose Cle Elum as a division point between the Coast and Columbia divisions on its future transcontinental line—first as a water, fuel and crew change location, and later as a full service repair shop, complete with roundhouse. After electrification, a substation was added. The population during this time was split between railroaders, coal miners and loggers. When the Milwaukee Railroad went into receivership in the late 1970s, the State of Washington converted the right-of-way into a state park.
- **Climate**—Being between the Cascade Mountains and the plains of central Washington, the Town of South Cle Elum enjoys four distinct seasons. The seasons are tempered the Town’s elevation at close to 2,000 feet above sea level. Summers are usually dry and warm to hot, with high temperatures between 80°F and 100°F and mostly westerly breezes that make the weather seem somewhat cooler. Cooler temperatures and changing foliage mark the change toward winter weather, which generally arrives between Thanksgiving and Christmas. Winter can bring temperatures from +20°F to –20°F. Colder temperatures usually come in January. In the spring, the snow melts and temperatures warm again.
- **Governing Body Format**—The town of South Cle Elum is governed by a five-member council and a mayor. This governing body is elected to four-year terms. This body will assume responsibility for adoption, implementation and maintenance of this plan.

- **Development Trends**—Development in South Cle Elum trends towards residential uses at this time and into the foreseeable future. The Town does have space for some light industry and commercial development, but selectively so. Urban growth boundaries are going to be static except to the east, where the city hopes to expand in the future.

6.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 6-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 1
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

6.4. HAZARD RISK RANKING

Table 6-2 presents the ranking of the hazards of concern.

6.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 6-3. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 6-4. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 6-5. Classifications under various community mitigation programs are presented in Table 6-6.

6.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 6-7 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 6-8 identifies the priority for each initiative. Table 6-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 6-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flood Event	FEMA 1817 DR	2009	61,688.00
Earthquake		02-28-2001	N/A
Earthquake		05-03-1996	N/A
Earthquake		01-29-1995	N/A
Earthquake		02-14-1981	N/A
Earthquake		04-29-1965	N/A

TABLE 6-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	27
2	Wildfire	27
3	Earthquake	24
4	Dam Failure	18
5	Severe Weather	18
6	Landslide	10
7	Volcano	6
8	Drought	5
9	Avalanche	1

**TABLE 6-3.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	Yes	No	Yes	Title 15 SCEMC adopts the 2009 IBC, 7/27/2010
Zonings	Yes	No	No	No	Title 17, SCEMC, 2001
Subdivisions	Yes	No	No	No	Title 16, SCEMC, 2005
Stormwater Management	No	No	No	No	
Post Disaster Recovery	No	No	Yes	Yes	RCW 64.06.020
Real Estate Disclosure	Yes	No	No	Yes	RCW 36.70A
Growth Management	Yes	No	No	Yes	Title 15 SCEMC, 2010
Site Plan Review	Yes	No	No	No	Flood damage Prevention: Title 15, Chapter 15.24; 2002 Critical Areas: Title 18, SCEMC, 2010
Special Purpose (flood management, critical areas)	Yes	Yes	No	Yes	Title 15 SCEMC adopts the 2009 IBC, 7/27/2010
Planning Documents					
General or Comprehensive Plan	Yes	No	No	Yes	
Floodplain or Basin Plan	Yes	No	No	No	Kittitas County Comprehensive Floodplain Management Plan, 1996
Stormwater Plan	Yes	No	No	No	
Capital Improvement Plan	Yes	No	No	No	5-year CIP, updated annually for streets, water, sewer and drainage
Habitat Conservation Plan	No	No	No	No	
Economic Development Plan	Yes	No	No	No	Economic Development Group of Kittitas County & Chamber
Emergency Response Plan	No	No	No	No	
Shoreline Management Plan	Yes	Yes	No	No	
Post Disaster Recovery Plan	No	No	No	No	
Other					
Other					

**TABLE 6-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

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

**TABLE 6-5.
FISCAL CAPABILITY**

Financial Resources	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
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	No

**TABLE 6-6.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Community Rating System	No	--	--
Building Code Effectiveness Grading Schedule	Yes	3/3	--
Public Protection	No	6/9	--
Storm Ready	No	--	--
Firewise	No	--	--

**TABLE 6-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative SCE #1—Retrofit sewer mains in floodplain.						
Existing	Flood, Earthquake	1,2,3,4,5	Town	High, \$500,000	General Fund, Capital improvements project funding, FEMA Hazard Mitigation Grants	Long-term, depends on funding
Initiative SCE #2—Retrofit water mains within the floodplain.						
New and Existing	Flood, EQ	1,2,3,4,5	Town	High \$750,000	General Fund, Capital improvements project funding, FEMA Hazard Mitigation Grants, CDBG	Long-term, depends on funding
Initiative SCE #3—Maintain and retrofit existing localized flood control structures.						
Existing	Flood	1,2,3,4,5	Town	Low \$24,000	General Fund	Short-term Ongoing
Initiative SCE #4—Retrofit all critical infrastructure to enhance resilience to all hazards.						
Existing	All Hazards	1,2,3,4,5	Town	High	General Fund, Capital improvements project funding, FEMA Hazard Mitigation Grants	Long-term, depends on funding
Initiative SCE #5—Adopt appropriate regulatory standards that will reduce the risk of natural hazards through updates to existing code affecting critical areas regulations, flood hazard regulations, shoreline regulations, and updates to the county’s comprehensive plan.						
New	All Hazards	1, 3, 4, 9, 10	Town	Low	General Fund	Short-Term
Initiative SCE #6—Continue to maintain compliance and good standing under the National Flood Insurance Program.						
New and Existing	Flood	1, 2, 3, 4, 6, 8, 10	Town	Low	General Fund	Short-term, ongoing
Initiative SCE #7—Consider participation in the National Weather Service “Storm Ready” program.						
New and Existing	Flood, Severe Weather	6, 7, 9	Town	Low	General Fund	Short term
Initiative SCE #8—Participate in Firewise and do a study on wildfire prevention and policies.						
New and existing	Wildfire	1,3,6,7,9	Town	Low	General Fund	Short-term

**TABLE 6-7.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative SCE #9 —Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	1,2,8,10	Town	High	HMGP funding, Local contribution	Long-Term depends on funding
Initiative SCE #10 —Set the course for sustained operations of critical Town functions by the development of a continuity of operations plan and/or a post-disaster recovery plan.						
New and existing	All Hazards	1,6,9	Emergency Management Staff	Medium	General fund, DHS grant funding	Long-term
Initiative SCE #11 —Educate the public on natural hazards, the risks they pose and way to reduce those risk through existing public information programs with the City.						
New and Existing	All Hazards	6, 7, 9	Town	Low	General Fund	Short-term Ongoing
Initiative SCE #12 —Continue to support implementation, monitoring, maintenance and updating of this plan.						
New and Existing	All Hazards	All	Town	Low	HMGP, General Fund, Road Fund	Short-term, ongoing
Initiative SCE #13 —Continue to support through active participation the countywide initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	Town	Low	General Fund	Short-term Ongoing

**TABLE 6-8.
MITIGATION STRATEGY PRIORITY SCHEDULE**

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

a. Explanation of priorities

- High Priority: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
- Medium Priority: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
- Low Priority: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

**TABLE 6-9.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	5, 12, 13	4,9	11, 12, 13	--	10, 13	--
Dam failure	5, 12, 13	4, 9	11, 12, 13	--	10, 13	--
Drought	5, 12, 13	4, 9	11, 12, 13	--	10, 13	--
Earthquake	5, 12, 13	1,2, 4, 9	11, 12, 13	--	10, 13	--
Flood	5, 6, 12, 13	1,2,3, 4, 6, 9	6, 11, 12, 13	--	6, 7, 10, 13	--
Landslide	5, 12, 13	4, 9	11, 12, 13	--	10, 13	--
Severe Weather	5, 12, 13	4, 9	11, 12, 13	--	7, 10, 13	--
Volcano	5, 12, 13	4, 9	11, 12, 13	--	10, 13	--
Wildfire	5, 8, 12, 13	4, 8, 9	8, 11, 12, 13	8	8, 10, 13	--

Notes:

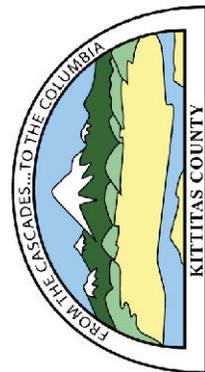
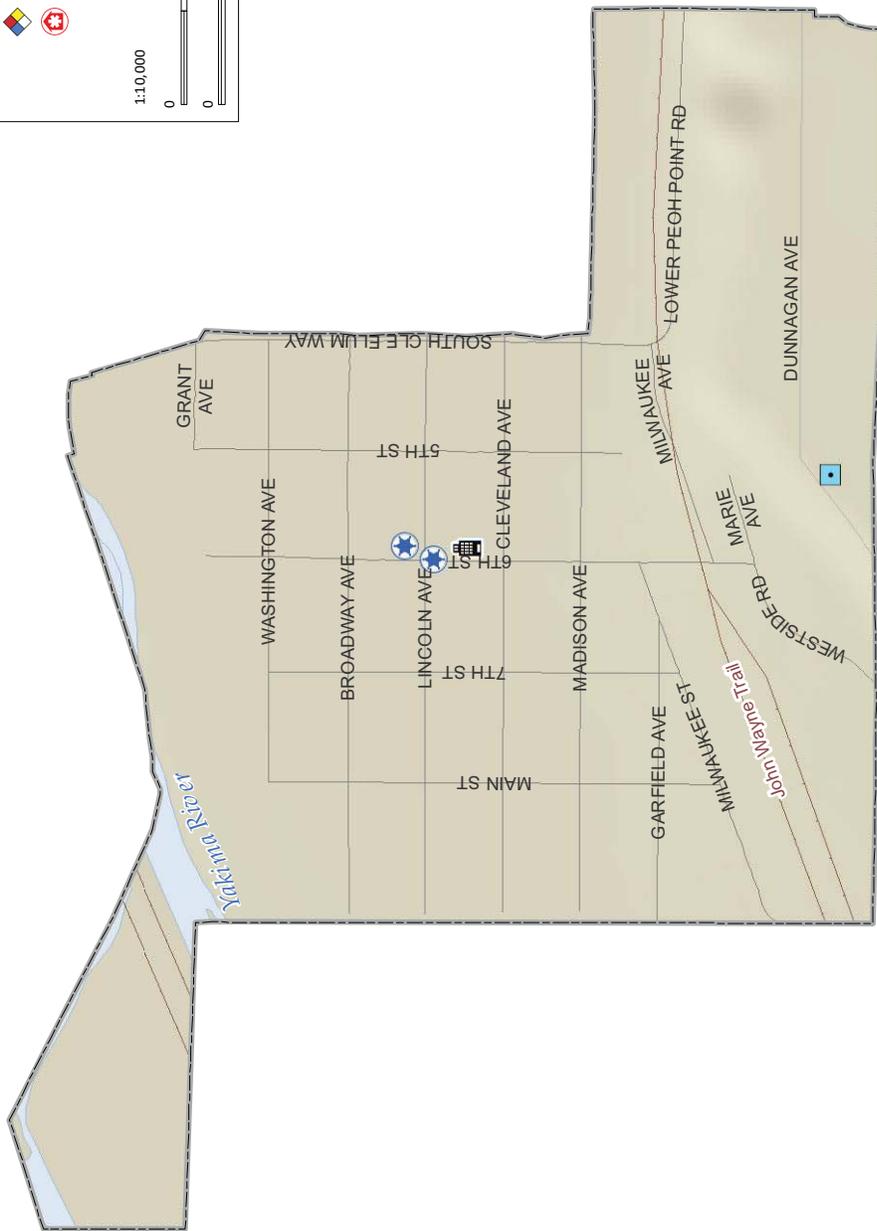
1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: 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.
3. 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.
4. 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.
5. 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.
6. 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.

SOUTH CLEELUM

Critical Facilities

- | | | | |
|---|---------------|---|------------|
|  | Bridge |  | Power |
|  | Communication |  | Protective |
|  | Dam |  | School |
|  | Government |  | Wastewater |
|  | Hazmat |  | Water |
|  | Medical |  | Other |

1:10,000

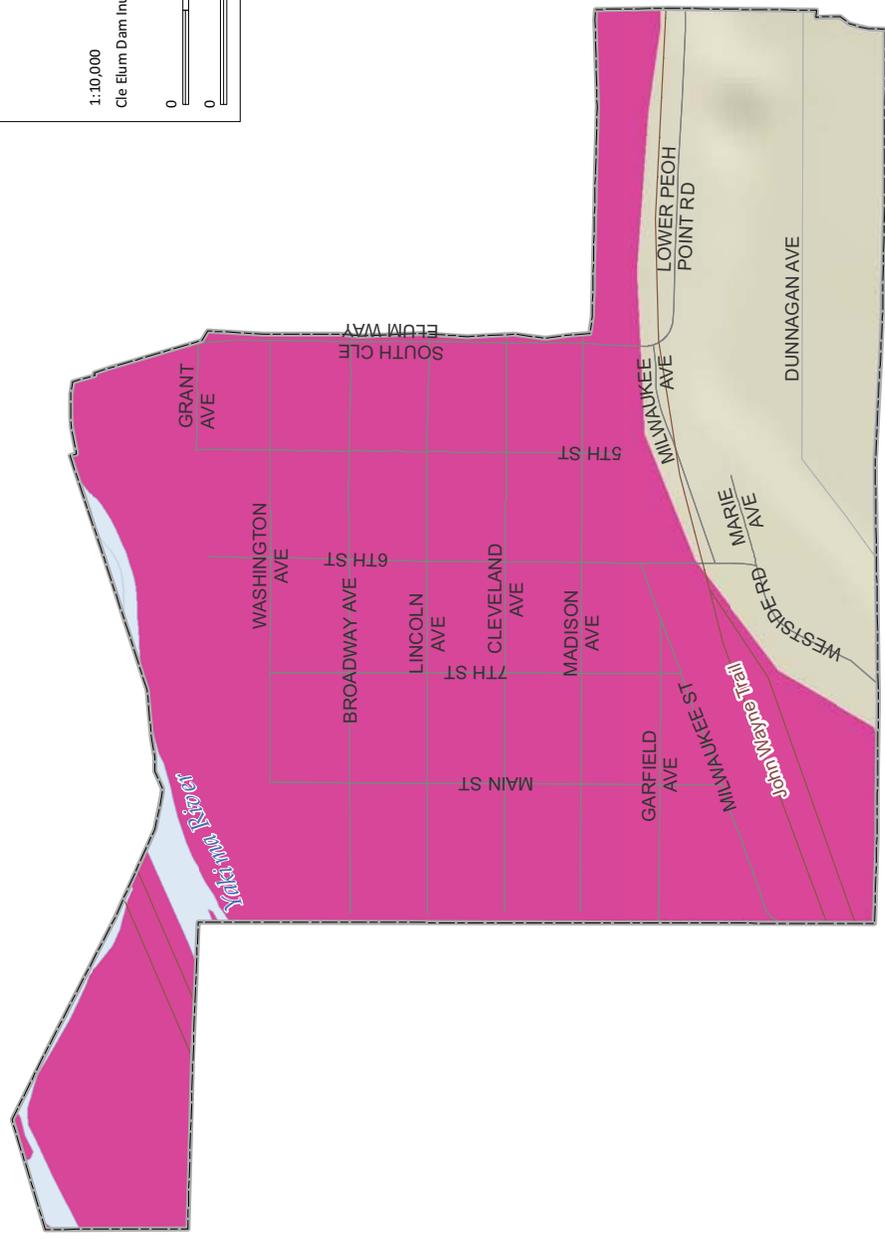
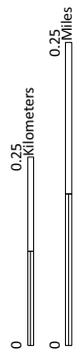


SOUTH CLE ELUM

Cle Elum Dam Inundation Area

 Cle Elum Dam Failure Probable Maximum Flood

1:10,000
Cle Elum Dam Inundation Area data provided by Kittitas County

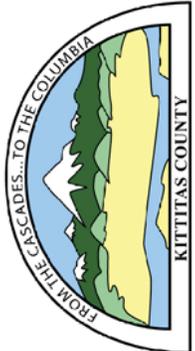
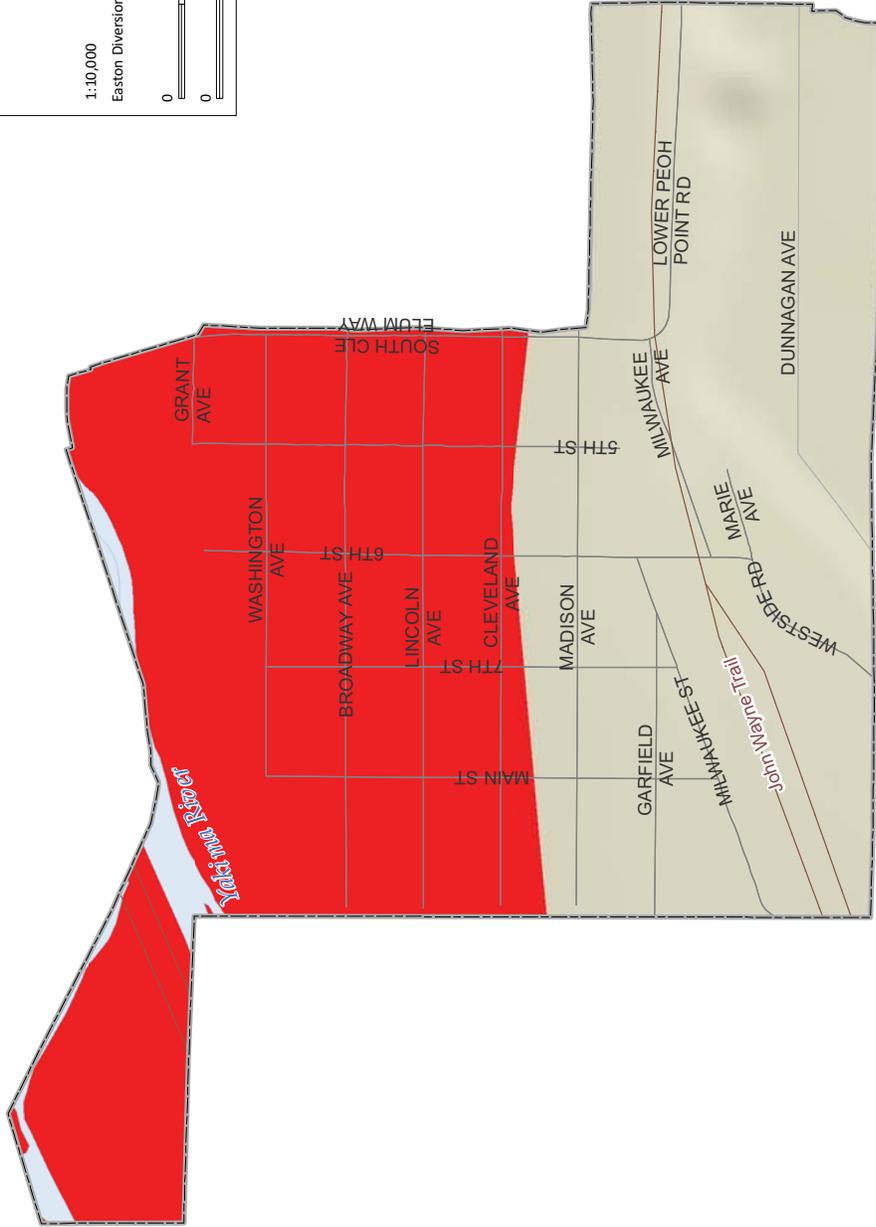
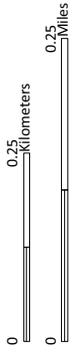


SOUTH CLE ELUM

Easton Diversion Dam Inundation Area

 Easton Diversion Dam Failure
Probable Maximum Flood

1:10,000
Easton Diversion Dam Inundation Area data provided by Kittitas County



SOUTH CLE ELUM

Keechelus & Kachees Dam Inundation Areas

 Keechelus & Kachees Dam Inundation Area
Probable Maximum Flood

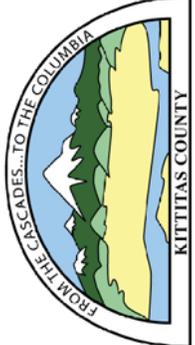
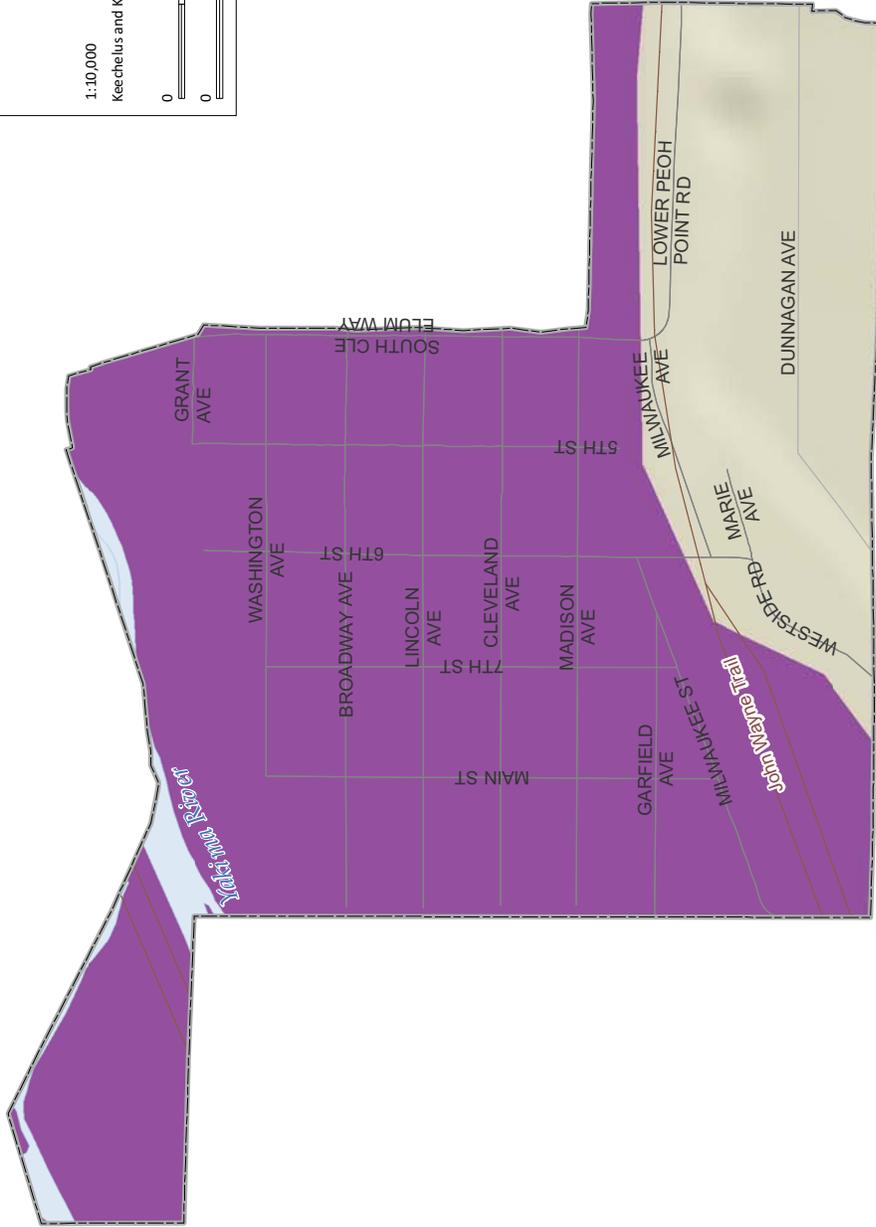
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Keechelus and Kachees Dam Inundation Area data provided by Kittitas County



0 0.25 Kilometers

0 0.25 Miles



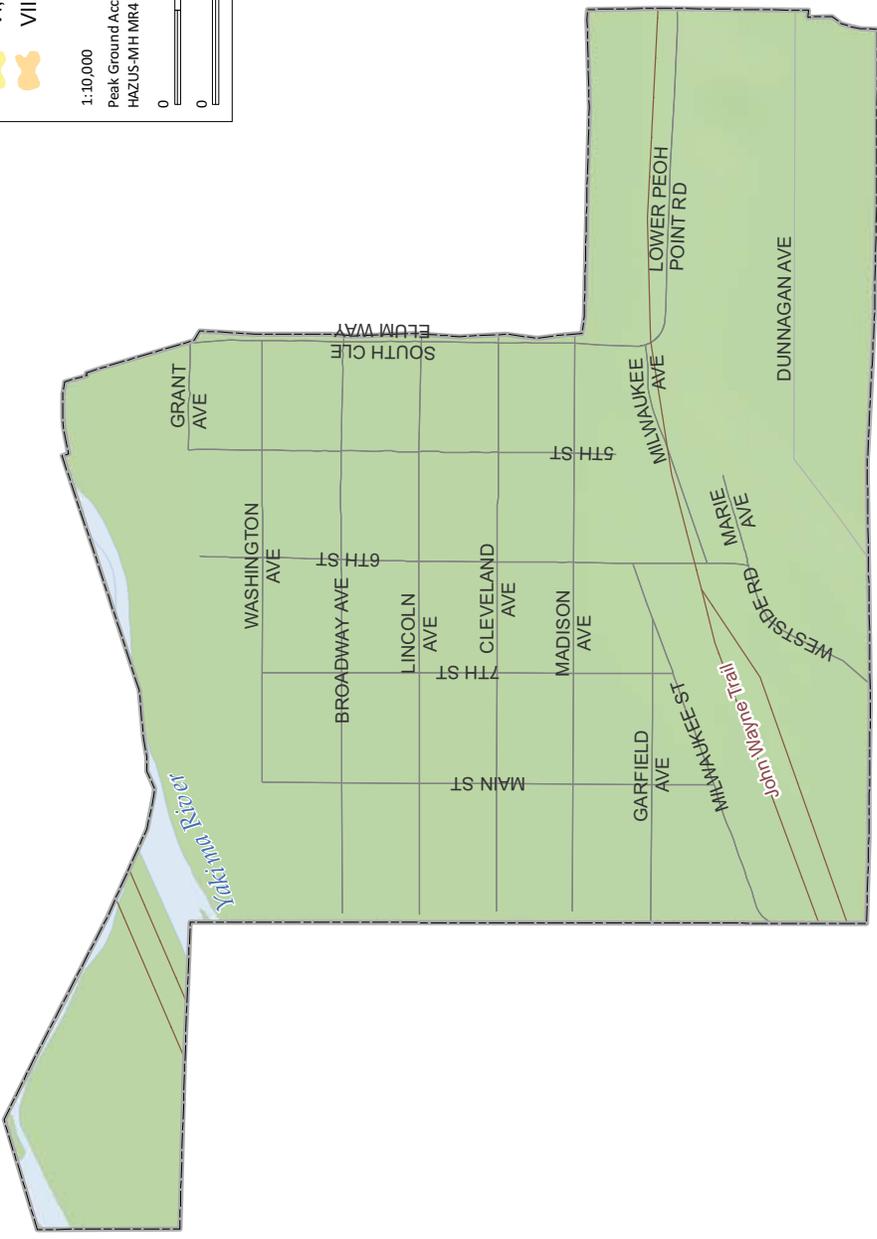
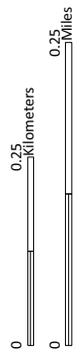
SOUTH CLE E LUM

Peak Ground Acceleration
USGS 100 Year
Probabilistic Event

- Mercalli Scale, Potential Damage
-  V, Very Light
 -  VI, Light
 -  VII, Moderate

1:10,000

Peak Ground Acceleration USGS 100 Year Probabilistic Event
HAZUS-MH MR4 Output, United States Geological Survey



SOUTH CLE ELUM

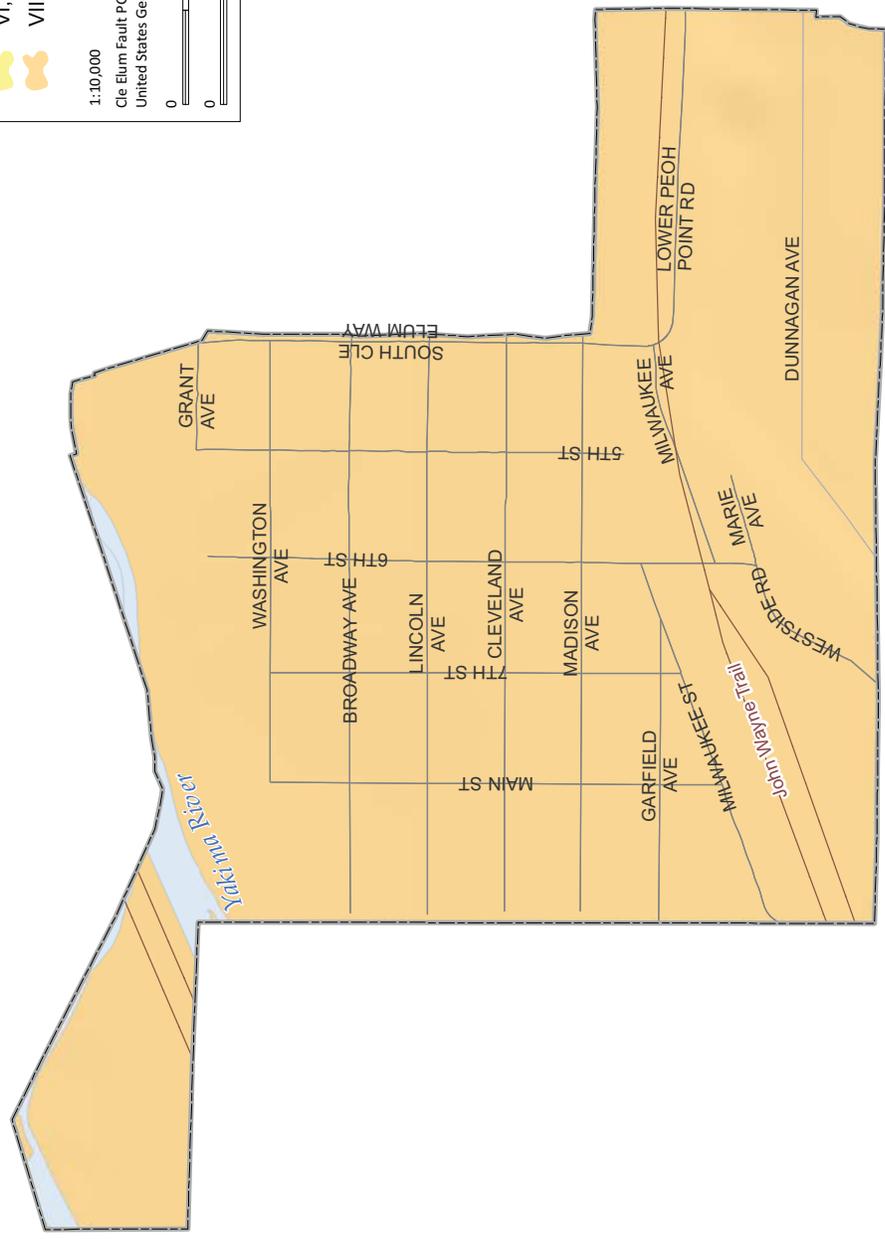
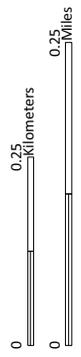
Cle Elum Fault
 Peak Ground Acceleration
 6.8 Magnitude Scenario

Mercalli Scale, Potential Damage

	V, Very Light		VIII, Moderate-Heavy
	VI, Light		IX, Heavy
	VII, Moderate		

1:10,000

Cle Elum Fault PGA Shake Map Data
 United States Geological Survey



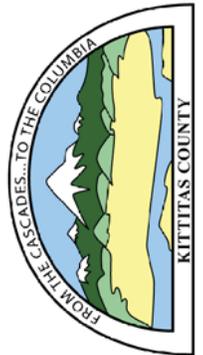
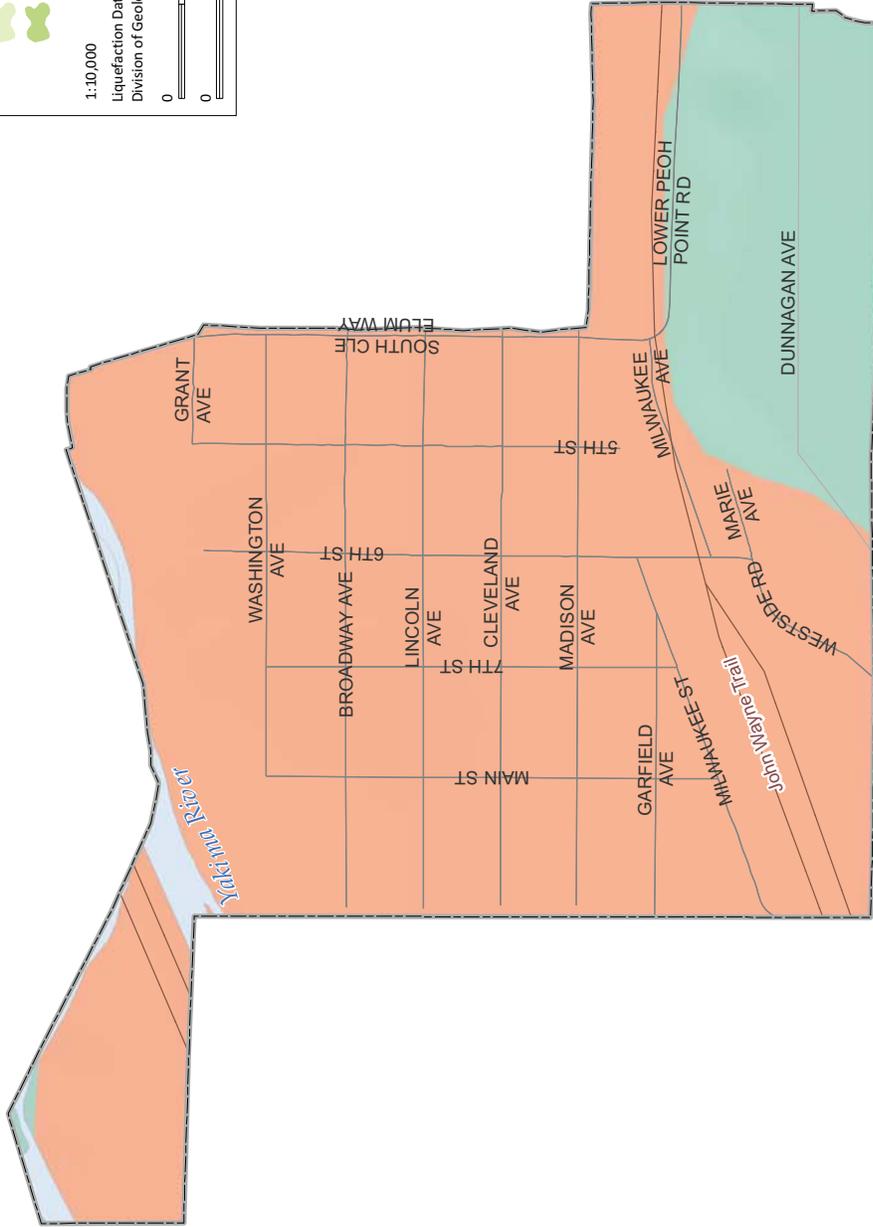
SOUTH CLE ELUM

Liquefaction Susceptibility



1:10,000

Liquefaction Data provided by Washington State Department of Natural Resources,
Division of Geology and Earth Resources



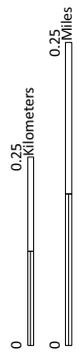
SOUTH CLE ELUM

Saddle Mountain
 Peak Ground Acceleration
 7.3 Magnitude Scenario

Mercalli Scale, Potential Damage

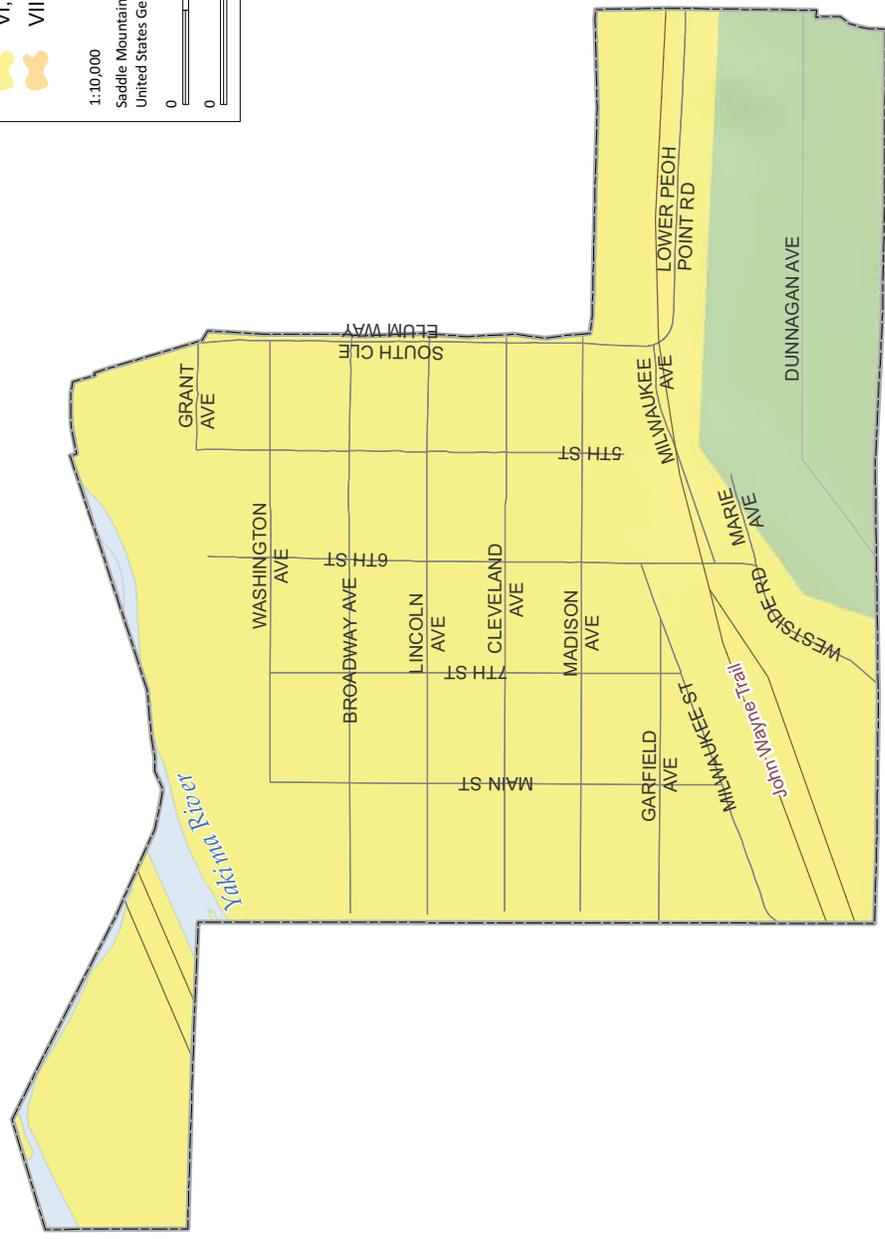
	V, Very Light		VIII, Moderate-Heavy
	VI, Light		IX, Heavy
	VII, Moderate		

1:10,000
 Saddle Mountain Fault PGA Shake Map Data
 United States Geological Survey



0 0.25 Kilometers
 0 0.25 Miles





SOUTH CLEELUM

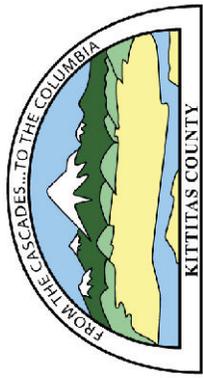
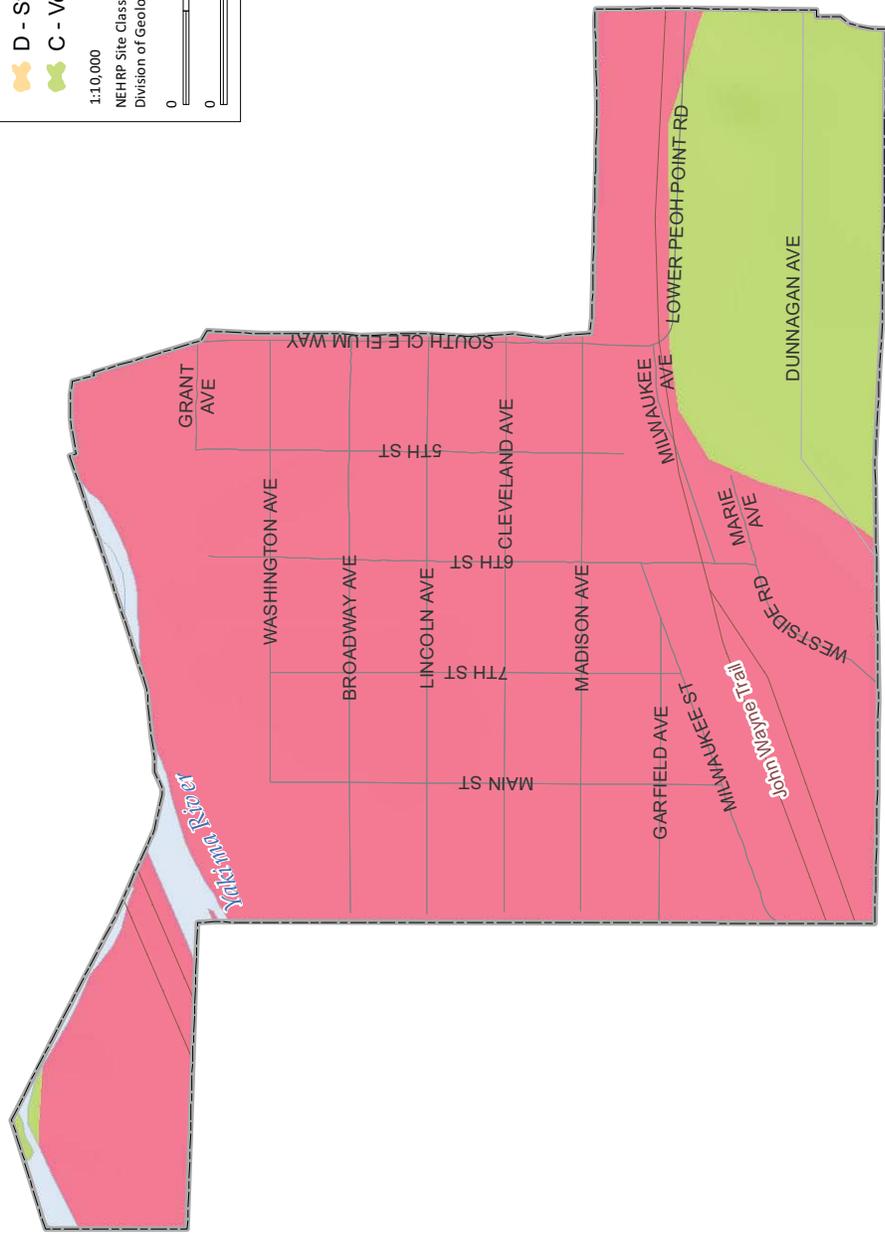
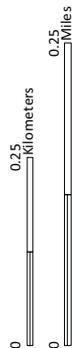
National Earthquake Hazard Reduction Program (NEHRP)

Soil Site Classes

- F - Requires site-specific investigation
- E - Soft Soil
- D - Stiff Soil
- C - Very Dense Soil and Soft Rock
- B - Rock
- Water
- Ice

1:10,000

NEHRP Site Class Data provided by Washington State Department of Natural Resources, Division of Geology and Earth Resources



SOUTH CLE ELUM

FEMA FIRM Flood Hazard Areas

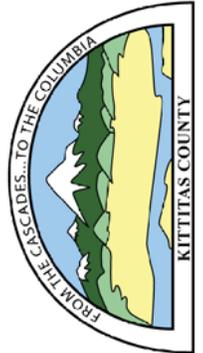
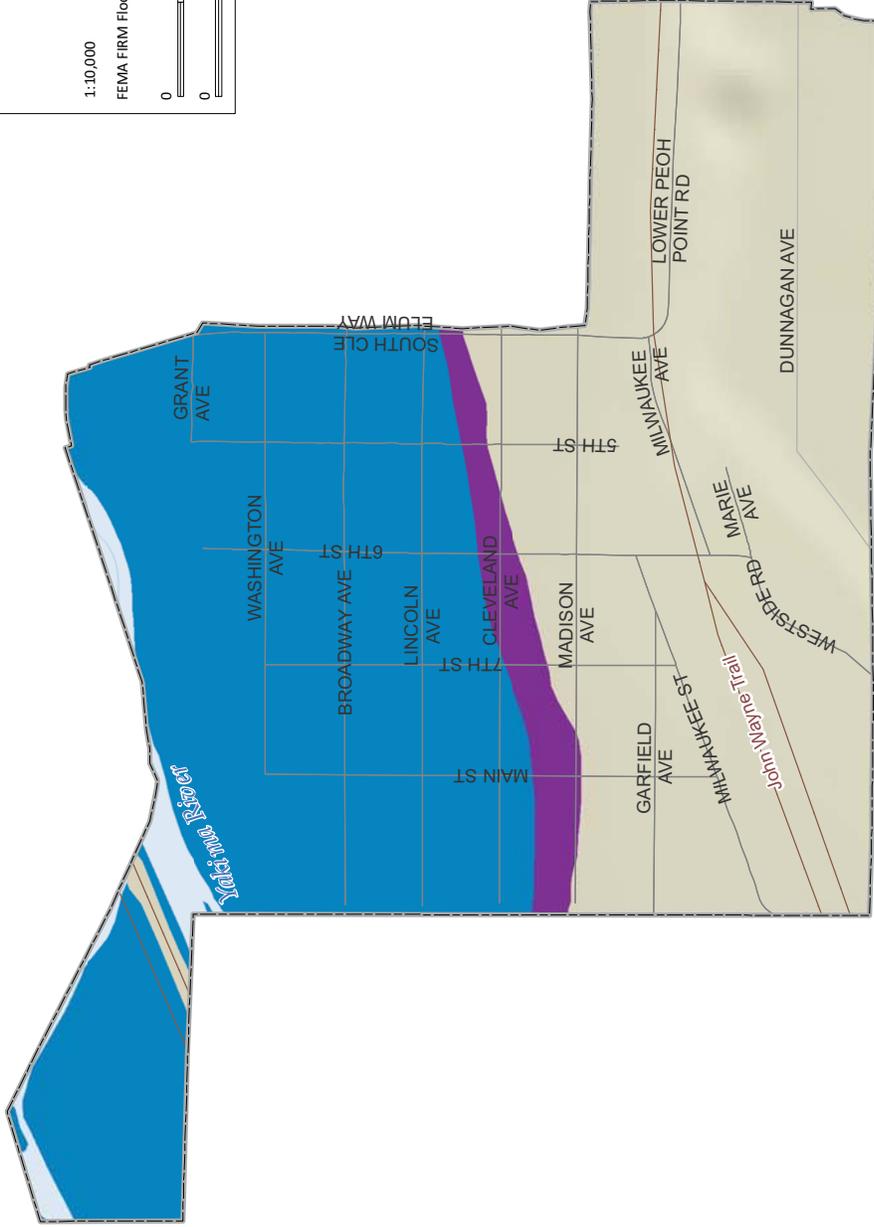
-  1-percent annual chance flood (100 Year)
-  0.2-percent annual chance flood (500 Year)

1:10,000

FEMA FIRM Flood Data provided by Kittitas County

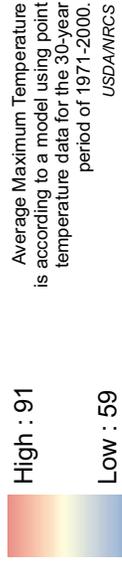
0 0.25 Kilometers

0 0.25 Miles



SOUTH CLE ELUM

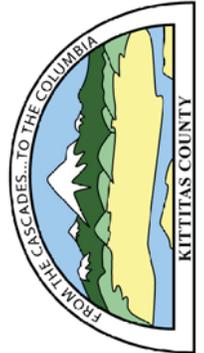
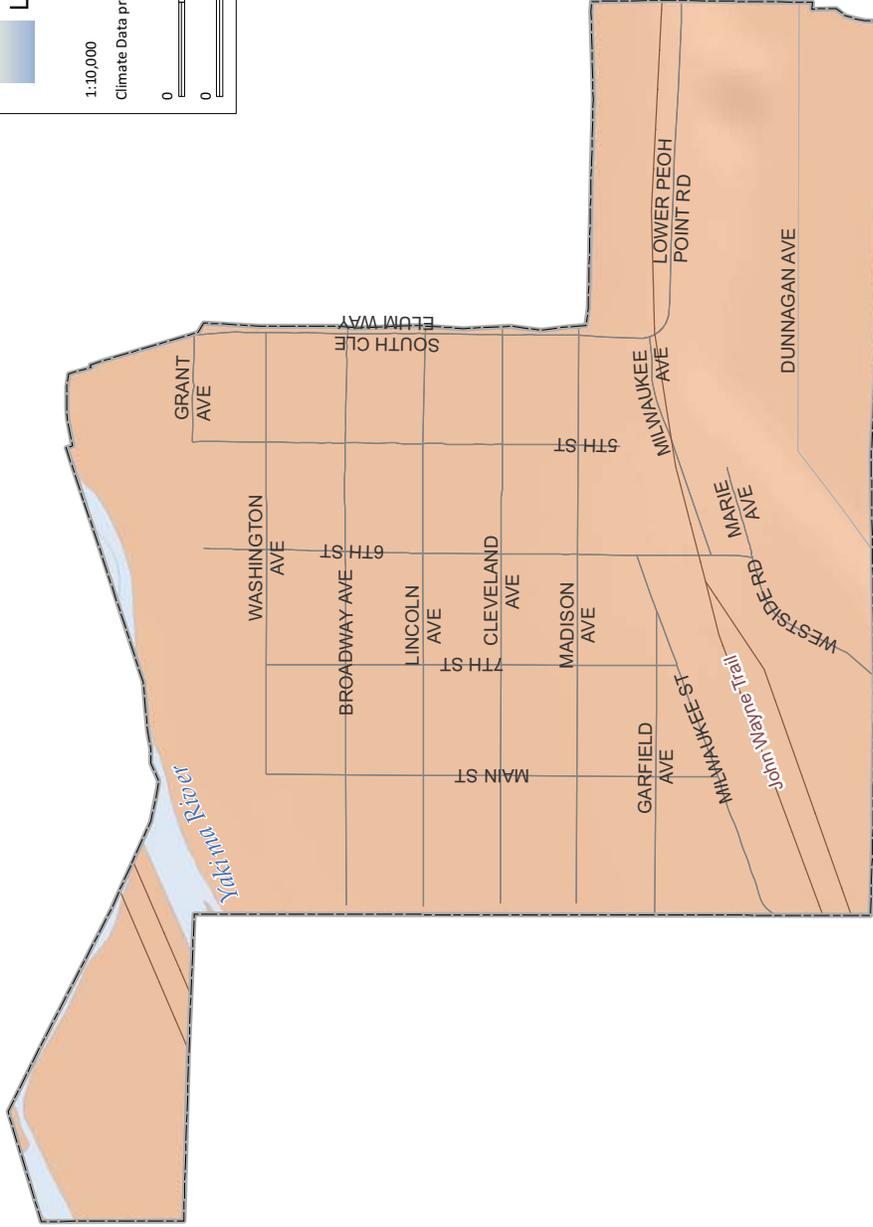
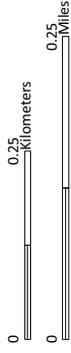
Average Maximum Temperature (F)



Average Maximum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000.
USDA/NRCS

1:10,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



SOUTH CLE ELUM

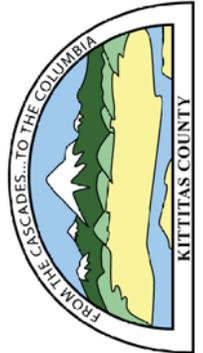
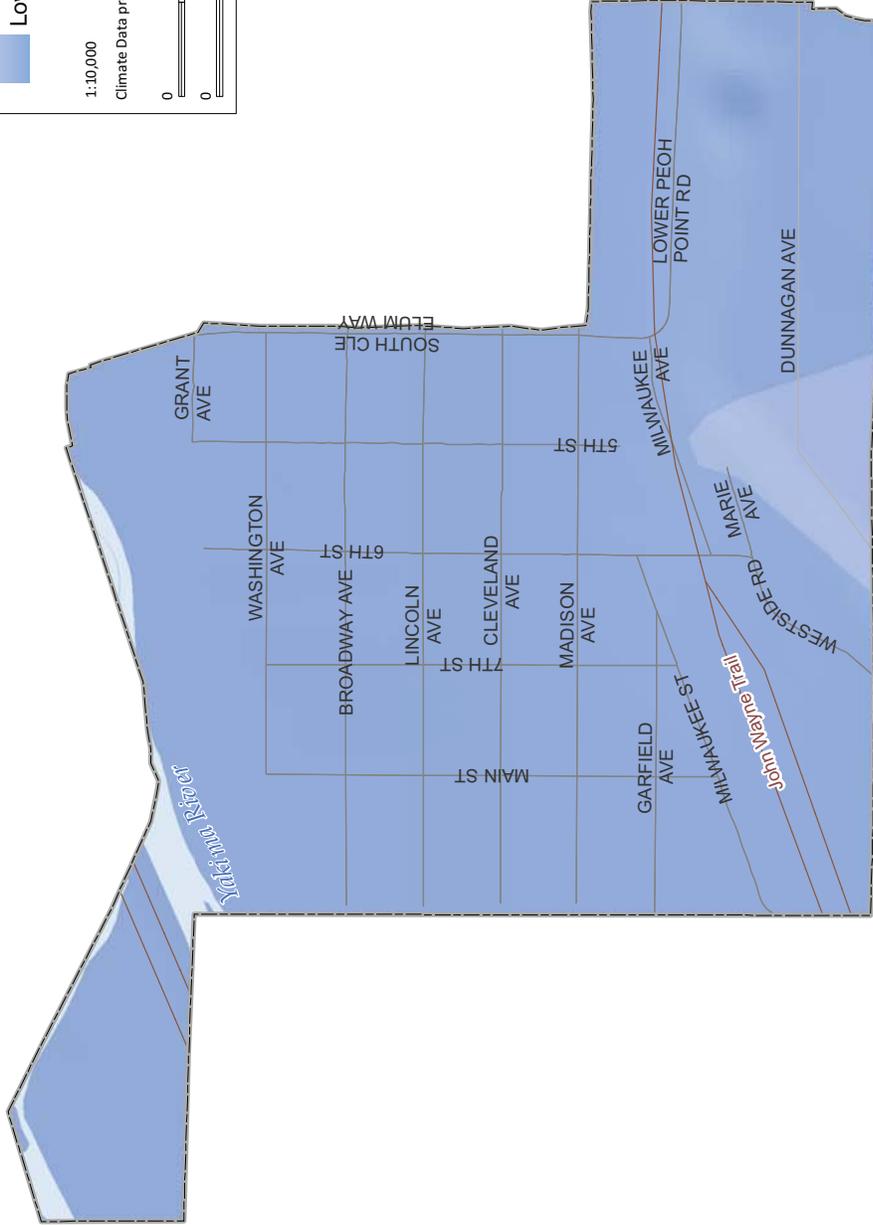
Average Minimum Temperature (F)

Average Annual Minimum Temperature (F)
 High : 25
 Low : 15

Average Minimum Temperature is according to a model using point temperature data for the 30-year period of 1971-2000. USDA/NRCS

1:10,000

Climate Data provided by USDA/NRCS - National Cartography & Geospatial Center



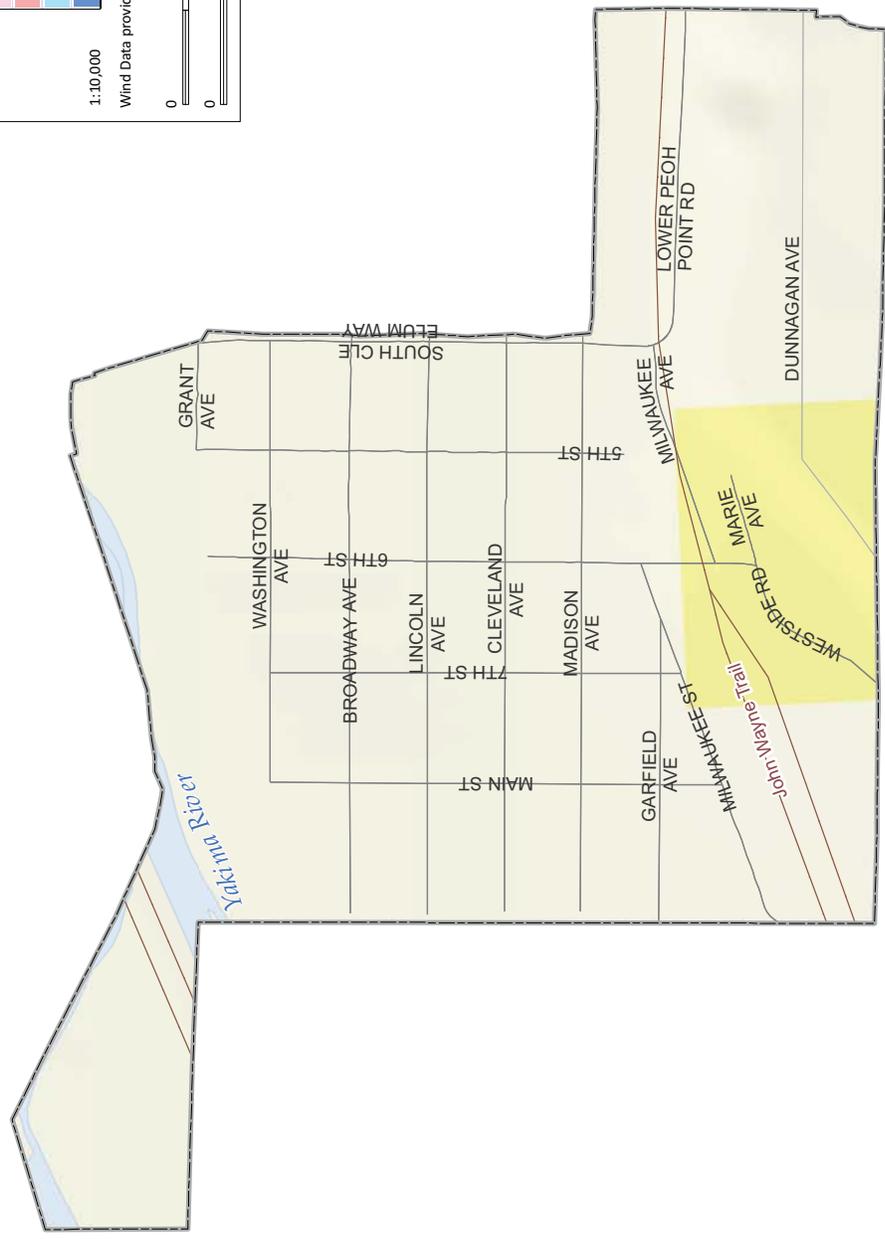
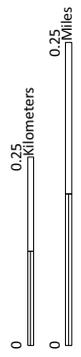
SOUTH CLE ELUM

Potential Wind Power

Wind Power Class	Resource Potential	Wind Power Density at 50m W/m ²	Wind Speed at 50m m/s	Wind Speed at 50m mph
1	None	0	0	0
2	Marginal	200-300	5.6-6.4	12.5-14.3
3	Fair	300-400	6.4-7.0	14.3-15.7
4	Good	400-500	7.0-7.5	15.7-16.8
5	Excellent	500-600	7.5-8.0	16.8-17.9
6	Outstanding	600-800	8.0-8.8	17.9-19.7
7	Superb	>800	>8.8	>19.7

1:10,000

Wind Data provided by US Department of Energy and National Renewable Energy Laboratory



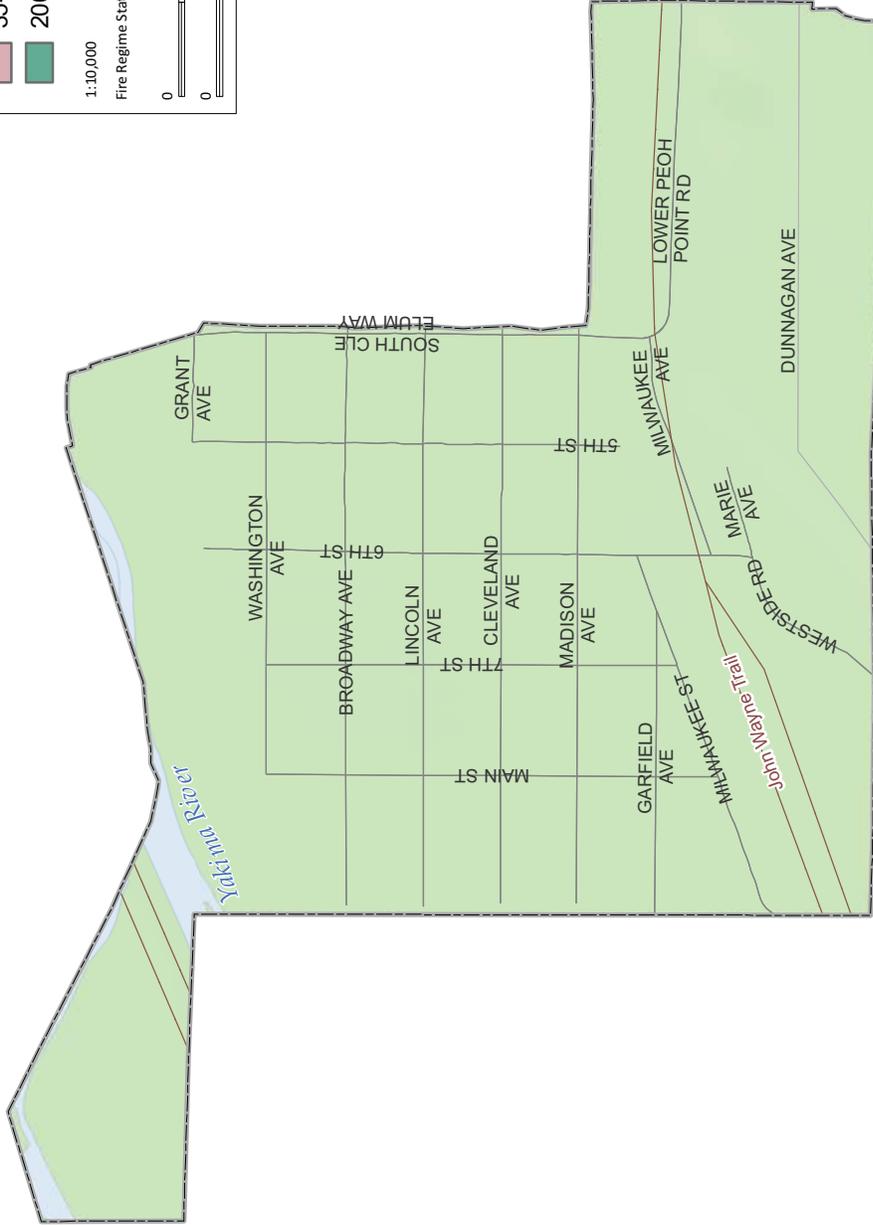
SOUTH CLELUM

Fire Regime Status

- 0-35 yrs, Low Severity
- 0-35 yrs, Stand Replacement
- 35-100+ yrs, Mixed Severity
- 35-100+ yrs, Stand Replacement
- 200+ yrs, Stand Replacement

1:10,000

Fire Regime Status Data provided by Washington State Department of Natural Resources



PART 3—
FIRE AND RESCUE DISTRICT ANNEXES

CHAPTER 7. FIRE DISTRICT #1 ANNEX

7.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

DJ Evans Fire Chief
PO Box 34 / 10700 N. Thorp Hwy
Thorp Wash. 98946
Telephone: 509-964-2435
e-mail Address: kcfd1@elltel.net

Alternate Point of Contact

Dean Evans Fire Commissioner Chairman
PO Box 34 / 10700 N. Thorp Hwy
Thorp Wash. 98946
Telephone: 509-964-2435
e-mail Address: kcfd1@elltel.net

7.2. JURISDICTION PROFILE

Kittitas County Fire District #1 is mostly a rural area with small to medium residential areas interspersed through the wildland-urban interface areas. The District provides emergency medical service and fire protection, shoreline water rescue, high angle rescue for wind turbines, and rope rescue, all on over 43.5 sq. miles, which is intersected by 11 miles of Interstate 90, 10 miles of SR 10, 9 miles of SR 97, 12 miles of Yakima River, and 12 miles of BNSF Railway track. All of this service is provided by a crew of 19 volunteer firefighters/emergency medical technicians. Funding comes to the junior taxing district through property taxes and grants.

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

- **Population Served**—2500 as of 2009 (Amended)
- **Land Area Served**—43.5 sq. miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$171,631,639
- **Land Area Owned**—2.95 acres (two stations)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 1974 Pumper \$30,000
 - 1985 Int. Tender \$85,000
 - 2000 GMC pumper \$270,000
 - 2002 Ford Minipumper \$185,000
 - 1970 Jeep Tender \$40,000
 - 1985 Chev Light Rescue \$25,000
 - 1990 Ford Tender \$65,000
 - 1984 Ford MCI vehicle \$5,000
 - 1978 Int. Brush engine \$55,000
 - 1977 Int. Rehab bus \$10,000
 - 1999 Ford Command vehicle \$25,000

- 2000 Ford Light Rescue \$20,000
- 1993 GMC pumper \$75,000
- 1995 Chev Aid Unit \$50,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$940,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Station 11 Thorp \$350,957
 - Station 12 Clark Flats 2 bldgs. \$179,305
 - Station 11 storage container \$3,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$533,262
- **Current and Anticipated Service Trends**—The District’s calls for service have leveled out due to the economic downturn of the country. Up till then calls were accelerating at a rapid pace (from 25 in 2000 to 180 in 2009). Once the economy starts going again, the growing call demand will resume. The fire district area has plans for two more truck stops, one having a motel and small strip mall attached. Also, a winery/event center planned for downtown Thorp is in progress of being built.

7.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 7-1 lists all past occurrences of natural hazards within the jurisdiction.

7.4. HAZARD RISK RANKING

Table 7-2 presents the ranking of the hazards of concern.

7.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- None

7.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 7-3.

7.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 7-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 7-5 identifies the priority for each initiative. Table 7-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 7-1.
NATURAL HAZARD EVENTS**

Type of Event	Date	Preliminary Damage Assessment
Winter Weather	3/25/2011	N/A
Winter Weather	3/02/2009	N/A
Winter Weather	1/30/2009	N/A
Flooding	1/9/2009	N/A
Wildfire	8/3/2005	N/A
Wildfire	7/30/2004	N/A
Wildfire	7/26/2004	N/A
Wildfire	7/2/2004	N/A
Wildfire	7/29/2003	N/A
Flooding	1/31/2003	N/A
Earthquake (Nisqually)	3/1/2001	N/A
Winter Weather	1/17/1997	N/A
Flooding	2/9/1996	N/A
Flooding/High Winds	1/3/1996	N/A
Winter Weather	2/19/1993	N/A
Flooding	11/26/1990	N/A
Flooding	1/18/1986	N/A
Volcanic Eruption	5/21/1980	N/A
Flooding/Mudslide	12/10/1977	N/A
Flooding	12/13/1975	N/A
Flooding/Landslide	12/22/1972	N/A
Landslide	6/70	N/A
Flooding/Landslide	1/26/1965	N/A
Heavy Rains/ Flooding	12/29/1964	N/A

TABLE 7-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	3x6=18
1	Wild Fire	3x6=18
2	Severe Storms/Wind	3x5=15
3	Earthquake	2x6=12
4	Landslides	2x5=10
5	Volcano/Lahar	1x3=3
5	Dam Failure	1x3=3
6	Drought	2x1=2
7	Avalanche	0
7	Tsunami (Seiche)	0

TABLE 7-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	6/9	—
Storm Ready	No	—	—
Firewise	No	—	—

**TABLE 7-4.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #KCFD1-1 —Participate in the “Firewise” program by identifying project site locations and promoting Firewise techniques as a defensible space initiative.						
New and Existing	Wildfire	6,7,9	KCFD-1	Low	District Funds	Short-term, Ongoing
Initiative# KCFD1-2 —Continue to provide fire safety, fire prevention and Firewise education to neighborhoods, schools and community via web pages, signage and outreach.						
New and Existing	Wildfire	6,7,9	KCFD-1	Low	Firewise Grant, District Funds	Short Term
Initiative KCFD1-3 —Develop and maintain a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard.						
New & Existing	Wildfire	1,9,10	KCFD-1	Low	District Funds	Short-term, Ongoing
Initiative KCFD1-4 —Require that development in high fire hazard areas provide adequate access roads, onsite fire protection systems, evacuation signage and fire breaks.						
New	Wildfire	1,2,3,9,10	KCFD-1	Low	County/District Funds	Short-term, Ongoing
Initiative # KCFD1-5 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New and Existing	All Hazards	All	KCFD-1	Low	HMGP, District funds	Short-term, ongoing
Initiative #KCFD1-6 —Continue to support through active participation the countywide initiatives identified in volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	KCFD-1	Low	District Funds	Short-term, Ongoing

**TABLE 7-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
KCFD1-1	3	High	Low	Yes	Yes	Yes	High
KCFD1-2	3	High	Low	Yes	No	Yes	High
KCFD1-3	3	High	Low	Yes	No	Yes	High
KCFD1-4	5	High	Low	Yes	No	Yes	High
KCFD1-5	10	High	Low	Yes	Yes	Yes	High
KCFD1-6	3	High	Low	Yes	No	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 7-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	—	—	—	—	—	—
Dam Failure	5		5, 6		6	
Drought	5		5, 6		6	
Earthquake	5		5, 6		6	
Flood	5		5, 6		6	
Landslide	5		5, 6		6	
Severe Weather	5		5, 6		6	
Seiche	—	—	—	—	—	—
Volcano	5		5, 6		6	
Wildfire	1, 3, 4	1, 4	1,2, 6	1	1, 6	3

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 8. FIRE DISTRICT #7 ANNEX

8.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Russell Hobbs
11042 Teanaway Rd.
Cle Elum, WA 98922
Telephone: 509-674-4880
e-mail Address: chief_hobbs@yahoo.com

Alternate Point of Contact

Paul Blume
1473 Lower Peoh Pt. Rd.
Cle Elum, WA 98922
Telephone: 509-674-8154
e-mail Address: pblume@kcf7.com

8.2. JURISDICTION PROFILE

Kittitas County Fire District #7 (Kittitas County Fire & Rescue) is a large rural fire district on the east slope of the Cascade mountain range, 90 miles east of Seattle and 35 miles west of Ellensburg. KCFD #7 encompasses 110 square miles, with a population of 3,526 people. The district protects a 20-mile stretch of the I-90 corridor, a major transportation route from Seattle. The district borders the town of Easton to the west and surrounds the cities of Cle Elum and Roslyn and the townships of South Cle Elum and Ronald (KCFD #6). The district lies in a high value forest and open range environment along the east slope of the Cascade mountain range.

The district actively responds to wildfires, structure fires, light rescue and emergency medical incidents, with an average call volume of 500 incidents per year. The district has 5 paid positions and 80-plus volunteer firefighters. The district actively pursues automatic aid agreements and participates in the countywide mutual aid agreement.

The fire district is a junior taxing district organized in 1980 under Revised Code of Washington, (RCW) Title 52. The governing body is a three-member elected board of commissioners that will assume the responsibility for adoption and implementation of this plan. The fire chief is the chief executive officer for the district and is responsible for the administration of any policies or program adopted by the board of fire commissioners.

The district population is predominately located in the wildland-urban interface, along the slopes of the upper Kittitas valley. In an area known for intense wildfire behavior, the fire district actively partners with the Washington State Department of Natural Resources and U.S. Forest service to prevent and extinguish wildland fires.

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

- **Population Served**—3,526 as of the 2010 Census
- **Land Area Served**—110 square miles (See Figure 8-1)
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$2,024,267,022
- **Land Area Owned**—11.5 acres

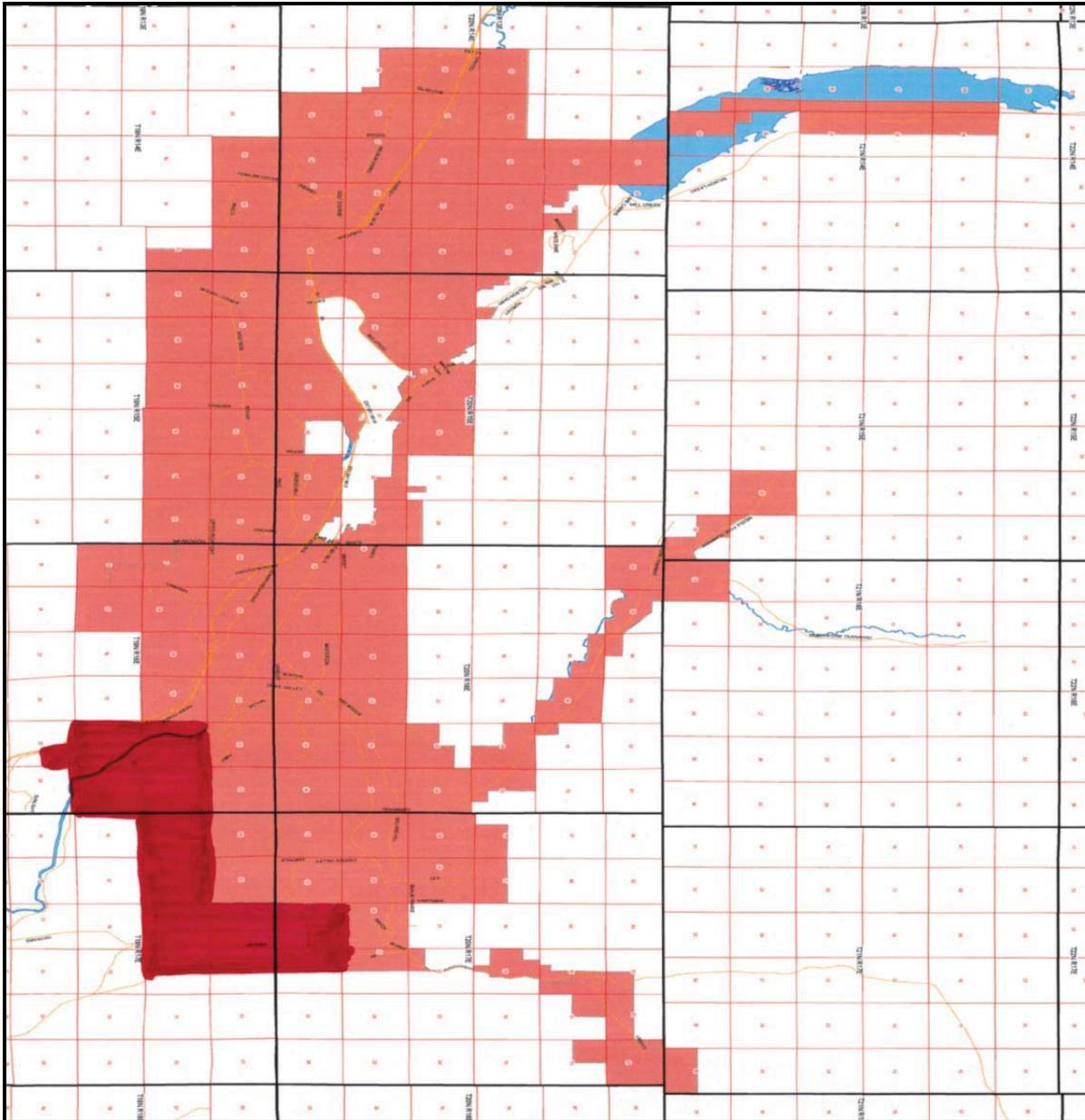


Figure 8-1. Fire District #7 Boundaries

- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 8 Type 1 Engines, Total value \$775,000.
 - 2 Type 1 Ladder Trucks, Total Value \$150,000
 - 1 Mobile Air Unit, Total value \$5,000
 - 3 Aid Units, Total Value \$60,000
 - 5 Support Units, Total Value \$40,000
 - 7 Wild-land Units, Total Value \$140,000
 - 8 Water Tenders, Total Value \$310,000

- Communications/Radios, Total Value \$90,000
- Computer Equipment, Total Value \$10,000
- Small equipment, Total Value \$200,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,780,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
 - 6 fire stations
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$3,810,000.
- **Current and Anticipated Service Trends**—A slowdown in new construction, high fuel prices and a water moratorium represent a minor decrease in population growth. The estimated growth in 2010 was 67 percent increase, according to the Washington State Fire Marshal’s Office. In 2011, the district may see a slight decrease in overall responses.

8.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 8-1 lists all past occurrences of natural hazards within the jurisdiction.

8.4. HAZARD RISK RANKING

Table 8-2 presents the ranking of the hazards of concern.

8.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Enhanced State hazard Mitigation Plan, final rule CFR part 201.4
- Building Code KCC 14.04
- Kittitas County Comprehensive Plan
- Emergency Response Plan
- Critical Areas KCC 17A.05
- Federal and state occupational safety and labor-and-industry mandates
- Firewise programs within the County supported by Kittitas County Conservation District, Washington Department of Natural Resources, U.S. Forest Service, and the fire districts.

8.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 8-3.

8.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 8-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 8-5 identifies the priority for each initiative. Table 8-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

8.8. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Seismic data is needed to highlight specific hazard locations and potential vulnerabilities within the district, and to support potential remodeling or replacement.

8.9. ADDITIONAL COMMENTS

Currently there is a water moratorium in effect, preempting new critical facility construction projects. Federal and state agencies need to recognize and authorize allowances to support construction of emergency facilities that serve the community at large.

Type of Event	Date	Preliminary Damage Assessment
Severe winter storm	03/25/2011	No estimate available
Severe winter storm	03/02/2009	No estimate available
Severe winter storm	01/30/2009	No estimate available
Earthquake/Nisqually	03/01/2001	No estimate available
Severe winter storm	01/17/1997	No estimate available
Severe winter storm	02/09/1996	No estimate available
Severe winter storm	01/03/1996	No estimate available
Severe winter storm	11/26/1990	No estimate available
Volcanic eruption/ St. Helens	05/21/1980	No estimate available
Severe winter storm	12/10/1977	No estimate available
Severe winter storm	12/13/1975	No estimate available
Severe winter storm	12/29/1964	No estimate available

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe winter storm	27
3	Flooding	18
4	Wild land urban interface fire	12
5	Volcano/Lahars	8
6	Landslide	2
7	Avalanche	2
8	Dam failure	1
9	Drought	1
10	Tsunami/Seiche	1

TABLE 8-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	7/9	9/2009
Storm Ready	No	—	—
Firewise	No	—	—

TABLE 8-4. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative # FD7-01 —Ensure a reliable source of water for fire suppression, meeting acceptable standards for minimum volume and flow requirements for existing and new development						
New & Existing	Fire Hazards	1, 4	Community development	Medium	Developers, FEMA	Short term/ongoing
Initiative # FD7-02 —Develop and maintain a coordinated approach between fire jurisdictions and water supply agencies to identify improvements to the water distribution system, initially focusing on areas of highest wild-fire hazard.						
New & Existing	Wild-fire	1, 4, 9	KCFD #7	Low	District funds	Short term/ongoing
Initiative # FD7-03 —Provide for an emergency operations center in upper Kittitas County						
New	All Hazard	9	KCFD #7	MED	District funds/FEMA grant	Long term
Initiative # FD7-04 —Enforce a minimum road width of 20 feet on all roadways greater than 50 feet in length						
New & Existing	All Hazard	1, 4, 10	Fire marshal	Low	County Funds	Short term/ongoing
Initiative # FD7-05 —Adopt a Firewise program creating a 30-foot defensible space along all public roadways, allowing for safe evacuation routes.						
New & Existing	All Hazard	1, 4, 10	Community development	Low	County Funds	Short term/ongoing
Initiative # FD7-06 —Replace or significantly retrofit existing fire stations to meet critical infrastructure standards.						
New & Existing	Earthquake	4	KCFD #7	High	District funds	Long term
Initiative #FD7-07 —Ensure all dead-end public roads have adequate turn around for fire equipment.						
New & Existing	All Hazard	1, 4	Community Development	Low	County Funds	Short term/ongoing

TABLE 8-4. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #FD7-08 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New & Existing	All Hazards	9	KCFD# 7	Low	District funds	Short term/ongoing
Initiative #FD7-09 —Support countywide initiatives related to hazard mitigation efforts.						
New & Existing	All Hazards	9	KCFD #7	Low	District funds	Short term/ongoing

TABLE 8-5. MITIGATION STRATEGY PRIORITY SCHEDULE							
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
01	2	High	Med	Yes	Yes	No	Medium
02	3	High	Low	Yes	Yes	Yes	High
03	1	High	Med	Yes	Yes	No	Medium
04	3	High	Low	Yes	No	Yes	High
05	1	High	Low	Yes	Yes	Yes	Medium
06	1	Medium	Med	Yes	Yes	Yes	Medium
07	2	Medium	Low	Yes	No	Yes	Med
08	1	High	Low	Yes	Yes	Yes	High
09	1	High	Low	Yes	No	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 8-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche			9		3,4	
Dam Failure			9		3,4,6,7	
Drought	—	—	—	—	—	—
Earthquake	8,9		9		3,4,6,7	
Flood	8,9		9		3,4,6,7	
Landslide	8,9		9		3,4,6,7	
Severe Weather	8,9		9		3,4,6,7	
Seiche			9		3,4,6,7	
Volcano			9		3,4,6,7	
Wildfire	8,9	1,2,4,5,7	9	1,4,5	1,2,3,4,5,6,7,8	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 9. FIRE DISTRICT #8 ANNEX

9.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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e-mail Address: jstorch@cityofcleelum.com

9.2. JURISDICTION PROFILE

Kittitas County Fire District 8 is a fire protection district that provides structural fire, wildland fire, emergency medical response and rescue operations in the Lake Kachess / Stampede Pass areas of Kittitas County and along I-90 from Milepost 54.5 to Milepost 67. The district was formed in the early 1980s and is funded through property taxes and is run by an elected Board of Fire Commissioners who appoint a Chief of the Department for day-to-day operations. Besides the property owners and residents within KCFD 8, the District also provides service to the I-90 corridor, which has up to 40,000 vehicles per day travel across it. The following is a summary of key information about the jurisdiction:

- **Population Served**—500 as of 2011
- **Land Area Served**—Approximately 20 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$100,665,000
- **Land Area Owned**—Approximately 1/3 acre
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 1 – Fire Engine: \$100,000
 - 1 – Aid Car: \$35,000
 - 2 – Brush Trucks: \$100,000
 - All portable equipment located in the emergency vehicles and station: \$100,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$335,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Fire Station #83: \$150,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is: \$150,000
- **Current and Anticipated Service Trends**—As the transient population traveling over I-90 continues to increase, so do the District’s calls for service. The vast majority of responses are directly related to incidents on I-90.

- The jurisdiction’s boundaries are described as follows: Township 21; Range 12; Section. 22, 15, 14, 13, 23,24,25,36 and Township 21; Range 13; Section. 5 and 6. Township 21N; Range 13E; Section 18(North half only), Township 21N; Range 12E; Section 10, Township 21N; Range 11E; Section 1, Township 21N; Range 11E; Section 2, Township 21N; Range 11E; Section 11, Township 21N; Range 11E; Section 12, Township 21N; Range 11E; Section 13, Township 22N; Range 11E; Section 35 (East half only), Township 22N; Range 11E; Section 23 (From 50 feet East of the East shoulder of Interstate 90 to the West edge of the section boundary), Township 22N; Range 11E; Section 26 (From 50 feet East of the East shoulder of Interstate 90 to the West edge of the section boundary)

9.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 9-1 lists all past occurrences of natural hazards within the jurisdiction.

9.4. HAZARD RISK RANKING

Table 9-2 presents the ranking of the hazards of concern.

9.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Enhanced State Hazard Mitigation Plan, final rule CFR part 201.4
- Building Code KCC 14.04
- Kittitas County Comprehensive Plan
- Emergency Response Plan
- Critical Areas KCC 17A.05
- Federal and state occupational safety and labor-and-industry mandates
- Firewise programs within the County supported by Kittitas County Conservation District, Washington Department of Natural Resources, U.S. Forest Service, and the fire districts.

9.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 9-3.

9.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 9-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 9-5 identifies the priority for each initiative. Table 9-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

9.8. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The District’s service area is extremely vulnerable to avalanche events that could isolate the area or cause a large population to become trapped in the area. The other major concern is failure of the dam on either Lake Keechelus or Lake Kachess, which would cause a major flooding event and potentially isolate portions of the district. There are no facilities within the District that could serve as a command post or emergency shelter if a major hazard incident were to occur.

Type of Event	Date	Preliminary Damage Assessment
Severe winter storm	03/25/2011	No estimate available
Severe winter storm	03/02/2009	No estimate available
Severe winter storm	01/30/2009	No estimate available
Earthquake/Nisqually	03/01/2001	No estimate available
Severe winter storm	01/17/1997	No estimate available
Severe winter storm	02/09/1996	No estimate available
Severe winter storm	01/03/1996	No estimate available
Severe winter storm	11/26/1990	No estimate available
Volcanic eruption/ St. Helens	05/21/1980	No estimate available
Severe winter storm	12/10/1977	No estimate available
Severe winter storm	12/13/1975	No estimate available
Severe winter storm	12/29/1964	No estimate available

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe winter storm	27
3	Flooding	18
4	Wild land urban interface fire	12
5	Volcano/Lahars	8
6	Landslide	2
6	Avalanche	2
7	Dam failure	1
7	Drought	1
7	Tsunami/Seiche	1

	Participating?	Classification	Date Classified
Public Protection	Yes	8/9	—
Storm Ready	No	—	—
Firewise	No	—	—

**TABLE 9-4.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #FD8-01 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New & Existing	All Hazards	2,8,9	KCFD# 8	Low	District funds	Short term/ongoing
Initiative #FD8-02 —Continue to support through active participation the countywide initiatives identified in volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	KCFD-8	Low	District Funds	Short-term, Ongoing
Initiative #FD8-03 —Participate in the Firewise program by identifying project site locations and promoting Firewise techniques as a defensible space initiative.						
New and Existing	Wildfire	6,7,9	KCFD-8	Low	District Funds	Short-term, Ongoing
Initiative #FD8-04 —Comply with all applicable building and fire codes, as well as other regulations when constructing or significantly remodeling infrastructure facilities.						
New & Existing	All Hazards	2,4,5,6	KCFD-8/County	Low	District Funds	Ongoing
Initiative #FD8-05 —Require that development in high fire hazard areas provide adequate access roads, onsite fire protection systems, evacuation signage and fire breaks.						
New	Wildfire	1,4,6,10	KCFD-8/County	Low	County/District Funds	Ongoing
Initiative #FD8-06 —Enhance communication capabilities between agencies, coordination of radio types and use of existing and new systems.						
New & Existing	All	1,7,9,10	County	Med	County, Bureau of Land Management, District & Grant Funds	Ongoing

**TABLE 9-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

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

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 9-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	1, 2	4	1, 2		6	
Dam Failure	1, 2	4	1, 2		6	
Drought	1, 2	4	1, 2		6	
Earthquake	1, 2	4	1, 2		6	
Flood	1, 2	4	1, 2		6	
Landslide	1, 2	4	1, 2		6	
Severe Weather	1, 2	4	1, 2		6	
Seiche	1, 2	4	1, 2		6	
Volcano	1, 2	4	1, 2		6	
Wildfire	1, 2	3, 4, 5	1, 2	3	6	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

**PART 4—
UTILITY DISTRICT ANNEXES**

CHAPTER 10.

SNOQUALMIE PASS UTILITY DISTRICT ANNEX

10.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Terry Lenihan, General Manager
181 Treatment Plant Road
PO Box 131
Snoqualmie Pass, WA 98068
Telephone: (425) 434-6633
e-mail Address: tlenihan@snopass.org

Alternate Point of Contact

Steve Brockett
181 Treatment Plant Road
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Snoqualmie Pass, WA 98068
Telephone: (425) 434-6633
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10.2. JURISDICTION PROFILE

Snoqualmie Pass Utility District was formed in 1984 when the Summit Sewer District and Kittitas County Sewer District 1 were consolidated into a single district operating under RCW Chapter 57. Those original districts were located on opposite sides of the King-Kittitas county line. The joined District operates in both counties to provide water and sewer service to residential and commercial customers. The District is located near the western summit of Snoqualmie Pass along I-90 at an elevation of approximately 3,000 feet, and serves the needs of year-round residents, travelers, and recreational visitors. The area is adjacent to the popular “Summit at Snoqualmie” day-use ski area, with heavy visitation during winter weekends.

A Board of Commissioners consisting of three local citizens elected on a non-partisan basis governs the District. The Commissioners establish policies, set rates, adopt system plans for water and sewer utilities and approve the revenue obligations. In addition, the Commissioners appoint the General Manager. The General Manager is directly responsible to the board of Commissioners and is the Chief Executive of the District.

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

- **Population Served**—250 full time and 16,000 peak
- **Land Area Served**—1,785 acres
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$xxxx
- **Land Area Owned**—7 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 13.87 miles of water mains, 3 production wells, 3 reservoirs, 5 pressure-reducing-valve stations, with an estimated value of \$4,535,740
 - 16.56 miles of sanitary sewer mains, 2 pump stations and 1 treatment plant, with an estimated value of \$6,793,258
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$11,328,998
- **List of Critical Facilities Owned by the Jurisdiction:**

- Wastewater Treatment Plant. Located at 370 Treatment Plant Road, Snoqualmie Pass. Onsite buildings consist of the Treatment Plant (3,942 square feet), constructed in 1983, the Headworks building (600 square feet) constructed in 2009 and the Maintenance Shop (4,042 square feet) constructed in 1995 with an addition constructed in 2003. A remote building known as the Pipe Galley, located 1 mile southwest (286 square feet), was constructed in 1983.
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$2,214,454.

Current and Anticipated Service Trends—The District estimates that 250 full-time residents currently live at Snoqualmie Pass, with an additional 500 seasonal residents on a peak winter ski weekend. In addition to residential population, the area has a large transient population, including travelers on I-90 who stop to use facilities at the pass, and day-use winter sports participants. A peak day-use population of 16,000 was estimated for a recent heavy ski year. The District is anticipating a growth rate of 1 percent.

10.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 10-1 lists all past occurrences of natural hazards within the jurisdiction.

10.4. HAZARD RISK RANKING

Table 10-2 presents the ranking of the hazards of concern.

10.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Snoqualmie Pass Utility District Water Comprehensive Plan
- Snoqualmie Pass Utility District Sewer Comprehensive Plan
- Emergency Response Plan
- King County Hazard Mitigation Plan

10.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 10-3.

10.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 10-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 10-5 identifies the priority for each initiative. Table 10-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 10-1. NATURAL HAZARD EVENTS		
Type of Event	Date	Preliminary Damage Assessment
Severe Winter Storm And Record And Near Record Snow (DR-1825)	3/2/2009	N/A
Winter Storm (DR 1817)	1/17/2009	\$50,000
Severe Winter Storms, Land & Muds Slides, & Flooding, (DR-1159)	1/17/1997	N/A
Severe Storms & Flooding (DR-883)	11/26/1990	N/A
Severe Storms, Mudslides, & Flooding, (DR-545)	12/10/1977	N/A

TABLE 10-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Winter Storm	24
1	Earthquake	24
2	Avalanche	6
2	Flood	6
2	Dam Failure	6
2	Wildland Fire	6
2	Landslide	6
3	Volcano	0
3	Tsunami	0
3	Drought	0

TABLE 10-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	—	—
Storm Ready	No	—	—
Firewise	No	—	—

**TABLE 10-4.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #SPUD-01 —Continue to support the implementation, monitoring, maintenance and updating of this plan.						
New & Existing	All Hazards	2,8,9	SPUD	Low	District funds	Short term/ongoing
Initiative #SPUD-02 —Continue to support through active participation the countywide initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	5,6,9	SPUD	Low	District Funds	Short-term, Ongoing
Initiative #SPUD-03 —Develop a continuity of operations plan that looks at sustaining operations following disasters.						
New and Existing	All Hazards	1, 9, 10	SPUD	Low	District Funds, DHS Grant funding	Short term
Initiative #SPUD-04 —Partner with other local governments in educating citizens on potential consequences associated with natural hazards and opportunities to mitigate their impacts.						
New and Existing	All Hazards	2, 8, 9	SPUD	Low	District General Fund	Short-term, ongoing

**TABLE 10-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
1	3	Medium	Low	Yes	Yes	Yes	High
2	3	Medium	Low	Yes	Yes	Yes	High
3	3	High	High	Yes	Yes	No	Medium
4	3	Low	Low	Yes	No	Yes	Yes

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 10-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	1,2		1, 2, 4		3	
Dam Failure	1,2		1,2, 4		3	
Drought	—	—	—	—	—	—
Earthquake	1,2		1,2, 4		3	
Flood	1,2		1,2, 4		3	
Landslide	1,2		1,2, 4		3	
Severe Weather	1,2		1,2, 4		3	
Seiche	—	—	—	—	—	—
Volcano	—	—	—	—	—	—
Wildfire	1,2		1,2, 4		3	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 11. KITITAS PUD #1 ANNEX

11.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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11.2. JURISDICTION PROFILE

Public Utility District (PUD) #1 of Kittitas County is a special purpose district classified as a political subdivision of the state under the laws of the State of Washington. The District was established by a vote of the electorate in 1936, under Chapter 1 of the 1931 laws of the state, for the purpose of engaging in the generation, transmission, distribution and sale of electric energy. The District's service area covers most of Kittitas County and a small portion of Yakima County.

The PUD is governed by a Board of Commissioners, consisting of three local citizens elected by the people of Kittitas County. The Commissioners represent three districts. One commissioner is elected every two years in the November general election to serve a six-year term. Under the guidance of the elected commissioners, the District delivers affordable, dependable electricity to rural and urban areas. The commission establishes policy, approves plans, budgets and expenditures and reviews the District's operations. The legal responsibilities and powers of the District, including the establishment of rates and charges for services rendered, are exercised through the commission. In addition, the Commissioners appoint a General Manager to administer District policies and conduct PUD business. The General Manager is supported by 12 full-and part-time employees.

The District is a statutory preference customer of the Bonneville Power Administration and currently purchases approximately 80 percent of its power from Bonneville. The rest of the District's power is primarily supplied by the Priest Rapids Hydroelectric Project (nearly 15 percent).

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

- **Population Served**—8,430 people as of 2009 and based upon the Census Bureau estimate of Kittitas County average household size
- **Land Area Served**—359 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$1,094,902,905.
- **Land Area Owned**—15.49 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

- 13 miles of transmission lines, 490 miles of overhead distribution lines, 190 miles of underground distribution lines, 7 electrical substations and 4 metered points of power delivery with an estimated value of \$25,968,494.
- FCC-licensed radio system for crew dispatching and emergency services and response valued at \$65,736.
- Line Truck, Double Bucket, Service Bucket, Backhoe, Flat Bed, Foreman Truck with an estimated value of \$951,966.
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$26,986,196.
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Main Office and Headquarters, located at 1400 Vantage Highway in Ellensburg. The on-site buildings consist of the 2-story main office building (2400 square feet including an records archive and data center in the basement), the engineering / operations building (1345 square feet-remodeled in 2009), and meter shop with attached conference room (1900 square feet-remodeled in 2009), with an estimated value of \$917,998.
 - Warehouse and Material Yard, located behind and adjacent to the main office at 1400 Vantage Highway in Ellensburg. These facilities include the vehicle storage building (2400 square feet – constructed in 2008), the material storage yard/loading dock (0.83 acres), the material warehouse (3000 square feet – future plans include replacing, remodeling or expansion of this building). The value of these facilities is estimated to be \$118,703.
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$1,036,701
- **Current and Anticipated Service Trends**—The Kittitas PUD 2008 Power Requirements Study projects the number of consumers, energy sales and capacity requirements through the end of 2017. This projection anticipates that the PUD will increase by 29 percent. Total energy sales are also projected to increase significantly by 2017. This projected increase is based upon the anticipated increase in consumers coupled with the changing consumption patterns by consumer class.

Recent economic activity has shown that the power requirements projection may have been a bit high. The 2010 US census reported that Kittitas County has seen a population increase of 22.6 percent in the last 10 years while Washington State increased only 14.1 percent. So a 20 to 25 percent growth rate may be a safer projection.

11.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 11-1 lists all past occurrences of natural hazards within the jurisdiction.

11.4. HAZARD RISK RANKING

Table 11-2 presents the ranking of the hazards of concern.

11.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- National Electrical Safety Code

- National Electrical Code
- National Environmental Protection Act
- Federal Endangered Species Act
- Public Utility Regulatory Policy Act
- Washington State Building Code
- Department of Labor and Industries of the State of Washington (Washington Administrative Code 296-45)
- Occupational Safety and Health Administration
- Kittitas County PUD Oil Spill Containment and Countermeasure Plan
- The District must adhere to all applicable codes and regulations enforced by federal, state and local authorities with a sphere of influence within the District service area.

11.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 11-3.

11.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 11-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 11-5 identifies the priority for each initiative. Table 11-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 11-1.
NATURAL HAZARD EVENTS**

Type of Event	Date	Preliminary Damage Assessment
Floods	2/25/1956	N/A
Floods	3/6/1957	N/A
Severe Storms	10/20/1962	N/A
Floods	3/2/1963	N/A
Heavy Rains & Flooding	12/29/1964	N/A
Severe Storms, Flooding	12/13/1975	N/A
Drought	3/31/1977	N/A
Severe Storms, Flooding	12/10/1977	N/A
Flooding	3/12/1979	N/A
Volcanic Eruption	5/21/1980	N/A
Severe Storms, Thunder	12/24/1980	N/A
Wind	11/14/1981	N/A
Severe Storms, Flooding, Thunder, Wind	1/18/1986	N/A
Winter Weather	2/1/1989	N/A
Severe Storms, Flooding	11/26/1990	N/A
Severe Storms, Thunder	7/24/1991	N/A
Eastern Washington Fires	10/18/1991	N/A
Storms, High Winds, Floods	1/3/1996	N/A
Severe Storms, Flooding	2/9/1996	N/A
Severe Winter Storms, Flooding	1/17/1997	N/A
Earthquake	3/1/2001	N/A
Winter Weather	11/28/2001	N/A
Elk Heights Fire	7/30/2004	N/A
Flooding	5/4/2005	N/A
Hurricane Katrina Evacuation	9/7/2005	N/A
Winter Weather	12/14/2006	N/A
Severe Winter Storm, Landslides, Mudslides and Flooding	1/30/2009	N/A
Severe Winter Storm, Record Snow	3/2/2009	N/A
Vantage Fire		N/A
Severe Storm, Flooding, Landslides	3/25/2011	N/A

TABLE 11-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	54
2	Flood	51
3	Wildfire	36
3	Drought	36
4	Earthquake	24
5	Avalanche	18
5	Landslide	18
6	Dam Failure	16
6	Volcano / Lahar	16
7	Seiche	0

TABLE 11-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	—	—
Storm Ready	No	—	—
Firewise	No	—	—

**TABLE 11-4.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
KPUD-1 —Acquire right of way and relocate distribution structures and facilities out of areas subject to repetitive loss or damage. (Feeders P1, E2, & T1)						
New and Existing	Severe Storm, Flood, Wildfire, Landslide, Avalanche	1,2,7,8,9,10	PUD	High	District Funds, HMGP	Short-term
KPUD-2 —Implement a contingency plan to establish a more hazard-resilient electrical system by networking isolated distribution circuits (Feeder Ties S2 to T1, S3 to J1, P3 to V1)						
New and Existing	Severe Storm, Flood, Wildfire, Landslide, Avalanche	1,2,4,7,8,9,10	PUD	Medium	District Funds, HMGP	Short-term
KPUD-3 —Implement a vegetation management program (manage all rights of way on a 3 year cycle)						
Existing	Severe Storm, Wildfire	1,9,10	PUD	Low	District Funds, HMGP	Short-term ongoing
KPUD-4 —Raise or mitigate substations in floodplain (Ellensburg Substation & Teanaway Substation)						
Existing	Severe Storm, Flood, Earthquake	1,7,8,10	PUD	High	District Funds, HMGP	Long-term, depends on funding
KPUD-5 —Continue to support through active participation the countywide initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	All	PUD	Low	District Funds	Short-term ongoing
KPUD-6 —Continue to support the implementation, monitoring, maintenance, and updating of this plan, as defined in Volume 1.						
New and Existing	All Hazards	All	PUD	Low	District Funds, HMGP for 5-year update	Short-term ongoing
KPUD-7 —Develop a continuity of operations plan that looks at sustaining operations following disasters.						
New and Existing	All Hazards	1, 9, 10	KPUD	Low	District Funds, DHS Grant funding	Long-term, depends on funding

**TABLE 11-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
1	6	High	Medium	Yes	Yes	Yes	High
2	7	High	Medium	Yes	Yes	Yes	High
3	3	High	Medium	Yes	Yes	Yes	High
4	4	High	High	Yes	Yes	No	Medium
5	10	Low	Low	Yes	No	Yes	High
6	10	Low	Low	Yes	Yes	Yes	High
7	3	Medium	Low	Yes	Yes	No	Medium

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 11-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	1, 2, 5, 6, 7	1	5, 6	1	1, 2, 7	—
Dam Failure	1, 2, 5, 6, 7	1	5, 6	1	1, 2, 7	—
Drought	2, 5, 6, 7	—	5, 6	—	2, 7	—
Earthquake	2, 5, 6, 7	4	5, 6	—	2, 7	—
Flood	1, 2, 5, 6, 7	1, 4	5, 6	1	1, 2, 7	—
Landslide	1, 2, 5, 6, 7	1	5, 6	1	1, 2, 7	—
Severe Weather	1, 2, 5, 6, 7	1, 3, 4	5, 6	1	1, 2, 7	—
Seiche	—	—	—	—	—	—
Volcano	2, 5, 6, 7	—	5, 6	—	2, 7	—
Wildfire	1, 2, 5, 6, 7	1, 3	5, 6	1	1, 2, 7	—

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

**PART 5—
SCHOOL DISTRICT ANNEXES**

CHAPTER 12. KITTTAS SCHOOL DISTRICT #403 ANNEX

12.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Monty Sabin, Superintendent
505 N. Pierce Street
Kittitas, WA 98934
Telephone: 509.968.3115
e-mail Address: sabinm@kittitas.wednet.edu

Alternate Point of Contact

Frank Reno, Maintenance Director
505 N. Pierce Street
Kittitas, WA 98934
Telephone: 509.968.3115
e-mail Address: renof@kittitas.wednet.edu

12.2. JURISDICTION PROFILE

The Kittitas School District was formed in 1907. The Kittitas School District has two schools on two campuses serving approximately 630 students with 80 employees. The District has a K-5 elementary school and a 6-12 secondary school. The Kittitas School District is operated with local, state, and federal funds, administered by a board of directors and superintendent. The Board will assume the responsibility for adoption and implementation of this plan. The following is a summary of key information about the jurisdiction:

- **Population Served**—Per the 2010 Census, the Kittitas School District has a population of 3,673 with 1,530 households.
- **Land Area Served**—603 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$486,000,000.
- **Land Area Owned**—68 acres.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 9 School Buses \$444,834
 - 7 Pickups/Cars/Vans \$74,500
 - Equipment \$2,057,197
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$2,576,531.
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Primary Elementary \$1,888,801
 - Intermediate Elementary \$4,300,941
 - Portable Classroom \$99,232
 - Bus Shop \$142,580
 - Old High School \$2,386,173
 - Old High School Gym \$1,155,000

- Old High School Annex \$471,911
- Green House \$45,901
- Secondary Building/Grounds \$15,435,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$25,923,539
- **Current and Anticipated Service Trends**—the Kittitas School District continues to experience an increase in enrollment. The current head count is 630 students. Ten years ago, the enrollment was 522. The District has the most affordable housing in the Kittitas Valley and has attracted people who want to relocate from major population centers to purchase land.

12.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 12-1 lists all past occurrences of natural hazards within the jurisdiction.

12.4. HAZARD RISK RANKING

Table 12-2 presents the ranking of the hazards of concern.

12.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Kittitas School District #403-Emergency Response Plan

12.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 12-3.

12.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 12-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 12-5 identifies the priority for each initiative. Table 12-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

Type of Event	Date	Preliminary Damage Assessment
Landslide	10/11/2009	No Estimates Available
Flooding	1/9/2009	No Estimates Available
Avalanche	1/7/2009	No Estimates Available
Wind	1/29/2007	No Estimates Available
Wind	1/7/2007	No Estimates Available
Winter Weather	12/15/2006	No Estimates Available
Wind	6/21/2005	No Estimates Available
Flooding	5/4/2005	No Estimates Available
Wind	3/29/2005	No Estimates Available
Winter Weather	1/18/2005	No Estimates Available
Wildfire	7/26/2004	No Estimates Available
Wildfire	7/2/2004	No Estimates Available
Flooding	5/20/2004	No Estimates Available
Wind	4/27/2004	No Estimates Available
Avalanche	12/13/2003	No Estimates Available

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	48
3	Flood	42
4	Dam Failure	18
4	Wild Fire	18
5	Volcano	6
6	Drought	0
6	Landslide	0
6	Avalanche	0
6	Seiche	0

	Participating?	Classification	Date Classified
Public Protection	No	—	—
Storm Ready	No	—	—
Firewise	No	—	—

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
KSD #1 —Remove football field light poles at former school. The poles have structurally weakened over time.						
Existing	Earthquake	1,4,9	District	\$14,750, Medium	District Funds, HMGP	Short Term
KSD # 2 —Natural hazard event preparedness to run buildings during an outage and cut off from help.						
Existing	All Hazards	1,9,10	District	Medium	Capital/grant	Short term
KSD #3 —Develop a continuity of operations plan that looks at sustaining operations following disasters.						
New and Existing	All Hazards	1, 9, 10	District	Medium	District Funds, DHS Grant funding	Long-term, depends on funding
KSD #4 —Partner with other local governments in educating citizens and students on the potential consequences of natural hazards and how to prepare and respond to their impacts.						
New and Existing	All Hazards	2, 8, 9	District	Low	District General Fund	Short-term,
KSD #5 —Continue to support through active participation the countywide initiatives identified in Volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing
KSD #6 —Continue to support the implementation, monitoring, maintenance, and updating of this plan, as defined in Volume 1.						
New and Existing	All Hazards	All	District	Low	District Funds, HMGP for 5-year update	Short-term ongoing

**TABLE 12-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
1	3	High	Medium	Yes	No	No	Medium
2	3	High	Medium	Yes	Yes	Yes	High
3	3	High	Low	Yes	Yes	No	Medium
4	3	Low	Low	Yes	Yes	Yes	High
5	10	Medium	Low	Yes	No	Yes	High
6	10	Medium	Low	Yes	Yes	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 12-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	—	—	—	—	—	—
Dam Failure	3, 5, 6		4, 5, 6		2, 3, 5	
Drought	—	—	—	—	—	—
Earthquake	3, 5, 6	1	4, 5, 6		2, 3, 5	
Flood	3, 5, 6		4, 5, 6		2, 3, 5	
Landslide	—	—	—	—	—	—
Severe Weather	3, 5, 6		4, 5, 6		2, 3, 5	
Seiche	—	—	—	—	—	—
Volcano	3, 5, 6		4, 5, 6		2, 3, 5	
Wildfire	3, 5, 6		4, 5, 6		2, 3, 5	

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 13.

CLE ELUM – ROSLYN SCHOOL DISTRICT #404 ANNEX

13.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Bill Davis
2690 SR 903
Cle Elum, WA 98922
Telephone: 509-649-4853
e-mail Address: davisbi@cleelum.wednet.edu

Alternate Point of Contact

Rebecca Montgomery
2690 SR 903
Cle Elum, WA 98922
Telephone: 509-649-4852
e-mail Address: briant@cleelum.wednet.edu

13.2. JURISDICTION PROFILE

The Cle Elum-Roslyn School District has three schools and an administration building on one campus. In addition to this campus, the District has an offsite learning center that houses alternative learning and home-school connection. The District presently has 130 employees. The District operates with local, state, and federal funding, administered by a board of directors and superintendent. The Board will assume the responsibility for the adoption and implementation of this plan. The District's customers are the students who attend its schools. The following is a summary of key information about the jurisdiction:

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

- **Population Served**—Students-897 as of 2011; 7379 total citizens as of 2010
- **Land Area Served**—600 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$2.8 billion
- **Land Area Owned**—49 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 15 School Buses
 - 2 Light Trucks
 - 1 van
 - 5 Storage trailers
 - Bleachers
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,400,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
 - The High School, valued at \$8,783,524
 - The Swiftwater Learning Center, valued at \$65,000
 - The Elementary/Middle School, valued at \$15,486,462
 - District office, valued at \$271,031

- Tractor Shed
 - Mechanic Shop/Storage
 - Bus Garage, valued at \$601,620
 - Storage Building
 - Community Leased building
 - Concession Stand
 - Ticket Booth
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$25,441,000.
 - **Current and Anticipated Service Trends**—The City of Cle Elum has had a growth rate of approximately 9 percent since 2000, according to City-Data.com. The District has seen an increase in population in the last 10 years without an increase in student population due to the nature of the area being used as a second home/vacation area by a large part of the new population. This trend will probably continue for the next 10 to 15 years.

The District’s boundaries are shown on Figure 16-1.

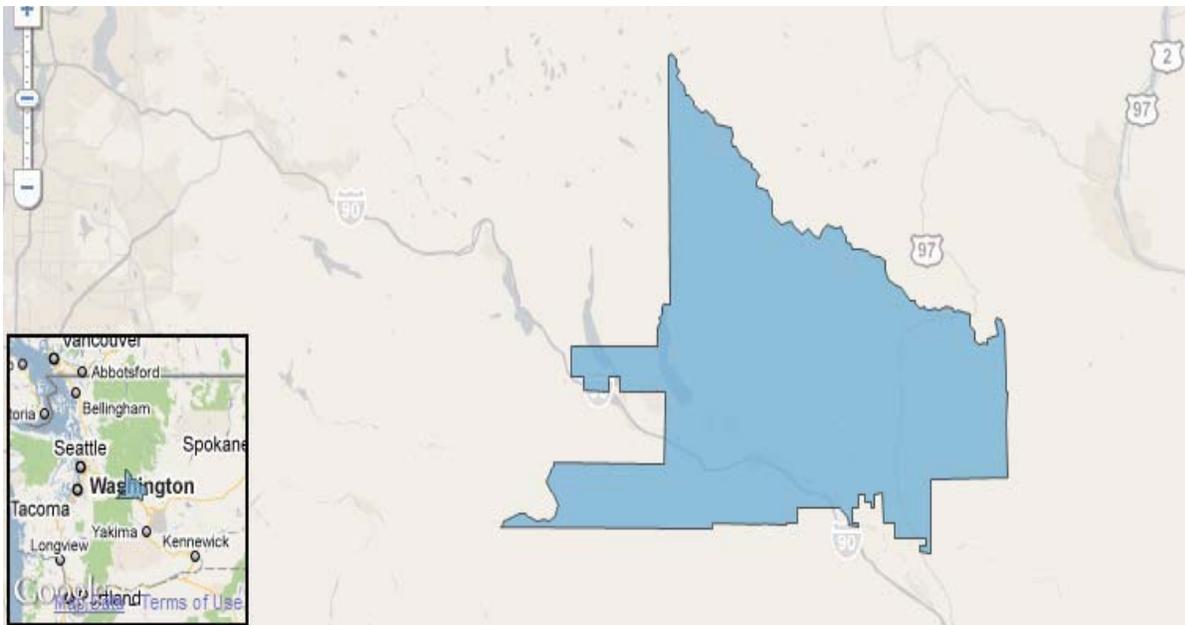


Figure 16-1. Cle Elum School District boundaries.

13.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 13-1 lists all past occurrences of natural hazards within the jurisdiction.

13.4. HAZARD RISK RANKING

Table 13-2 presents the ranking of the hazards of concern.

13.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Cle Elum-Roslyn School District Emergency Procedure Plan

13.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 13-3.

13.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 13-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 13-5 identifies the priority for each initiative. Table 13-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 13-1. NATURAL HAZARD EVENTS		
Type of Event	Date	Preliminary Damage Assessment
Flooding	1/9/2009	N/A
Winter Weather	12/2008	\$1,800
Winter Weather	12/15/2006	Operational
Drought	5/2005	N/A
Winter Weather	1/17/2005	N/A
Drought	5/2004	N/A
Drought	7/2001	N/A
Earthquake	2/28/2001	N/A
Winter Weather	1/14/1998	N/A
Winter Weather	12/27/1996	N/A
Winter Weather	1/6/1996	N/A
Winter Weather	2/18/1993	N/A
Winter Weather	12/8/1992	N/A
Winter Weather	12/29/1990	N/A
Winter Weather	2/1/1989	N/A
Winter Weather	12/2/1985	N/A
Winter Weather	1/2/1974	N/A
Winter Weather	1/24/1972	N/A
Winter Weather	12/30/1968	N/A

TABLE 13-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Flood	45
3	Severe Weather	42
4	Wildfire	42
5	Volcano	6
6	Avalanche	0
7	Dam Failure	0
8	Landslide	0
9	Drought	0
10	Seiche	0

TABLE 13-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	—	—
Storm Ready	No	—	—
Firewise	No	—	—

**TABLE 13-4.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CESD #1 —Master storm drainage plan to route water away from structures and reduce flooding						
Existing	Flood, Severe Weather	1, 8, 10	CERSD	600,000, High	Capital/grant	Short Term
CESD # 2 —Develop and implement a preparedness plan to run buildings during a power outage or incident that will cut off the District from help.						
Existing	All Hazards	1, 7, 9	CERSD	500,000, High	Capital/grant	Short term
CESD #3 —Roofing enhancements K-8 facility						
Existing	Severe Weather	1, 8, 10	CERSD	Million, High	Capital/grant	Short term
CESD #4 —Emergency lighting replacement campus wide						
Existing	All Hazards	1, 8, 10	CERSD	10,000, Medium	Capital	Short term
CESD #5 —Seek Hazard Mitigation Assistance Grant support from competent sources such as WA Emergency Management Division, FEMA or a contractor						
New and Existing	All	1,5,6,7,8,9,10	CERSD	5000, Medium	Hazard mitigation assistance grant	Long-term, depends on funding
CESD #6 —Participate in “Firewise” program by deploying Firewise techniques around school properties susceptible to wildfire hazards.						
New	Wildfire	1,8,10	CERSD	25,000, High	Grant Money, CERSD	Long term, depends on funding
CESD #7 —Partner with Kittitas County, City of Cle Elum and City of Roslyn on emergency drills to better prepare for the impacts of all hazards on the District.						
New and Existing	All	1,3,9	CERSD	6000, Low	CERSD, County	Ongoing
CESD #8 —Connect irrigation water to non-potable water source for fire suppression.						
New and Existing	All	1,2,5	CERSD	100,000, Medium	District Funds	Short term
CESD #9 —Continue to support through active participation the countywide initiatives identified in volume 1 of the Kittitas County Hazard Mitigation Plan.						
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing
CESD #10 —Continue to support the implementation, monitoring, maintenance, and updating of this plan, as defined in Volume 1.						
New and Existing	All Hazards	All	District	Low	District Funds, HMGP for 5-year update	Short-term ongoing

**TABLE 13-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

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

a. See Section 1.3 for definitions of high, medium and low priorities.

**TABLE 13-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	—	—	—	—	—	—
Dam Failure	—	—	—	—	—	—
Drought	—	—	—	—	—	—
Earthquake	5,7,9, 10	5,7,8	5,7, 9, 10	5,7	5,7, 9	0
Flood	1,2, 9, 10	1,2,3, 8	9, 10	1	1, 9	1
Landslide	—	—	—	—	—	—
Severe Weather	1,2,3,4, 5,7, 9, 10	1,2,3, 8	9, 10	—	5,7, 9	—
Seiche	—	—	—	—	—	—
Volcano	5,7, 9, 10	8	9, 10	—	5,7, 9	—
Wildfire	1,2,3,4,5,7, 9, 10	1,2, 8	9, 10	—	9	—

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

Kittitas County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

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. Whether our planning process generates ten individual plans or one large plan that has a chapter for each partner jurisdiction, the following items must be addressed by each planning partner to achieve DMA compliance:

- ✓ **Participate in the process.** It must be documented in the plan that each planning partner “participated” in the process that generated the plan. There is flexibility in defining “participation”. Participation can vary based on the type of planning partner (i.e.: City or County, vs. a Special Purpose District). However, the level of participation must be defined and the extent for which this level of participation has been met for each partner must be contained in the plan context.
- ✓ **Consistency Review.** Review of existing documents pertinent to each jurisdiction to identify policies or recommendations that are not consistent with those documents reviewed in producing 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.** For Plan updates, 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.
- ✓ **Update Localized Risk Assessment.** Personalize the Risk Assessment for each jurisdiction by removing hazards not associated with the defined jurisdictional area or redefining vulnerability based on a hazard’s impact to a jurisdiction. This phase will include:
 - A ranking of the risk
 - A description of the number and type of structures at risk
 - An estimate of the potential dollar losses to vulnerable structures
 - A general description of land uses and development trends within the community, so that mitigation options can be considered in future land use decisions.

- ✓ **Capability assessment.** Each planning partner must identify and review their individual regulatory, technical and financial capabilities with regards to the implementation of hazard mitigation actions.
- ✓ **Personalize mitigation recommendations.** Identify and prioritize mitigation recommendations specific to the each jurisdiction's defined area.
- ✓ **Create an Action Plan.**
- ✓ **Incorporate Public Participation.** Each jurisdiction must present the Plan to the public for comment at least once, within two weeks prior to adoption.
- ✓ **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 is expected 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 shall 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. Support and participate in the selection and function of the Steering Committee selected to oversee the development of this plan.
- D. 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.

- E. 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.

- F. 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.
- G. 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. Failure to complete your template in the required time frame may lead to disqualification from the partnership.
- H. Each partner will be expected 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.
- I. Each partner will be expected 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.
- J. Each partner will be expected 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.

- K. 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.
- L. Each partner will be required to sponsor at least one public meeting to present the draft plan to its constituents at least 2 weeks prior to adoption.
- M. 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 expected 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 DMA compliance has been determined for each partner, maintaining that eligibility will be dependant upon each partner implementing the plan implementation-maintenance protocol identified in the plan. At a minimum, this means completing the on-going plan maintenance protocol identified in the plan. Partners that do not participate in this plan maintenance strategy may be deemed ineligible by the partnership, and thus lose their DMA eligibility.

Exhibit A
Example Letter of Intent to Participate

Kittitas County Hazard Mitigation Planning Partnership

C/O Laura Hendrix, Tetra Tech, Inc.
1420 5th Ave. Suite 600
Seattle, WA 98101-2357

Dear Kittitas County Planning Partnership,

Please be advised that the _____ (*insert City or district name*) is committed to participating in the Kittitas 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 the district’s point of contact for this process and they can be reached at (*insert: address, phone number and e-mail address*).

Sincerely,

Exhibit B

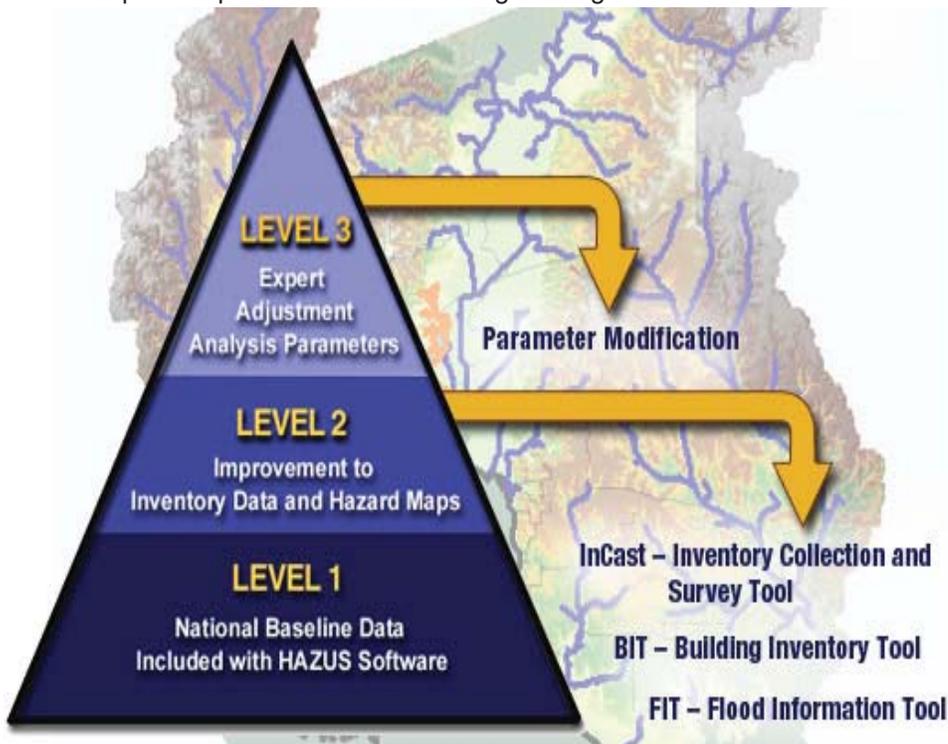
Planning Team Contact information

Name	Representing	Address	Phone	e-mail
Christina Wollman	Kittitas County, DPW	411 N Ruby ST, Suite 1 Ellensburg WA 98926	509-962-7051	christina.wollman@co.kittitas.wa.us
Rob Flaner	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	Rob.flaner@tetratech.com
Laura Hendrix	Tetra Tech, Inc.	1420 5th Ave, STE 600 Seattle, WA 98101-2357	206-883-9344	laura.hendrix@tetratech.com
Ed Whitford	Tetra Tech, Inc.	10101 271st Street, Stanwood, WA. 98292	(360) 629-0242	Ed.whitford@tetratech.com

Exhibit C Overview of HAZUS

Overview of HAZUS-MH (Multi-Hazard)

HAZUS-MH, is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from **earthquakes**, **floods**, and **hurricane winds**. HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS). NIBS maintains committees of wind, flood, earthquake and software experts to provide technical oversight and guidance to HAZUS-MH



development. Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.

HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display hazard data and the results

of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on populations. The latest release, HAZUS-MH MR1, is an updated version of HAZUS-MH that incorporates many new features which improve both the speed and functionality of the models. For information on software and hardware requirements to run HAZUS-MH MR1, see [HAZUS-MH Hardware and Software Requirements](#).

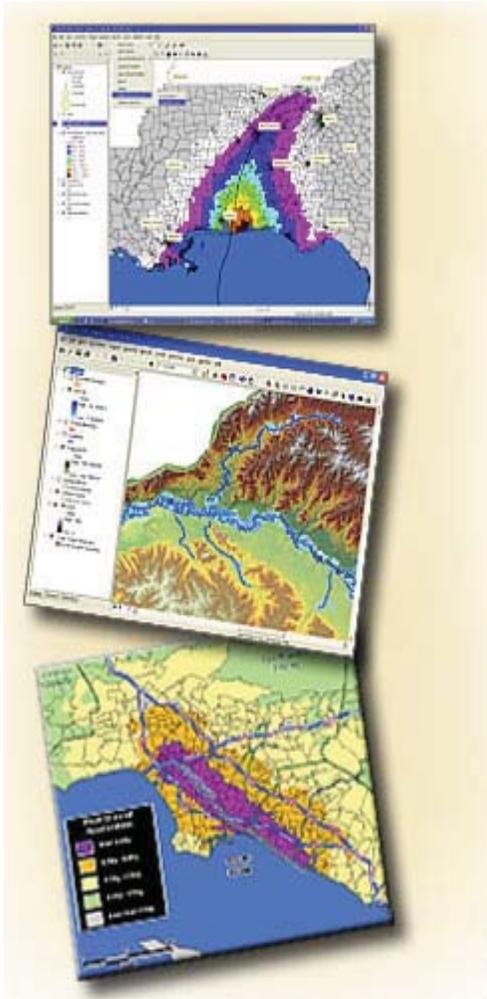
HAZUS-MH Analysis Levels

HAZUS-MH provides for three levels of analysis:

- A **Level 1** analysis yields a rough estimate based on the nationwide database and is a great way to begin the risk assessment process and prioritize high-risk communities.

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- A **Level 2** analysis requires the input of additional or refined data and hazard maps that will produce more accurate risk and loss estimates. Assistance from local emergency management personnel, city planners, GIS professionals, and others may be necessary for this level of analysis.
- A **Level 3** analysis yields the most accurate estimate of loss and typically requires the involvement of technical experts such as structural and geotechnical engineers who can modify loss parameters based on to the specific conditions of a community. This level analysis will allow users to supply their own techniques to study special conditions such as dam breaks and tsunamis. Engineering and other expertise is needed at this level.



Three data input tools have been developed to support data collection. The **Inventory Collection Tool (InCAST)** helps users collect and manage local building data for more refined analyses than are possible with the national level data sets that come with HAZUS. InCAST has expanded capabilities for multi-hazard data collection. HAZUS-MH includes an enhanced Building Inventory Tool (BIT) allows users to import building data and is most useful when handling large datasets, such as tax assessor records. The **Flood Information Tool (FIT)** helps users manipulate flood data into the format required by the HAZUS flood model. All Three tools are included in the HAZUS-MH MR1 Application DVD.

HAZUS-MH Models

The **HAZUS-MH Hurricane Wind Model** gives users in the Atlantic and Gulf Coast regions and Hawaii the ability to estimate potential damage and loss to residential, commercial, and industrial buildings. It also allows users to estimate direct economic loss, post-storm shelter needs and building debris. In the future, the model will include the capability to estimate wind effects in island territories, storm surge, indirect economic losses, casualties, and impacts to utility and transportation lifelines and agriculture. Loss models for other severe wind hazards will be included in the future. [Details about the Hurricane Wind Model.](#)

The **HAZUS-MH Flood Model** is capable of assessing riverine and coastal flooding. It estimates potential damage to all classes of buildings, essential facilities, transportation and utility lifelines, vehicles, and agricultural crops. The model addresses building debris generation and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, and building interiors. The effects of flood warning are taken into account, as are flow velocity effects. [Details about the Flood Model.](#)

The **HAZUS-MH Earthquake Model**, The HAZUS earthquake model provides loss estimates of damage and loss to buildings, essential facilities, transportation and utility lifelines, and population based on scenario or probabilistic earthquakes. The model addresses debris generation, fire-following, casualties, and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, inventory, and building interiors. The earthquake model also includes the Advanced Engineering Building Module for single- and group-building mitigation analysis. [Details about the Earthquake Model.](#)

The updated earthquake model released with HAZUS-MH includes:

- The (September 2002) National Hazard Maps

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- Project '02 attenuation functions
- Updated historical earthquake catalog (magnitude 5 or greater)
- Advanced Engineering Building Module for single and group building mitigation analysis

Additionally, HAZUS-MH can perform multi-hazard analysis by providing access to the average annualized loss and probabilistic results from the hurricane wind, flood, and earthquake models and combining them to provide integrated multi-hazard reports and graphs. HAZUS-MH also contains a third-party model integration capability that provides access and operational capability to a wide range of natural, man-made, and technological hazard models (nuclear and conventional blast, radiological, chemical, and biological) that will supplement the natural hazard loss estimation capability (hurricane wind, flood, and earthquake) in HAZUS-MH.

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APPENDIX B.
PROCEDURES FOR LINKING TO
THE HAZARD MITIGATION PLAN

APPENDIX B. PROCEDURES FOR LINKING TO THE HAZARD MITIGATION PLAN

Not all eligible local governments within Kittitas County are included in the Kittitas County Hazard Mitigation Plan. 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 [redacted] to [redacted] 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 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 (44 CFR), which defines the federal requirements for a local hazard mitigation plan.
- The new jurisdiction will be required to review both volumes of the 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 form provided in the linkage package. Technical assistance 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 technical assistance and the possible level of assistance, 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 hazard mitigation plan
 - 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 (state review agency).

- Plans approved and accepted by the Steering Committee will be forwarded to (state review agency) 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.
- (state review agency) 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 (state review agency) and approved planning authority.
- New jurisdiction corrects plan shortfalls (if necessary) and resubmits to (state review agency) 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 (state review agency).
- 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 (state review agency) and FEMA in writing that the partner in question is no longer covered by the 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 under chapter 7 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.

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APPENDIX C.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE
FOR MUNICIPALITIES

INSTRUCTIONS FOR COMPLETING MUNICIPALITY ANNEX TEMPLATE

This document provides instructions for completing the annex template for city and county governments participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials **before** you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the municipal jurisdiction 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. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (The City of Metropolis, Jefferson County, etc.). At this time, also change the name in the “header” box on Page 3, using the same wording.

Note that the template is set up as Chapter “X.” Please leave all references to “X” in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Provide information specific to your jurisdiction as indicated, in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document. For population data, use the most current population figure for your jurisdiction based on an official means of tracking (e.g., the U.S. Census or state office of financial management).

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Chronological List of Hazard Events

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. 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.)
- Citizen input.

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 in the text for Section X.3, indicate the number of any FEMA-identified Repetitive Flood Loss properties in your jurisdiction

Example Jurisdiction Profile:

- **Date of Incorporation**—1858
- **Current Population**—17,289 as of July 2006
- **Population Growth**—Based on the data tracked by the California Department of Finance, Arcata has experienced a relatively flat rate of growth. The overall population has increased only 3.4% since 2000 and has averaged 0.74% per year from 1990 to 2007
- **Location and Description**—The City of Arcata is located on California’s redwood coast, approximately 760 miles north of Los Angeles and 275 miles north of San Francisco. The nearest seaport is Eureka, five miles south on Humboldt Bay. Arcata is the home of Humboldt State University and is situated between the communities of McKinleyville to the north and Blue Lake to the east. It sits at the intersection of US Highway 101 and State Route 299.
- **Brief History**—The Arcata area was settled during the California gold rush in the 1850s as a supply center for miners. As the gold rush died down, timber and fishing became the area’s major economic resource. Arcata was incorporated in 1858 and by 1913 the Humboldt Teachers College, a predecessor to today’s Humboldt State University was founded in Arcata. Recently, the presence of the college has come to shape Arcata’s population into a young, liberal, and educated crowd. In 1981 Arcata developed the Arcata Marsh and Wildlife sanctuary, an innovative environmentally friendly, sewage treatment enhancement system.
- **Climate**—Arcata’s weather is typical of the Northern California coast, with mild summers and cool, wet winters. It rarely freezes in the winter and it is rarely hot in the summer. Annual average rainfall is over 40 inches, with 80% of that falling in the six-month period of November through April. The average year-round temperature is 59°F. Humidity averages between 72 and 87 percent. Prevailing winds are from the north, and average 5 mph.
- **Governing Body Format**—The City of Arcata is governed by a five-member City Council. The City consists of six departments: Finance, Environmental Services, Community Development, Public Works, Police and the City Manager’s Office. The City has 13 Committees, Commissions and Task Forces, which report to the City Council.
- **Development Trends**—Anticipated development levels for Arcata are low to moderate, consisting primarily of residential development. The majority of recent development has been infill. Residentially, there has been a focus on affordable housing and a push for more secondary mother-in-law units on properties.
- The City of Arcata adopted its general plan in July 2000. 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 such a plan. Future growth and development in the City will be managed as identified in the general plan.

(your technical assistance provider will be able to help you confirm this information). If you have none, indicate “none” in the space provided.

Next, indicate the number (if any) of repetitive loss structures in your jurisdiction that have been mitigated. Mitigated for this exercise means that flood protection has been provided to the structure. If you do not know the answer to this question, the planning team will provide it for you.

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. A detailed discussion of the concepts associated with risk ranking is provided in the overall hazard mitigation plan. The instructions below outline steps for assessing risk in your jurisdiction to develop results that are to be included in the template.

Determine Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. In Table 1, list the probability of occurrence for each hazard as it pertains to your jurisdiction, along with its 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)

Hazard Type	Probability	Probability Factor

The probability of occurrence of a hazard event is generally based on past hazard events in an area. 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.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories were 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. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on 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. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% 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)

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total *property value exposed* to the hazard event. In Table 3, enter the cost estimates for potential damage to exposed structures, taken from the “Summary of Loss” matrix provided with these instructions.

TABLE 3. COST ESTIMATES FOR POTENTIAL DAMAGE TO STRUCTURES	
Hazard type	Estimate of Potential Dollar Losses to Exposed Structures

In Table 4, list the potential impact of each hazard on property in your jurisdiction, along with its impact factor. Determine impact based on damage estimates from Table 3, as follows:

- High Impact—30% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)
- Medium Impact—15% to 29% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
- Low Impact—14% or less of the total assessed property value is exposed to the hazard (Impact Factor = 1)
- No impact—None of the total assessed property value is exposed to a hazard (Impact Factor = 0)

TABLE 4. HAZARD IMPACT ON PROPERTY			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Economy

To assess impacts on the economy, values are 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 assessed value of property in the county. For some hazards, such as wildland fire, landslide and severe weather, vulnerability is the same as exposure due to the lack of loss estimation tools specific to those hazards. In Table 5, list the potential impact of each hazard on the economy in your jurisdiction, along with its impact factor, as follows:

- High Impact—Estimated loss from the hazard is 20% or more of the total assessed property value (Impact Factor = 3)
- Medium Impact—Estimated loss from the hazard is 10% to 19% of the total assessed property value (Impact Factor = 2)
- Low Impact—Estimated loss from the hazard is 8% or less of the total assessed property value (Impact Factor = 1)
- No impact—No loss is estimated from the hazard (Impact Factor = 0)

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 1)

Determine Risk Rating for Each Hazard

A risk rating for each hazard is 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}

Using the results developed in Tables 1, 2, 4 and 5, complete Table 6 to calculate a risk rating for each hazard of concern.

- State Mandated—Enter “Yes” if state laws or other requirements enable or require the listed item to be implemented at the local level; otherwise, enter “No.”

Administrative and Technical Capability

This section requires you to take inventory of the staff/personnel resources available to your jurisdiction to help with hazard mitigation planning and implementation of specific mitigation actions.

Complete Table X-4 by indicating whether your jurisdiction has access to each of the listed personnel resources. Enter “Yes” or “No” in the column labeled “Available?”. If yes, then enter the department and position title in the right-hand column.

Financial Resources

Identify what financial resources (other than the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant Program) are available to your jurisdiction for implementing mitigation initiatives.

Complete Table X-5 by indicating whether each of the listed financial resources is accessible to your jurisdiction. Enter “Yes” if the resource is fully accessible to your jurisdiction. Enter “No” if there are limitations or prerequisites that may hinder your eligibility for this resource.

Community Mitigation Related Classifications

Complete Table X-6 to indicate your jurisdiction’s participation in various national programs related to natural hazard mitigation. For each program enter “Yes” or “No” in the second column to indicate whether your jurisdiction participates. If yes, then enter the classification that your jurisdiction has earned under the program in the third column and the date on which that classification was issued in the fourth column; enter “N/A” in these columns if your jurisdiction is not participating.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles 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 HMGP and PDM (see fact sheet provided). Listing HMGP or PDM 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 or PDM 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.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. 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.

Complete Table X-7 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- 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 (Table X-5) to identify possible sources of funding.
- Indicate the time line as “short term” (1 to 5 years) or “long term” (5 years or greater).

Wording Your Initiative Descriptions:

Descriptions of your initiatives 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 initiative:

- **Initiative 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.
- **Initiative 2**—Perform a non-structural, seismic retrofit of City Hall.
- **Initiative 3**—Acquire floodplain property in the Smith subdivision.
- **Initiative 4**—Enhance the County flood warning capability by joining the NOAA “Storm Ready” program.

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Prioritization of Mitigation Initiatives

Complete the information in Table X-8 as follows:

- Initiative #—Indicate the initiative number from Table X-7.
- # of Objectives Met—Enter the number of objectives the initiative 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 part of, 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 and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter “Yes” or “No.” In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter “High,” “Medium” or “Low” as follows:
 - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
 - Medium: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
 - Low: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-9 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- 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.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

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 such as EPA's Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X. [INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—[Insert Date of Incorporation]
- **Current Population**—[Insert Population] as of [Insert Date of Population Count]
- **Population Growth**—[Insert Discussion of Population Growth]
- **Location and Description**—[Insert Description of Location, Surroundings, Key Geographic Features]
- **Brief History**—[Insert Summary Discussion of Jurisdiction’s History]
- **Climate**—[Insert Summary Discussion of Climate]
- **Governing Body Format**—[Insert Summary Description of Governing Body]
- **Development Trends**—[Insert Summary Description of Development]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: [Insert #]
- Number of Repetitive Flood Loss Properties that have been mitigated: [Insert #]

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table X-3. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table X-4. The assessment of the jurisdiction’s fiscal capabilities is presented in Table X-5. Classifications under various community mitigation programs are presented in Table X-6.

X.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-7 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table X-8 identifies the priority for each initiative. Table X-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.8 ADDITIONAL COMMENTS

[Insert text, if any]

TABLE X-3. LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code					
Zonings					
Subdivisions					
Stormwater Management					
Post Disaster Recovery					
Real Estate Disclosure					
Growth Management					
Site Plan Review					
Special Purpose (flood management, critical areas)					
Planning Documents					
General or Comprehensive Plan					
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
Habitat Conservation Plan					
Economic Development Plan					
Emergency Response Plan					
Shoreline Management Plan					
Post Disaster Recovery Plan					
Other					
Other					

TABLE X-4. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices		
Engineers or professionals trained in building or infrastructure construction practices		
Planners or engineers with an understanding of natural hazards		
Staff with training in benefit/cost analysis		
Floodplain manager		
Surveyors		
Personnel skilled or trained in GIS applications		
Scientist familiar with natural hazards in local area		
Emergency manager		
Grant writers		

TABLE X-5. FISCAL CAPABILITY	
Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	
Capital Improvements Project Funding	
Authority to Levy Taxes for Specific Purposes	
User Fees for Water, Sewer, Gas or Electric Service	
Incur Debt through General Obligation Bonds	
Incur Debt through Special Tax Bonds	
Incur Debt through Private Activity Bonds	
Withhold Public Expenditures in Hazard-Prone Areas	
State Sponsored Grant Programs	
Development Impact Fees for Homebuyers or Developers	
Other	

TABLE X-6. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System			
Building Code Effectiveness Grading Schedule			
Public Protection			
Storm Ready			
Firewise			

TABLE X-7. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						

Kittitas County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

APPENDIX D.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE
FOR SPECIAL-PURPOSE DISTRICTS

INSTRUCTIONS FOR COMPLETING SPECIAL-PURPOSE DISTRICT ANNEX TEMPLATE

This document provides instructions for completing the annex template for special-purpose districts participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials **before** you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the special-purpose district 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. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (West County Fire Protection District #1, Burgville Flood Protection District, etc.). At this time, also change the name in the “header” box on Page 3, using the same wording.

Note that the template is set up as Chapter “X.” Please leave all references to “X” in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Narrative Profile

Please provide a brief summary to profile your jurisdiction. Include the purpose of the jurisdiction, the date of inception, the type of organization, the number of employees, the mode of operation (i.e., how operations are funded), the type of governing body, and who has adoptive authority. Describe who the jurisdiction's customers are (if applicable, include number of users or subscribers). Include a geographical description of the service area.

Provide information in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document.

Summary Information

Complete the bulleted list of summary information as follows:

- **Population Served**—List the estimated population that your jurisdiction provides services to. If you do not know this number directly, create an estimate (e.g., the number of service connections times the average household size for the service area based on Census data).
- **Land Area Served**—Enter the service area of your jurisdiction in acres or square miles.
- **Value of Area Served**—Enter the approximate assessed value of your service area. If you do not have this information, the County should be able to provide a number using the County Assessor's database.
- **Land Area Owned**—Enter the area of property owned by the jurisdiction in acres or square miles.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction**—List all infrastructure and equipment that is critical to your jurisdiction's operations and is located in a natural hazard risk zone. Briefly describe the item and give its estimated replacement-cost value. Examples are as follows:
 - Fire Districts—Apparatus and equipment housed in a facility that is located in a natural hazard risk zone. This is the equipment that is essential for you to deliver services to this area should a natural hazard occur. It is not necessary to provide a detailed inventory of each engine and truck and its contents. A summary will suffice, such as "5 Engines, 2 ladders, and their contents". Do not list reserve equipment.
 - Dike/Flood Control Districts—Miles of levees, pump stations, retention/detention ponds, tide gates, miles of ditches, etc., within natural hazard risk zones.
 - Water Districts—Total length of pipe (it is not necessary to specify size and type), pump stations, treatment facilities, dams and reservoirs, within natural hazard risk zones.

Example Jurisdiction Narrative Profile:

- Humboldt Community Services District is a special-purpose district created in 1952 to provide water, sewer, and street lighting to the unincorporated area surrounding the City of Eureka known as Pine Hill & Cutten. The District's designated service areas expanded throughout the years to include other unincorporated areas of Humboldt County known as Myrtle town, Humboldt Hill, Fields Landing, King Salmon, and Freshwater. A five-member elected Board of Directors governs the District. The Board assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. As of April 30, 2007, the District serves 7,305 water connections and 6,108 sewer connections, with a current staff of 21. Funding comes primarily through rates and revenue bonds..

- Public Utility Districts—Miles of power line (above ground and underground), generators, power generating sub-stations, miles of pipeline, etc., within natural hazard risk zones.
- School Districts—Anything within natural hazard risk zones, besides school buildings, that is critical for you to operate (e.g., school buses if you own a fleet of school buses).
- **Total Value of Critical Infrastructure/Equipment**—Enter total replacement-cost value of the critical infrastructure and equipment listed above.
- **List of Critical Facilities Owned by the Jurisdiction**—List all buildings and other facilities that are critical to your jurisdiction’s operations and are located in a natural hazard risk zone. Briefly describe the facility and give its estimated replacement-cost value.
- **Total Value of Critical Facilities**—Enter total replacement-cost value of the critical facilities listed above.
- **Current and Anticipated Service Trends**—Enter a brief description on how your jurisdiction’s services are projected to expand in the foreseeable future and why. Note any identified capital improvements needed to meet the projected expansion. Examples are as follows:
 - For a Fire District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land uses will represent an increase in population and thus a projected increase in call volume. Our District is experiencing an average annual increase in call volume of 13 percent.
 - For Dike/Drainage/Flood Control District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land use will result in an increase in impermeable surface within our service area and thus increase the demand on control facilities.
 - For a Water District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land use will represent an increase in the number of housing units within the service area and thus represent an expansion of the district’s delivery network.

Boundary Map

Maps that illustrate the service area boundary for all special-purpose district partners will be provided at the workshop. Please confirm that the boundaries reflected on the maps are current and accurate for your jurisdiction. In the box for this section, include a reference to the map that includes your jurisdiction’s boundaries.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. 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.)
- Citizen input.

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 operations. A detailed discussion of the concepts associated with risk ranking is provided in the overall hazard mitigation plan. The instructions below outline steps for assessing risk in your jurisdiction to develop results that are to be included in the template.

Determine Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. In Table 1, list the probability of occurrence for each hazard as it pertains to your jurisdiction, along with its 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)

TABLE 1. HAZARD PROBABILITY OF OCCURRENCE		
Hazard Type	Probability	Probability Factor

The probability of occurrence of a hazard event is generally based on past hazard events in an area. 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.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on your jurisdiction’s operations. These categories were 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 operations was assigned a weighting factor of 1. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on 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. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% 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)

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total *value of buildings, equipment and infrastructure that is exposed* to the hazard event. In Table 3, enter the cost estimates for potential damage to the jurisdiction’s exposed buildings, equipment and infrastructure, taken from the “Summary of Loss” matrix provided with these instructions.

TABLE 3. COST ESTIMATES FOR POTENTIAL DAMAGE TO STRUCTURES	
Hazard type	Estimate of Potential Dollar Losses to Jurisdiction- Owned Facilities Exposed to the Hazard

In Table 4, list the potential impact of each hazard on property in your jurisdiction, along with its impact factor. Determine impact based on damage estimates from Table 3, as follows:

- High Impact—50% or more of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 2)
- Low Impact—24% or less of the total assessed property value of facilities, equipment and infrastructure is exposed to the hazard (Impact Factor = 1)
- No impact—None of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 0)

TABLE 4. HAZARD IMPACT ON PROPERTY			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Jurisdiction’s 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 for most hazards within the planning area. In Table 5, list the potential impact of each hazard on the operations of your jurisdiction, along with its impact factor, 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)

TABLE 5. HAZARD IMPACT ON OPERATIONS			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 1)

You will need to consult the risk assessment for this task. The critical facilities exposed to each hazard have been identified, and the impacts on operability have been estimated for most of the hazards within the planning area. If the functional downtime component has not been provided for a hazard in the risk assessment, consider the impact on operability of that hazard to be low.

Determine Risk Rating for Each Hazard

A risk rating for each hazard is determined by multiplying the assigned probability factor by the sum of the weighted impact factors for people, property and operations:

- Risk Rating = Probability Factor x Weighted Impact Factor {people + property + operations}

Using the results developed in Tables 1, 2, 4 and 5, complete Table 6 to calculate a risk rating for each hazard of concern.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles 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 HMGP and PDM (see fact sheet provided). Listing HMGP or PDM 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 or PDM 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.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. 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.

Complete Table X-4 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share.
- Indicate the time line as “short term” (1 to 5 years) or “long term” (5 years or greater).

Wording Your Initiative Descriptions:

Descriptions of your initiatives 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 initiative:

- **Initiative 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.
- **Initiative 2**—Perform a non-structural, seismic retrofit of City Hall.
- **Initiative 3**—Acquire floodplain property in the Smith subdivision.
- **Initiative 4**—Enhance the County flood warning capability by joining the NOAA “Storm Ready” program.

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Prioritization of Mitigation Initiatives

Complete the information in Table X-5 as follows:

- Initiative #—Indicate the initiative number from Table X-4.
- # of Objectives Met—Enter the number of objectives the initiative 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 part of, 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 and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter “Yes” or “No.” In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter “High,” “Medium” or “Low” as follows:
 - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
 - Medium: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
 - Low: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for

HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-6 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- **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.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

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 such as EPA's Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X. [INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

[Insert Narrative Profile Information, per Instructions]

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

- **Population Served**—[Insert Population] as of [Insert Date of Population Count]
- **Land Area Served**—[Insert Area]
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is [Insert Total Value]
- **Land Area Owned**—[Insert Area]
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is [Insert Total Value]
- **List of Critical Facilities Owned by the Jurisdiction:**
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is [Insert Total Value]
- **Current and Anticipated Service Trends**—[Insert Summary Description of Service Trends]

The jurisdiction's boundaries are shown on Figure [Insert # of Figure Showing Jurisdiction Boundaries]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction.

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]

X.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table X-3.

X.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table X-5 identifies the priority for each initiative. Table X-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.9 ADDITIONAL COMMENTS

[Insert text, if any]

**TABLE X-3.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Public Protection			
Storm Ready			
Firewise			

**TABLE X-4.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						

